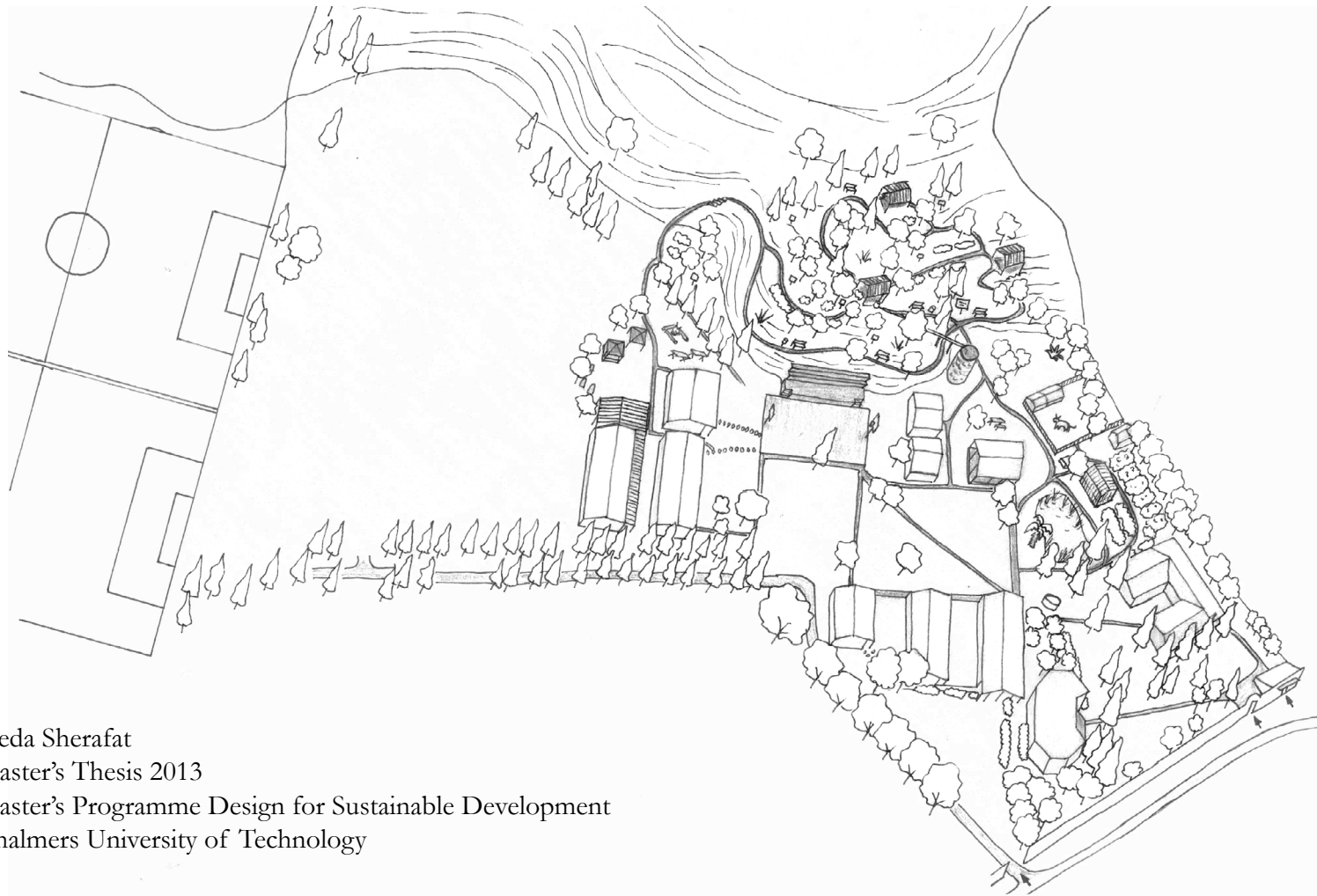


CUVZ EDUCATIONAL PARK PILOT PROJECT

IN SEARCH OF ECOTOURISM DEVELOPMENT AND OPPORTUNITIES IN ZACAPU, MEXICO



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Master's Thesis 2013
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ABSTRACT

This project is about defining ecotourism and investigating what kind of ecotourism development that is appropriate for Zacapu in Mexico, with emphasis on education. The project is also about identifying a pilot project to develop in order to give an example on what ecotourism can be. Hopefully the pilot project can be an inspiration for the continuous ecotourism development in Zacapu.

Zacapu is located in a region with many touristic sites. The city council wants to attract more tourists and offer its citizens space for recreation and leisure by developing certain areas into ecotourism sites. This report shows places that have potential to be developed, into what, why it is important and, by showing one example, how one type of ecotourism development may look like.

The selected ecotourism site, that is, the pilot project, proposes an educational park for children at Centro Universitario del Valle de Zacapu (CUVZ). The goal is to teach, in a fun and pedagogical way, children alternative ways to live that are sustainable and connected to the local native culture. The children concerned may be for example locals, tourists, school children, families, children in a special programme or club, or scouts. However, the park is only one part of the ecotourism development of Zacapu. The other sites may take inspiration from the pilot project.

The project work has been done in close contact with the students and the staff members at CUVZ. Interviews, meetings and study visits among other methods have given a better understanding of the current situation and what is needed.

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“You protect what you love, and you love what you know.”

- Giulia Maria Mozzoni Crespi

President of Fondo per l'Ambiente Italiano

INTRODUCTION

IDEA AND AIMS

The reason I chose to do my master thesis in Mexico, and particularly in Zacapu, is because I have been there before. The first time, in 2010, I worked as a volunteer in a town about four hours bus ride from Zacapu. I traveled to different places in the region and noticed that tourism is a big business in Mexico, both for internationals and domestics. The following year I was in Zacapu on vacation and familiarized myself with its natural sites. I found them beautiful and interesting and got to know a little bit about the future plans for some of them. To know that there are people who want to develop these places into ecotourism attractions made me curious on how it is supposed to be done, by and for whom? I also met visitors and citizens who wished that Zacapu would be more famous because of its many attractive places, both natural and historical/cultural. All of these experiences made me determined to do a project in Zacapu.

One of my personal aims with the master thesis and the field trip has been to learn how to work alone in a foreign country. In the

future I want to engage myself internationally and therefore it has been important to learn how to understand the context in which I have been active, in order to gather information and communicate in a trustworthy way. It has been an exercise in how to meet people when I do not master the language and the culture completely.

Another personal aim has been to explore what kind of role I play as an architect student from a developed country in a country that is internationally regarded as developing. This question was also one of the topics during the Minor Field Study scholarship course I attended before the field trip. The course included information and exchange of experiences about culture and communication, ethical dilemmas, personal health and safety, facts about the concerned country, and Swedish and international aid work. Some of the questions that came up were: How do people in a foreign country see me? What is expected of me as a field trip student? How will I respond to the new experiences?

Yet another personal aim has been to exercise in working alone in order to measure my own potential. During the architecture education I have been working a lot in groups and this was my chance to work by myself and go through all of the different parts of a project properly.

PROJECT AND AIM

The project is about investigating what kind of ecotourism development that is appropriate for Zacapu in Mexico. It is done by showing the potential of the definition of ecotourism, here by concentrating on education. The project is also about identifying a pilot project to develop in order to give an example on what ecotourism can be. Hopefully the pilot project can be an inspiration for the continuous ecotourism development in Zacapu.

Zacapu is located in a region with many touristic cities and has several natural places in and around it that can attract tourists. Most of the places are located around water springs.

Currently, the city council of Zacapu wishes to attract more tourists and to offer its citizens space for recreation and leisure by developing some areas into ecotourism sites. They are for example planning to build an ecopark by the lagoon in the city center. The only concern is that they seem to plan without taking into account the effects on nature, which is evident in how close to the lagoon the planned structures are and which materials are chosen: heavy concrete instead of light wood (Anonymous, 2012, pers. comm, Oct. 16).

Ecotourism is, according to The International Ecotourism Society (TIES), “responsible travel to natural areas that conserves the environment and improves the well-being of local people.” In order to travel responsibly, conserve the environment and improve the well-being of locals, education is needed. One big part of ecotourism is to inform and educate people, both tourists and locals (Honey, 2008). Therefore emphasis lies on education in this thesis. With education I mean to raise awareness by making

information visible and accessible to as many as possible, and to learn by doing rather than merely observing.

The aim of the project is to investigate the opportunities Zacapu has for developing in the field of ecotourism and how the development may look like at a specific site, as a pilot project, with the application of sustainable systems and inclusion of the locals. The idea is to inspire for the continuous development of the natural and cultural places in Zacapu.

The report is divided into two parts. The first section is on a macro scale and is an investigation in order to identify possible places to develop into ecotourism attractions. The second part is on a micro scale and is a pilot project that demonstrates how one of the chosen sites can be developed.

The pilot project is an educational park for children at Centro Universitario del Valle de Zacapu (CUVZ). The focus is on environmental issues, sustainable living

and knowledge about indigenous people. The most crucial environmental issue in Zacapu is the pollution of the water springs (Martinez Vega, 2012, pers. comm. and Orozco Rodríguez, 1992) and therefore it is most highlighted in the park.

The project work has been done in close contact with the students and the staff members at CUVZ. Interviews, meetings, study visits and other methods have given a better understanding of the current situation and what is needed in Zacapu.

The pilot project is limited to present ideas on which systems and methods that can be used in order to educate people in an interactive way. The systems and methods are focused around water reuse and treatment since water is a big issue in Mexico (Central Intelligence Agency, 2012). It is not a design project even though there is a proposal on how the park at CUVZ may look like.

METHODOLOGY

The methods I used depended on the objectives of gathering information, but generally they were local, exploratory and participatory. When analyzing the gathered information I checked, when possible, if the same information is found in other places. In this way I determined the authenticity of a source.

By local methods I mean information gathering from local sources, for example by making the field trip. Once in place it is much easier to find information and understand the site than just reading about it. During the field trip I went on study visits to the Museum of Popular Arts and Crafts (Museo de Artes e Industrias Populares) in Pátzcuaro and the indigenous communities Santa Fe de la Laguna, Tarejero, Naranja de Tapia and Tirindaro. I got guided tours through these places which gave me a lot of oral information. I attended a presentation about educational camping for children at the coast by Campamentos Educativos in collaboration with Universidad Michoacana de San Nicolas de Hidalgo (UMSNH). The presentation

gave me inspiration and an understanding of the demand of educational tours for children in nature and about native cultures and peoples. Another example of a local method is the lecture about archaeological sites in Zacapu that CUVZ organized partly due to my investigation. It would have been hard, if not impossible, to get the same information elsewhere. Also, it was a good method to get a lot of information in a short time.

I used exploratory methods, such as observation, literature review and informal interviews in order to understand the local context and people's perspectives as good as possible. Especially in the beginning the observation method was useful to note how people use different spaces, what they do and when they do it. Later on I continued observing but other methods took an increasing part. The literature review, both in English and Spanish, gave me background information about ecotourism and Zacapu. The literature is included in the reference list in the end of the report, together with recommended reading for further

information. It was especially helpful to read Mexican books, like "Tierra que pica" by Mummert, "Tzacapu Tacanendam" by Orozco Rodríguez and "Tzacapu" by Reyes García, because they are written by engaged people on site and therefore give a sense of what is important for the locals. The books are mainly about the history and development of Zacapu. Nevertheless, I also made a case study analysis in order to find inspiration from other similar projects globally and to show others what has been done before and what can be done in the future. I learned about different types of ecotourism which made the choice of pilot project easier. I also learned methods on how to educate people, especially children, through architecture, for example trails, and interactive spaces and activities, for example gardens and cultivation. The other literature that I chose was books that I early in the project noticed that other authors refer to.

The term "informal interviews" derives from my attempt to gain trust and talk as relaxed as possible with persons I met and

interacted with in different ways. I worked in close contact with the students and the staff members at CUVZ and had regular meetings with them and discussed ideas.

I carried out two interviews because I could not find reliable information elsewhere. The first interview was with Edgar Alejandro from the Secretary of Indigenous Peoples (author's translation). Alejandro is an indigenous himself and has inside information about the Purépecha people and culture. I wanted to know how the Purépecha people live today. First we had an interview and then he showed me his hometown Santa Fe de la Laguna and later on he guided me through one of their celebrations, the Night of the Dead. The other interview was with an anonymous person who is working at the city council and has information about the plans for the new ecopark in the center. I asked what the ecopark will include, which persons that are for and against the plans and why the park is going to be built so close to the lagoon. The purpose of the interview, besides knowing more about the plans for the ecopark, was

to get a better understanding of the current political situation when it comes to city planning and to understand Zacapu's current approach to ecotourism.

I prepared an open and oral questionnaire with children at the primary school Escuela Primaria Cristobal Colon. The questionnaire was done in conjunction with a workshop, which is described later. When looking for an appropriate school I searched in the city center because I wanted to know how attractive an educational park in the outskirts of the city is for children in the center in order to get a hint on how attractive the park would be for foreigners. The school's ability to receive me, mostly due to time, was also important in the choice making. The reasons that I chose to have an oral questionnaire instead of a written were partly because of the age of the children, ranging from six to twelve years old, and partly because of the time limit. Not all of the children were good at reading and I wanted to be consistent with the method. The time limit was due to the upcoming holidays. All the children answered

the questions by raising their hands. A more detailed explanation of the questionnaire is found on page 90 to 93.

The participatory method, in the form of workshops, was used to engage the stakeholder (CUVZ) and the focus group (children) in the project and to get feedback and suggestions on the project. It is important to get the users' point of view and also to involve them in the design process because they are the ones that will implement and manage the project.

I carried out two workshops in order to get the stakeholder's (CUVZ) and the possible users' (children) thoughts about the pilot project. The first workshop was with the founder of CUVZ, Felicitas Amada Flores Fuentes. While talking about her ideas and visions she was asked to put post-its on a model of the university campus. The model was mainly made of cardboard that I had found at the city market and showed the campus buildings and the height differences. On the post-its she wrote her ideas and put them where she thought they belong.

The second workshop was with children at the primary school Escuela Primaria Cristobal Colon. During the workshop the children were asked to put stickers with emotions and senses on illustrative and schematic maps of the educational park. They also noted their ideas and opinions on post-its that they put on the maps. When analyzing the result from the workshop I compared the maps and looked for similarities. In this way I measured the relevance of the feedback. I also considered unique opinions by trying to understand the reasons they were expressed.

Other methods that I used were the SWOT analysis, sketching, modeling and visualizing. They were used in order to get a better understanding of the city, the pilot project area, and also to communicate ideas with others. The SWOT analysis was good in order to get an overview of the current situation in Zacapu and compare its positive and negative qualities. The working model was especially useful in order to get an understanding of the distances and the altitudes of the pilot project area.

TIMELINE



Sept. 15
Arrival in Mexico

Sept. 20-28
Literature studies
in Mexico



Oct. 1-12
Investigating the
pilot project area

Oct. 15 - Nov. 12
Making proposal

September October

Sept. 3-14
Research
in Sweden

Sept. 10-12
MFS scholarship
granted and course

Sept. 17 - Oct. 5
Observations and
defining project

Oct. 29-31
Select potential
ecotourism sites

Oct. 1
Deadline
select
pilot
project
area

Oct. 1-12
Study visits and
meetings

Oct. 3-5
Sketching





Oct. 17 and 31
Workshops



Nov. 19 - Jan. 11
Writing report

November

December

January

Nov. 13
Presentation at CUVZ

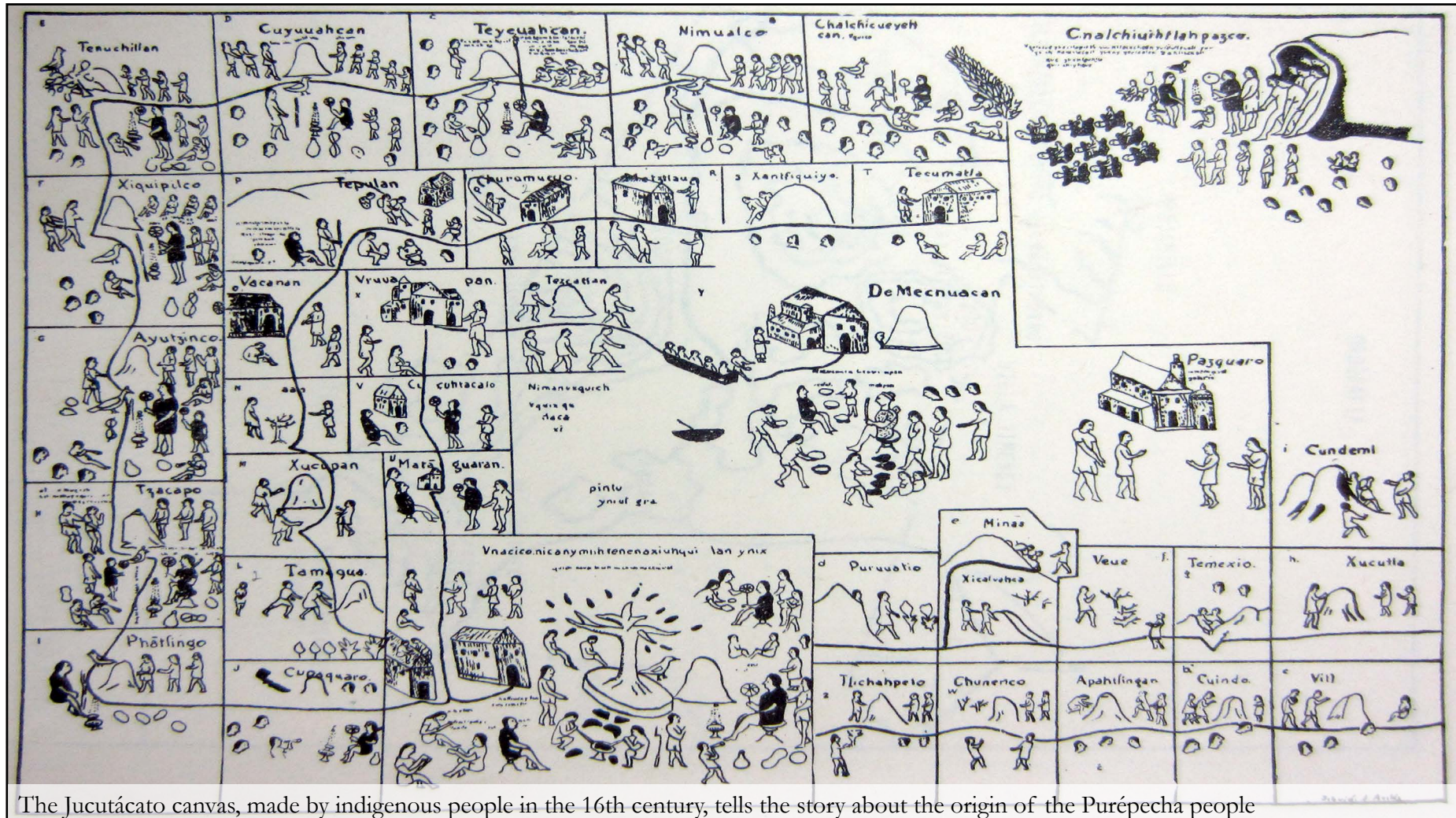


Nov. 17
Departure
to Sweden



Jan. 13-15
Exhibition and
final presentation
at Chalmers

BACKGROUND



ECOTOURISM

To better understand the development and concept of ecotourism, one has to know its background. Ecotourism is a type of tourism, which in turn is one of the world's largest industries today. Tourism is hard to define because it includes many parts and mix with other industries. It is an industry that gets people from their home to somewhere else (and back) and provides lodging and food while they are away (Fennell, 2008).

However, tourism is an ancient leisure. Honey (2008) writes that the Greeks and the Romans went to thermal baths and exotic places around Europe to relax and experience new things. Until the 1950's the number of travelers was small and most of them traveled for religious or educational reasons. Before the industrial revolution, people traveled by foot, sailing boat and horse. When the railway came more people could afford to travel. In 1841 a man called Thomas Cook organized the first group tourist excursion and then continued to offer people "charter" trips.

Airplane travel enabled mass tourism. The starting point was when Pan American World Airways introduced tourist class in 1948. During this period people also got

more leisure time through paid vacations and could travel more. With time mass tourism got synonymous with the "four S's", sun, sea, sand and sex. Nowadays many vacationers choose to go on prepaid cruises and to a lesser, and declining, extent to beach resorts.

In the beginning mass tourism was welcomed by many countries, because of its economic benefits, but later it has been proven to have negative impact on the social conditions and the environment. For example, much of the money does not stay in the host country and the locals get low-paying service-level employments as maids and waiters (Honey, 2008). For some destinations, the environmental effects of tourism have had a direct negative effect on the industry itself, by making it unattractive so people will not go there anymore (Page, 2006).

In the 1960s the effects of mass tourism and the increasing awareness of the human impact on the environment lead to a general realization that nature is not an inexhaustible resource. Along with the growth of the tourism, it was a debate about environmental consequences and the desirability of further development (Page, 2006). In the 1970s

the knowledge about the environment and the earth resulted in more environmentally friendly traveling. In addition, more and more people wanted to include nature-based activities in their vacation (Honey, 2008). This is how ecotourism developed.

Ecotourism is one of the fastest-growing types of tourism; growing faster than tourism in general (Honey, 2008). According to Fennell (2008) ecotourism comes from alternative tourism, which in turn is opposite to mass tourism. Alternative tourism considers the local needs and the demand for an unspoiled environment, rather than focusing merely on technical and economic necessities.

The Mexican architect Ceballos-Lascuráin was the first person to talk about ecotourism closely to what it is today. He defined ecotourism in the early 1980s as "traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas" (Fennell, 2008). It is still a current description even

though it can be valid for other kinds of tourism as well, like nature-based tourism and wildlife tourism.

It might be difficult to understand what ecotourism is because it is often mentioned together with other kinds of alternative tourism. The travel industry typically classifies ecotourism together with nature or adventure tourism, with labels like “responsible”, “sustainable”, “green” or “low-impact”, which is confusing the public, but ecotourism differs from the other types (Honey, 2008). One way to define the concept of ecotourism is by comparing it to other types of alternative tourism. For example in comparison with nature-based tourism we understand that ecotourism is much deeper than merely enjoying and learning about nature. Doctor Harold Goodwin (1996) explains the difference in the following two quotations taken from Fennell (2008:20):

“nature tourism ‘encompasses all form of tourism – mass tourism, adventure tourism, low-impact tourism, ecotourism – which use natural resources in a wild and undeveloped form – including species, habitat, landscape, scenery and salt and fresh-water features.

Nature tourism is travel for the purpose of enjoying undeveloped natural areas and wildlife.’ ”

“ecotourism is ‘low impact nature tourism which contributes to the maintenance of species and habitat either directly through a contribution and/or indirectly by providing revenue to the local community sufficient for local people to value, and therefore protect their wildlife heritage area as a source of income.’ ”

While nature-based tourism can be about enjoying nature without damaging it, ecotourism is, in addition, about promoting the sustainability and further development of a community or an area.

In comparison with wildlife tourism, which is also labeled ecotourism at times, ecotourism is non-consumptive. There are wildlife tourism activities that are non-consumptive and similar to ecotourism activities, such as bird watching, but wildlife tourism can also be consumptive, including hunting and fishing, and thereby different from ecotourism. Non-consumptive activities include merely experiences while consumptive activities

include tangible products (Weaver, 2012).

Most typically, ecotourism involves visits to areas that are under some kind of environmental protection by governments, conservation or scientific organizations, private owners or entrepreneurs. Ecotourism can also be used as a catalyst of change, socially and environmentally. The main attractions of an ecotourism site are flora, fauna and cultural heritage. At its worst, when not practiced with the utmost care, ecotourism threatens the very ecosystems on which it depends. At its best, ecotourism offers a set of principles and practices that have the potential to transform the way the tourism industry operates (Honey, 2008).

While a lot of ecotourism places are located in nature and on “untouched” land, there is also a focus on ecotourism in urban regions (Fennell, 2008). Examples of urban ecotourism are parks, cemeteries and sewage lagoons. Visitors are offered enjoyment and appreciation of the city’s natural and cultural resources, while they have experiences that are physically active, intellectually stimulating and socially interactive (Fennell, 2008:78). There are examples of municipalities that

reclaim waste disposal sites and turn them into green belts with parks and golf courses.

One definition of ecotourism that I found accurate because it covers a broad spectrum of ecotourism is by The International Ecotourism Society (TIES), which is a non-profit organization promoting ecotourism. TIES defines ecotourism as “responsible travel to natural areas that conserves the environment and improves the well-being of local people” (2012). The definition can be regarded as too general and even passive, but I think it works in combination with the following principles that TIES has set up:

- Minimize impact
- Build environmental and cultural awareness and respect
- Provide positive experiences for both visitors and hosts
- Provide direct financial benefits for conservation
- Provide financial benefits and empowerment for local people
- Raise sensitivity to host countries’ political, environmental, and social climate

However, it is hard to cover each and one of TIES’s principles. Even the ones who formulated TIES’s definition have admitted that they have not achieved all of the different aspects of the formulation, only a few (Honey, 2008).

To minimize impact means to reduce the negative effects of the infrastructure that is connected to the tourism, for example trails and hotels. This can be done by using recycled or local construction materials, an architectural design that is environmentally and culturally sensitive, renewable energy and recycling and safe disposal of waste. The number and the behaviour of the tourists should be controlled to have limited damage to the ecosystem.

In order to build environmental and cultural awareness and respect it is essential to include education, both for tourists and locals. This can be done by supplying the tourists with reading materials about the country, environment and local people they are visiting. In this way the tourists learn about the local customs, for example how to respect dress codes and other social norms. Education for locals should be offered

to a reduced price in order to reach out to as many people as possible: members of surrounding communities, school children and the broader public of the host country.

There should be positive experiences for both the tourists and the locals. One of the sides should not suffer because of the interaction.

Direct financial benefits for conservation may be raising funds for environmental protection, research and education by for example using park entrance fees and taxes on tour companies, hotels and airlines.

Ecotourism sites, for example national parks, have a greater chance to survive if the communities around benefit from them (Honey, 2008:30). The local communities have to be involved with and receive income and other financial benefits, such as potable water and health clinics, from the tourism attraction. Furthermore, as much as possible of the profits should stay in the host country, which means that hotels and airlines for example should be owned by locals.

Tourism often supports undemocratic states (Honey, 2008). Unlike conventional mass

tourism, ecotourism pays attention to the political system of and struggles within the host country.

Ecotourists are not a homogeneous group. According to the writer Jon A. Kusler (1991) there are three types of ecotourists:

1. Do-it-yourself ecotourists are the majority. They are very flexible and visit different places and stay in various accommodations.
2. Ecotourists on tour want organization and travel to exotic places, for example Antarctica.
3. School groups or scientific groups stay in the same region for a long time to do scientific research of an organization or individual. They are willing to live in harsher environments than other ecotourists.

SUMMARY

My understanding of ecotourism, after the research, is that tourists visit natural places and learn about the environment without having any negative impact on the place, but on the contrary help to protect and sustain nature, and improve the life of the locals. Ecotourism is about exchange rather than never-ending seizure, experience rather than

observation, and raising awareness rather than postponing problems. Since ecotourism is one aspect of nature-based tourism, the attractions are often connected to nature and adventure, but recently ecotourism has become related to culture as well (Fennell, 2008). In this project I want to put the same amount of emphasis on culture and nature with education as a method.

I would like to add a few things to the current definitions of ecotourism with regard to my project and the emphasis on education. Concerning TIES's principles (2012), Doctor Harold Goodwin's (1996) explanation on the difference between nature-based tourism and ecotourism, and Honey's (2008) list of typical ecotourism areas, I want to add the restorative aspect of ecotourism. TIES touches the subject by the principle of "direct financial benefits for conservation" (The International Ecotourism Society, 2012), but I think there is a distinction between conservation and restoration. My idea of conservation is that the area is kept as it is while restoration means to improve the area to an earlier and healthier state. Conservation is to protect the area and restoration is to actively work in order to bring it back to how

it was before. However, I think conservation can be restoration too as nature repairs itself automatically in the absence of negative human impact. Regarding Honey's (2008) list of typical ecotourism sites that are under some kind of environmental protection by for example governments or scientific organizations, I want to add places that are in need of environmental restoration and the possibility to highlight current environmental issues, for example water pollution and extinction of animals, by turning them into ecotourism attractions.

By adding restoration to the definition of ecotourism one can produce resources that were disappearing or not thought of, for example freshwater, solar energy and growing of food, and at the same time offer an attractive tourism destination. The combination of restoration and education is interesting because people learn how to use their environment in a sustainable way and apply resource producing methods in their homes or at work.

To Kusler's (1991) list of three types of ecotourists I would like to add locals. I believe one can be tourist in their own city

and that it does not have to differ much from foreign tourists. A local tourist might take the children to a park to show them something new, as do foreign tourists when they visit an unknown place. Locals may even be better ecotourists because they already live close to the attraction and know how to use the public transport, hence having a relatively small ecological footprint. On the other hand, local ecotourists do not contribute financially to the community to the same extent as foreign ecotourists may do, because they probably sleep and eat in their own homes. These are factors that are hard to measure and I think there is a need of further research in order to make any conclusions on which type of ecotourist that is the best. I only state that locals can be ecotourists too.

I believe education is the key to change and the requirement to make ecotourism work. In most of the definitions I have found that education has been a part, whether it has been about learning by observing (for example bird watching) or learning by interacting (for example growing food). I think education is about understanding, not merely knowing. One can know that something is good or bad without understanding why. When educated,

one understands why and is motivated to do the good things and avoid the bad things with greater energy. Education has also democratic value as knowledge makes people aware of their rights and obligations, under which conditions they live and how they can change it if it is necessary. In Zacapu, for example, education and awareness of environmental issues, like water pollution, can contribute to private initiatives or greater demands on the authorities to improve the environment.

TRENDS

According to Honey (2008) traditional tourism, such as being at the beach, has reached a point where it is not growing anymore. Instead cruise tourism and “experiential” tourism are expected to grow. Experiential tourism involves ecotourism and nature, heritage, cultural, soft adventure tourism, and rural and community tourism. People want to enjoy a place by being an active participant rather than a passive observer, which is what I want to focus on in this thesis. Ecotourism can meet the new desires and needs.

TOURISM IN MEXICO

Mexico is the second country among the developing countries that receives most international tourists (Page, 2008). In 1997 19, 3 million tourists arrived to Mexico. 18, 9 millions were from USA and only 0, 3 million from Europe (Nationalencyklopedin, 2012).

Tourism is Mexico's biggest income source when it comes to foreign exchange. Traditionally, the tourism is concentrated to Mexico City, Acapulco and different historical sites, but recently the Yucatán Peninsula has been developed a lot. Mexico City is one of the world's biggest cities and can offer most of the things a tourist looks for, from cultural exchange to historical sites (Nationalencyklopedin, 2012).

TOURISM AROUND ZACAPU

There are several tourist attractions around Zacapu, such as the handicraft paradise in Quiroga, the fishermen's island Janitzio in Lake Pátzcuaro and the Monarch butterfly in Morelia. People come mainly to enjoy the historical and cultural heritage, but also the festivals, the food and nature (Personal observations, 2010-2012).



Shopping in Quiroga



Isla de Janitzio



Monarch butterfly

MEXICO



Official name: Estados Unidos Mexicanos

Area: 2 million sq km

Population: 114,8 million citizens (2011)

Capital: Mexico City

Most important language: Spanish

GDP per capita (2011): 10 893 US dollar

Land use: Forest 25%, arable land 13%, other 62%

Religion: Catholicism 90%, other Christian communities 5%

Ethnicities: Mestizos 60%, Indigenous 30%, Europeans 9%, Africans 1%

(Nationalencyklopedin, 2012)

LOCATION & CLIMATE

Mexico is located in southern North America. The countries bordering Mexico are USA in the north and Guatemala and Belize in the south. Furthermore, it is bordered by the Gulf of Mexico in the east, the Pacific Ocean in the west and the Caribbean Sea in the southeast.

The topography of Mexico is complex with a lot of volcanic activity. In the central there is a high plateau and around it high mountain ranges. Along the coastline there are low coastal plains. There are also desert areas in the north.

The climate varies from tropical to desert, due to the big differences in height and the location between two oceans. Furthermore, it has one of the world's most diverse weather systems because it is located right on the Northern tropic.

(Nationalencyklopedin, 2012)

HISTORY

In Nationalencyklopedin (2012) it is stated that the Mexican history stretches back many thousand years. There are traces of hunters living there about 24 000 years ago. From around 7000 B.C people cultivated maize, beans and pumpkins. Many Indian tribes, such as the Mayas and the Aztecs, had a high culture before the Spaniards conquered the land in 1519-21.

Mexico was a Spanish colony until independence in 1821. During the 1830s and 1840s more than half of Mexico's area (among them Texas, New Mexico and California) was taken by USA.

From 1876 to 1911 Mexico was ruled by General Porfirio Díaz who tried to modernize the country. This resulted in the growth of an urbanized middle class, but the social differences got bigger and in 1910 the Mexican revolution started, lead by Emiliano Zapata and Pancho Villa among others.

After the revolution Mexico has been relatively stable politically. For many years it was an one-party state but in the end of the 1980s the country changed towards a market economy and a multi-party system.

The country was ruled by the PRI (Partido Revolucionario Institucional) until year 2000 when they lost power to a center and right wing alliance. Now, after the election in July 2012, the PRI has got the power again.

SOCIAL CONDITIONS

It is written in Nationalencyklopedin (2012) that there are great differences between the poor and the rich in Mexico. There are not many countries in the world with such an extreme distribution of income. The living conditions vary a lot depending on culture, religion, profession etc. The constitution and other laws and regulations give every citizen its rights, but reality is different. Four out of ten are nationally regarded as poor and one out of seven live in extreme poverty.

Many people move to the big cities to find jobs. Among other things, the market economy forces people to give up cultivation and try to find other occupations. Despite all this, the middle class is growing, including an increasing share of the population. In 2008 Mexico was the 13th biggest economy in the world.

ENVIRONMENTAL ISSUES

According to The World Factbook at the homepage of Central Intelligence Agency (2012) the natural freshwater resources are scarce and polluted in the north and inaccessible and of poor quality in the center. Raw sewage and industrial effluents are polluting rivers in urban areas.

Deforestation and desertification are facts. The air is polluted in Mexico City and urban centers along the border to USA. Also widespread erosion is going on.

The lack of clean water and deforestation are considered national security issues by the Mexican government.

ZACAPU

Zacapu is both the name of the municipality and the city. It derives from the indigenous Purépecha word “tzacapu” which means stone. (Orozco Rodríguez, 1992)

The municipality is one of 113 in the state of Michoacán. It is located on an altitude of 1990 m above sea level, in the north of the state with a distance of 80 kilometers from Morelia, which is the state capital. The municipality has a bit over 73 000 inhabitants and the city a bit over 52 800 inhabitants (Municipios.mx, 2012 and Wikipedia, 2012).

In the municipality there are 27 communities, whereof the biggest are Tirindaro, Naranja de Tapia and Tarejero besides the city of Zacapu. They all have indigenous people whilst the other communities are mestizos with some traditional manners (Orozco Rodríguez, 1992).

CLIMATE & NATURE

According to Mummert (1994) the climate is temperate with rain June to September and a dry season October to May. The temperature ranges between 7 to 25 degrees Celsius, with an average temperature of 17 degrees



Celsius. The air is dry. The wind is mainly coming from the northwest.

Zacapu municipality consists of an urban center, agricultural land, forest and mountains. The cultivation is on former swamp areas that have been drained. The forest is mixed with pine, oak, alder and liquidambar (sweet gum). The pine and the oak are used as timber. The highest mountain is Tecolote, 3200 meters.

The animals living here are fox, ringtail, hare, bobcat, opossum, skunk, axolotl, coyote, weasel and duck.

ENVIRONMENTAL ISSUES

Orozco Rodríguez (1992) writes about deforestation being a big issue. Before the whole mountain area was covered with a forest, but now trees are only found on the top of the mountains. The deforestation has led to erosion of the earth.

Over the years the water springs have shrunk and give out less and less water. This is partly because of erosion from the hills in the south. The water springs are also being polluted with blackwater and wastewater from industries.

The amount of animal species has decreased because of the deforestation. Some species are almost extinct, for example the fox.

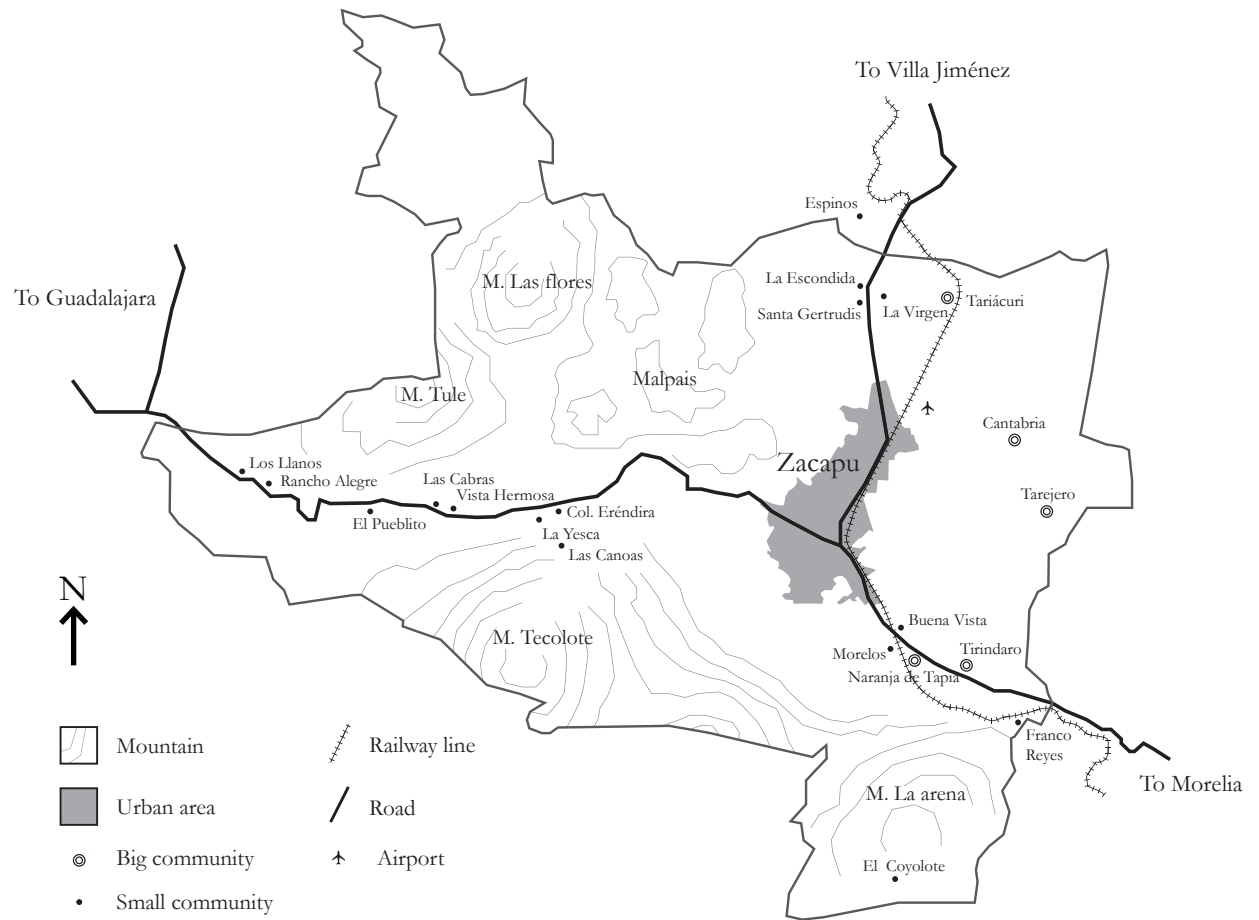
COMMUNICATIONS

Three main roads lead to Zacapu. Highway number 15 goes right through the city and connects Morelia to Mexico's third largest city, Guadalajara (Nationalencyklopedin, 2012). The third road comes from Villa Jiménez in the north and connects to the highway.

The railway and the airport are not in use. However, the railway lines go to Guadalajara, Morelia, Pátzcuaro and other cities, via a quite extensive net and witness of its former importance as transporter of goods. The airport used to have international flights (Mummert, 1994).

In Zacapu's center there is a bus station with buses to nearby cities, like Morelia, Zamora, Quiroga and Pátzcuaro. In the cities there are connections to other places in Mexico. There are no time tables on paper but the buses run frequently, some every 15 min.

The local bus lines in Zacapu city are individually private owned. There are no bus tables but the locals know the bus routes by experience.

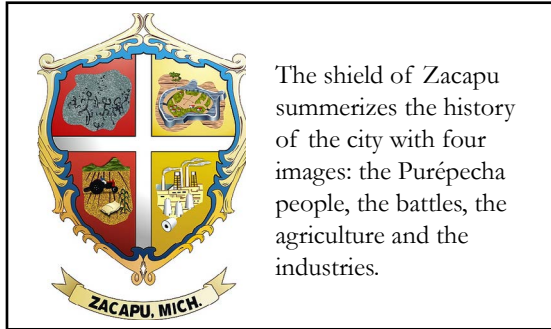


ECONOMY

Agriculture and livestock raising are the main sources of income. The main crops are wheat, beans and corn. The main livestock animals are pigs, goats and cows. Other economic activities are commerce, cutting trees, like

pine and oak, and industries, where the main branches are printing and producing food, textiles, paper, chemicals and plastic and rubber products (Orozco Rodríguez, 1992).

HISTORY



The history of Zacapu is written by Mummert (1994), Orozco Rodríguez (1992) and Secretaría de Urbanismo y Medio Ambiente (2011) among others. More than thousand years ago the Purépecha people looked for a place to build temples for their god Curicaveri and found a hill in Zacapu. It became a sacred place where the highest gods lived. When the people spread out, every region had its tzacapu, that is, its universal center made of stones.

The people expanded fast and controlled the whole area to Lake Pátzcuaro, about three miles away, where they founded Tzintzuntzan among other cities. It is believed that they lived in harmony with nature until the Spanish conquerors arrived in 1521.

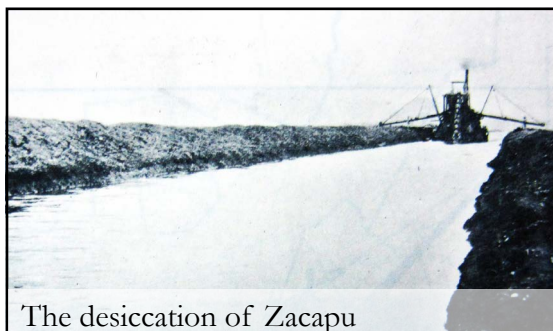


Pyramids in Tzintzuntzan

In 1548 the Franciscan priest Fray Jacobo Daciano founded what is now Zacapu according to European principles by building a church, La Parroquia de Santa Ana. During the Spanish colonization Zacapu was a center of important battles for Mexican independence, which was reached in 1821. Ten years later Zacapu became a municipality (Enciclopedia de los Municipios, 2009).



La Parroquia de Santa Ana



From the beginning Zacapu was characterized by its lagoon and the marshland around it. In the 19th century it was asserted that the marshes were only places where the water hyacinth grew and prevented the fish from living. Therefore the conclusion was taken that the stagnant water was harmful for the society and that it had to be drained. The desiccation started in 1899 and was done in 1902. The land was later used to grow corn which increased the land value.

During 1924-1938 Zacapu was divided into different parts for agriculture. These were communal land but cultivated by individuals or families. People cultivated mainly corn but had also some cattle. Over time handicrafts and small businesses developed, for example the production of shoes.



Given the strategic location of Zacapu, the city became a trade node. People came here from nearby villages to trade. Goods also came with train from Morelia.

Between 1946 and 1977 Zacapu witnessed a big demographic change and got more urban. This was partly due to the construction of a factory in 1946. It was built near the lagoon and attracted a lot of people. During the following two years 9000 people moved to the municipality and changed its appearance. From 1940 to 1950 the annual population growth was 9 per cent. Ever since, the population has increased but not as fast.

It was not only Mexicans who found their way to Zacapu but people came from all of North America and benefited from the

industry. They settled down in the same area, which later became the richer areas.

The introduction of a factory resulted in that the city became more urban and agriculture got less space. This affected the lifestyle, income and survival of the indigenous people in the communities around Zacapu. The indigenous people did not have enough knowledge to work in the factory.

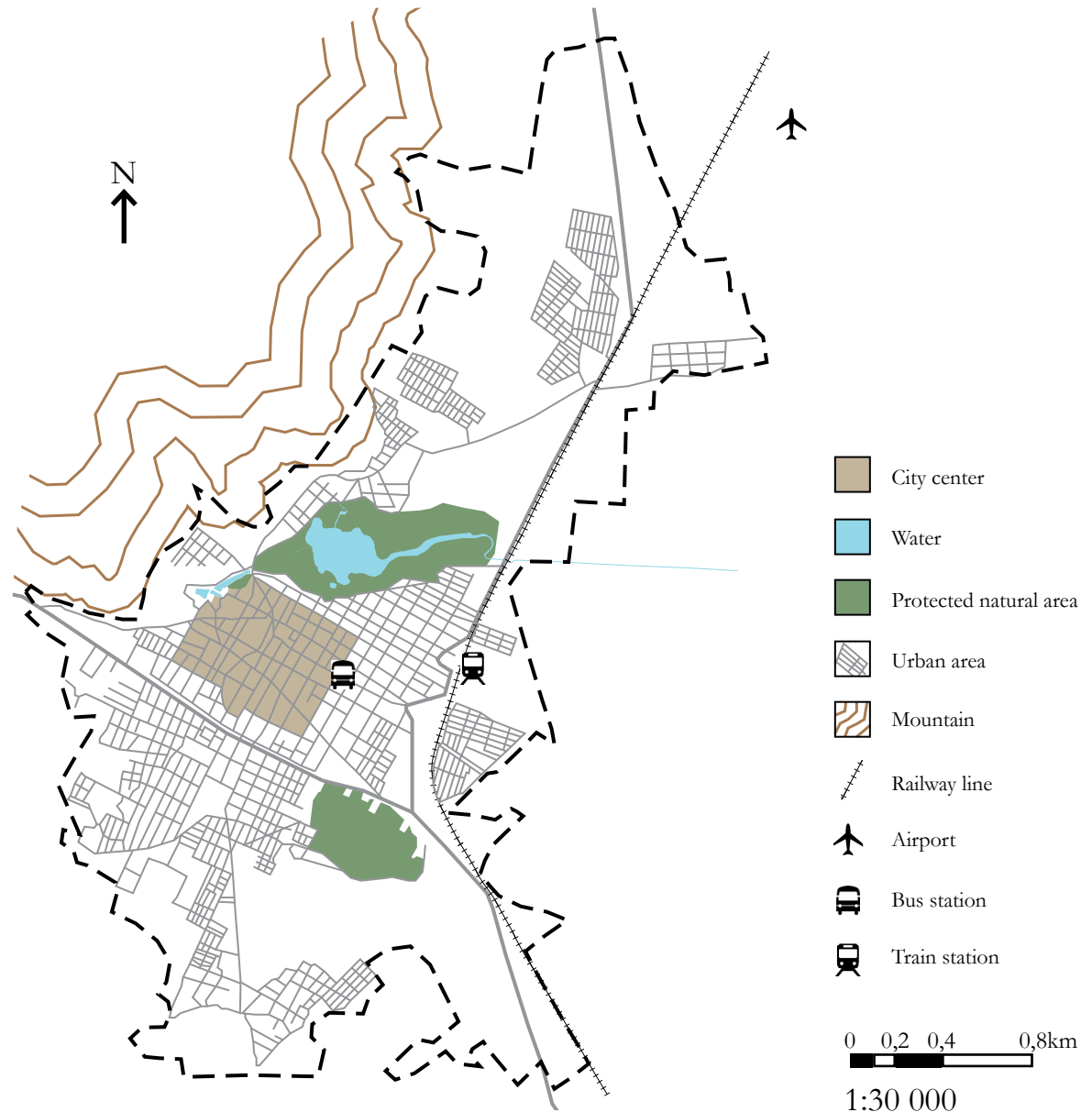
The boom was also due to the upgrading of the life standard, for example the asphaltting of roads. In 1946 electricity was introduced in the municipality and in 1951-1952 clean water lines were drawn. In 1957 public medical service was introduced besides the already existing private clinics.

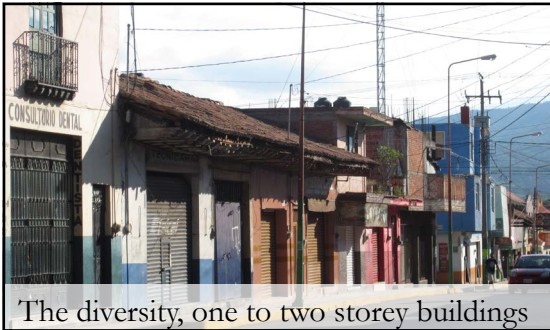
ARCHITECTURE & CITY PLANNING

Due to the sudden population growth and the immigration of people from other parts of Mexico and North America in the middle of the 1900s, the architecture of Zacapu city is diverse. There are many different types of houses beside each other, from old one-story houses made of adobe and with span roof, to two or three stories houses in concrete or bricks, some with flat roofs, to modern multi-storey glass buildings. The rapid change is also obvious on the city skyline; the further away from the historical center one goes, the flatter the roof tops.

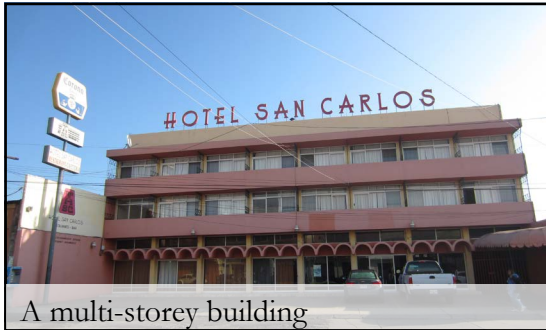
The diversity is very characteristic for Zacapu, which can be seen as a big town rather than a small city. The diversity would have been only positive if the buildings did not have an unfinished look together with the many power lines in the air.

Most houses and buildings in whole of the municipality are made of bricks or concrete blocks. A big part is also made of adobe and some in wood (Secretaría de Urbanismo y Medio Ambiente, 2011).

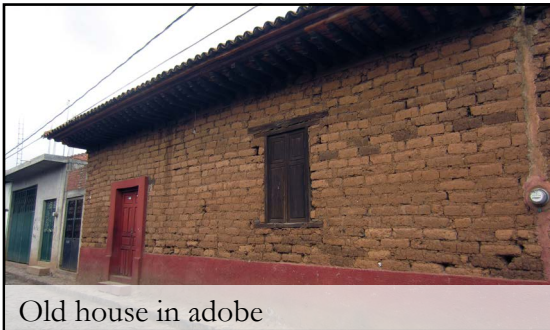




The diversity, one to two storey buildings



A multi-storey building



Old house in adobe



Traditional house design



Modern houses



House in the richer area

Most of the buildings are one-story but in the urban region they are up to five stories, with an average of two stories. The images, to the left, show examples of the different buildings, in and outside the city. Many houses have protrusions that protect the pedestrians when it is raining. The majority of the households have electricity, water and drainage.

One remarkable thing about Zacapu is its many ball fields, and the plans on building more. This may mean that there is a great need of exercising ballgames outdoors. However, most of the fields lack sufficient lighting which is problematic since the best time to practise may be in the evening.

There have been some argues about what should be built in Zacapu. The fights have been between some of the citizens and the city council. The best-known and most representative event is the construction of a French triumphal arch that created a lot of protests since the citizens want monuments that root in the region rather than in Europe (Zosa Polida, 2012, pers. comm., Sept. 19).

The arch is still not completed but it is located at the city entrance fully visible for everyone who comes here.



Another example of failed improvements is the reconstruction of the square in front of La Parroquia de Santa Ana. Before it was a vivid square with a lot of benches and trees but now it is just a big empty space (Cisneros López, 2012, pers. comm, Oct. 3).

POLITICAL CONDITIONS

I have got the impression that corruption in Zacapu, as in all of Mexico, is the rule rather than the exception. It seems to be so incorporated in the system that people almost count on it. Powerful people in high positions use it to their advantage. The reconstruction of the square, for example, is believed to have been an excuse for the city council to put money in their private pockets since the high cost does not match the poor appearance.

CULTURE

This part is mainly based on my personal experiences of Mexico.

One big part of the Mexican culture revolves around food. People love eating, cooking and talking about food. They talk about how tasty it is, where it comes from, where else it can be found and how the same dish is cooked in other parts of Mexico. And also they eat all the time. No matter the hour there are people in the streets eating something. There are many stalls selling fruit, corn, candy and other snacks. There are also mobile stalls selling ice-cream, corn again and bread among other

things. The food culture revolves around corn. They make bread (tortillas), dessert, soup, hot drinks, main dishes and so on with corn. In some communities they only eat corn, every day.

In Zacapu there is a specialty called Corunda. It is a type of tamale, which is very common in whole of Mexico, but here it is made differently. Tamales are mashed corn cooked wrapped in corn leaves together with other ingredients such as sugar, chicken or meat. Corundas are made with cinnamon, butter, sugar and/or salt, cream and milk. There is also an ancient dish called Churipo, which is a beef stew with red chili. The traditional drink is Tepache, a mix of water, pineapple and sugar.

Another big part of the Mexican culture is their origin. Each time a person meets someone new they tell where they are from, where they were born and also a little bit about the characteristics of their hometown. The name combination is also important because it tells their origin. For example there are Spanish and indigenous Mexican names and surnames, and it is important to tell which one it is and what it means. Unlike

many places around the world they do not need to hide their origin, which is fantastic. They are proud of who they are and happy to share their culture with others.

Music is also an important part. There is music in every corner and almost every car. The music is mainly Norteño, a genre in Mexican music, but there is also international pop music, mainly from the United States. Almost everyone knows the lyrics of popular songs and their associated dance.

Yet another great part of the Mexican culture is the many festivals. A common perception is that almost every day is a celebration; Catholic or indigenous. For example people make parades or fire off fireworks. However, there are a few that are celebrated much in Zacapu. The Mexican Independence Day, 16th of September, is celebrated almost the whole month with city decorations, activities in the schools and events in the city center. During the same period there is also an international bicycle competition that attracts many participants and spectators. Another festival is the Night of the Dead, 1st and 2nd of November. It is a Pre-Hispanic celebration. People remember the dead by

building altars, inviting friends and family, offering each other food and fruit, and visiting the cemetery. Some people, especially in the indigenous communities, eat and sleep at the cemetery.



An altar made of flowers, food in front

The Mexican Revolution Day, 20th of November, and the Day of the Virgin of Guadalupe, 12th of December, are other important celebrations.

PURÉPECHA PEOPLE

There is not much information about the Purépecha people who lived in Mexico before the Spaniards conquered the land since the information was passed on orally. What is known about them is based on Spanish writings and archaeological findings.

They dominated Michoacán by 1250 with the second largest territorial empire in Mesoamerica and were never conquered by the neighboring Aztecs despite several attempts. Yet they surrendered to the Spaniards without a fight when they saw the destruction of the Aztec Empire. There is a legend of a Purépecha princess, Eréndira, who tried to get her people to fight the strangers. This story was turned into a movie in 2006 (Wikipedia, 2012).

However, there are still Purépecha people living in Michoacán. There are nearly 200 000 people who talk the Purépecha language, which is different from all other languages in the region, probably because it developed in isolation (Wikipedia, 2012). Besides the language, the Purépecha people distinguish themselves from others by their

celebrations, for example the new year that occurs 1st of February, their typical music, Perikua, and dance, for example La Danza de los Viejitos, their clothes and their unique handicrafts. It is mainly the women who dress traditionally in a white blouse with flower decorations, a long skirt, an apron and a shawl over their shoulders. They are seen in the streets or in the market selling handicrafts, fish or vegetables. Most men dress in traditional clothes only on special occasions. They then wear a white sweater and white pants with a colorful poncho over everything and a sombrero (a hat) on their heads (Personal observations, 2012).

The arts and crafts of the Purépecha people revolve around pottery. They have several techniques that are all quite advanced. They are also very good at copper work, wood furniture and weaving with plant fibers. Another characteristic of the Purépecha people is their way of fishing in Lake Pátzcuaro. Their canoes are made of pinewood and their nets are special, as seen on the image to the far right (Study visit to Pátzcuaro museum, 2012).

The ancient ballgame Uarukua is still played



in some parts, for example in Santa Fe de la Laguna. Two teams play against each other and the players have sticks to hit the ball with. There are many rules on how to hit the ball, but the main task is to get the ball into the goal. The game is played at night, the players wear white and the ball is made of very slow burning charcoal on fire (Study visit to Santa Fe de la Laguna, 2012).





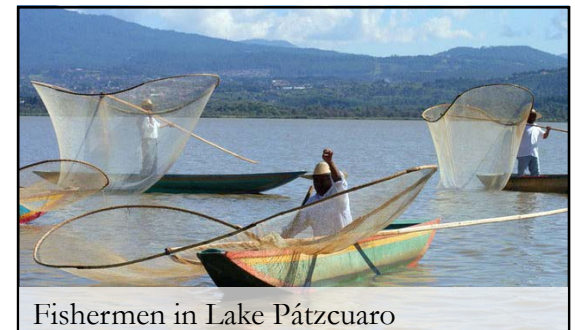
Woman in traditional clothes



Handmade pottery



Tamale



Fishermen in Lake Pátzcuaro

RESEARCH ON SITE



View over Zacapu city from La Crucita

ECOTOURISM DEVELOPMENT AND OPPORTUNITIES IN ZACAPU

The ecotourism development in Zacapu has several reasons. First of all, Zacapu and its surroundings are rich on natural resources and archaeological remains that are attractive for tourists but in need of protection. There are also indigenous people living in small communities that need support and encouragement in order to sustain. They themselves and their traditions and celebrations are interesting and important for both domestic and international tourists.

Secondly, there are many places nearby attracting tourists who are possible visitors of Zacapu too. The city has already started the tourism development by the construction of, what they themselves now call, an ecotourism park almost 50 years ago and the planning on building yet another ecopark (Aparicio Moreno, 2012, pers. comm, Sept. 19).

However, there is a risk of mistreating and destroying the natural sites when turning them into touristic places. Therefore an ecotouristic approach is not only appropriate but also important and necessary. In this way nature is protected, overexploitation is prevented and indigenous people are empowered.

As mentioned before, I think education is the key component of ecotourism. Therefore emphasis should lie on education in the ecotourism development in Zacapu. I also think children are particularly receptive to new, and sometimes controversial, ideas and information, which makes them a good target group when working towards sustainability. Furthermore, it is important to remember that locals can be ecotourists too, for example families and school children.

In order to cope with the future ecotourists, the transportation system has to be revitalized and developed. Today Zacapu is reached only by car and bus even though there is an airport and a railway line connected to the city. In the future, with the increasing amount of visitors, I think it will be necessary to run the airport and the railway line again. The businesses will also offer the citizens new jobs. Furthermore, I think there is a need of better information about the public bus lines in the city and to the communities around Zacapu so that they can be easily used by visitors. Today only the locals know the bus routes by experience. Better labeling of the buses and time tables and route maps will make it easier for visitors (and locals) to travel.

There should also be better possibilities to bicycle in Zacapu, by introducing special bicycle paths, bicycle renting agencies, bicycle parking and so on. During the field trip I saw many cyclists despite the lack of bicycle paths and I think there is a great chance that they increase in number with a focus on improvements on the possibilities to bicycle. Additionally, Zacapu has an annual international bicycle competition that inspires people to bicycle more.

In my search of an appropriate site that can be a pilot project in order to demonstrate how the ecotourism development may look like, seven potential ecotourism places are outlined. These are Los Espinos, Tarejero, Naranja de Tapia, La Crucita, Malpais, La Laguna, La Zarcita and CUVZ. The choice of places is based on seven criteria, which are presented later, conversations with Cuin, Zosa Polida and Martínez Vega, and my previous visit to Zacapu as a tourist when I was guided to, what is regarded by the citizens as, the main attractions: La Zarcita, La Laguna, Tarejero and Los Espinos. During the field study I was introduced to more places, but not all of them match the criteria I put up for the selection.

The mapping of potential ecotourism sites is important in order to show the variety of different types of ecotourism that can be present in Zacapu: urban, rural, cultural, natural and so on. The mapping and outline also give a background and explanation to why I chose to continue working with CUVZ. It offers an understanding of the context in which the educational park is located.

To give a better overview of the sites, they are presented on two geographic levels: in the municipality and in the city. Furthermore, the outline of potential places is made on a macro scale while the development of the pilot project is on a micro scale.

On the following pages the potential ecotourism sites in Zacapu are presented. They have been chosen on the basis of at least three of the following seven criteria:

- Closeness to water: Freshwater shortage and pollution are environmental issues in Mexico (Central Intelligence Agency, 2012). It should be emphasized so people learn to take care of the water more. One of the features of Zacapu is its many water springs and the old marshland. It has not only environmental

value but also historical because it reminds of how Zacapu was years ago.

- Connection to indigenous communities: The Purépecha people have left their mark on the region, through their food, music and games among other things. They are an important part of Zacapu but got marginalized after the entry of the industries. They need to be empowered and play a more active part in the development of Zacapu.

- Historical value: Zacapu's history stretches back many hundred years, which should be visible to everyone, both citizens and visitors.

- Educational possibilities: Ecotourism is education (Honey, 2008). The site should be interesting enough to raise people's curiosity to learn about nature and/or culture.

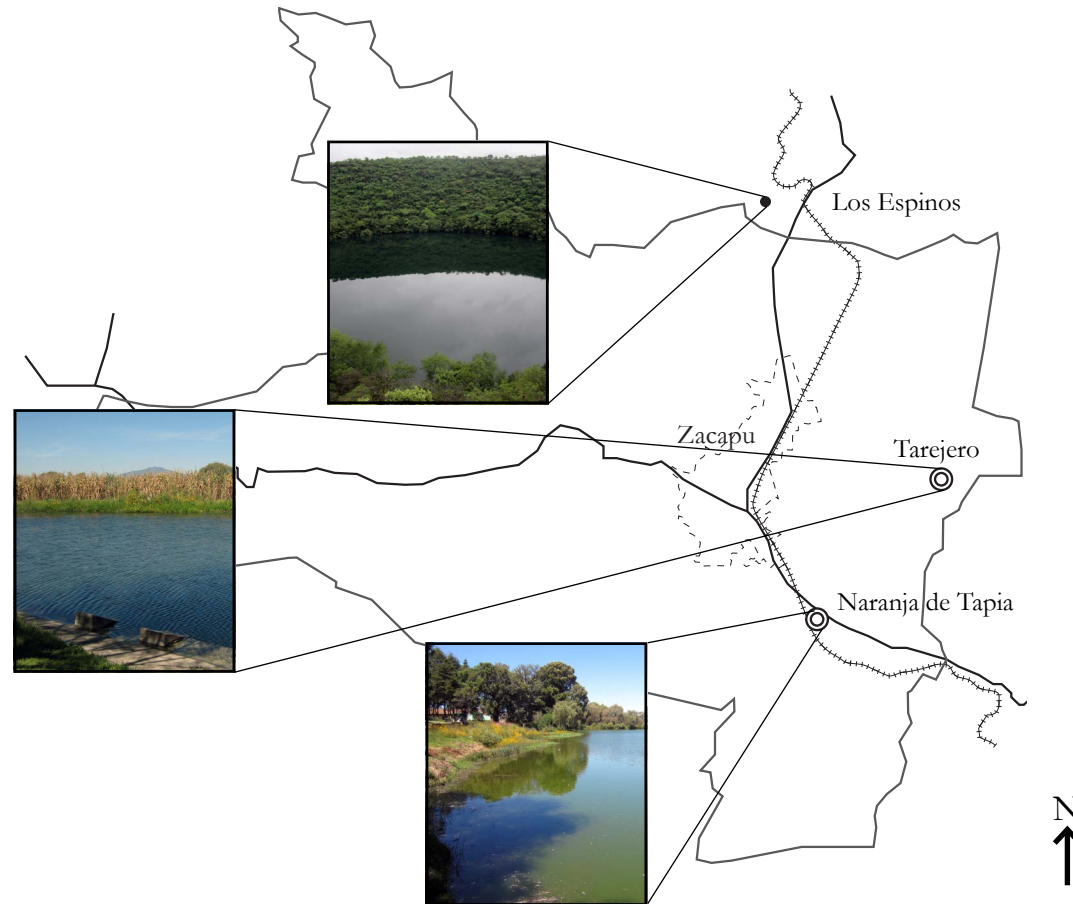
- Environmental importance: The site may be a protected area or important for ecosystems and biodiversity.

- Cultural heritage: Culture is one of the things that shape one's identity and it is important to know the culture's origin or development.

- Stakeholders initiate project: Without stakeholders there is no project. The site should be interesting for the municipality, an organization, a private person or an institute in order for the project to be realized.

The criteria are based on the definition of ecotourism (see page 18 to 22) and the features of Zacapu: the previous marsh and present water springs, and the first settlement of the Purépecha people.

POTENTIAL ECOTOURISM SITES IN ZACAPU MUNICIPALITY



Some of the potential areas, that is, Los Espinos, La Laguna and La Zarcita, are protected nationally and internationally. The different types of protection are:

- The Ramsar Convention: An international treaty from 1971 on protection of valuable wetlands (The Ramsar Convention on Wetlands, 2013).

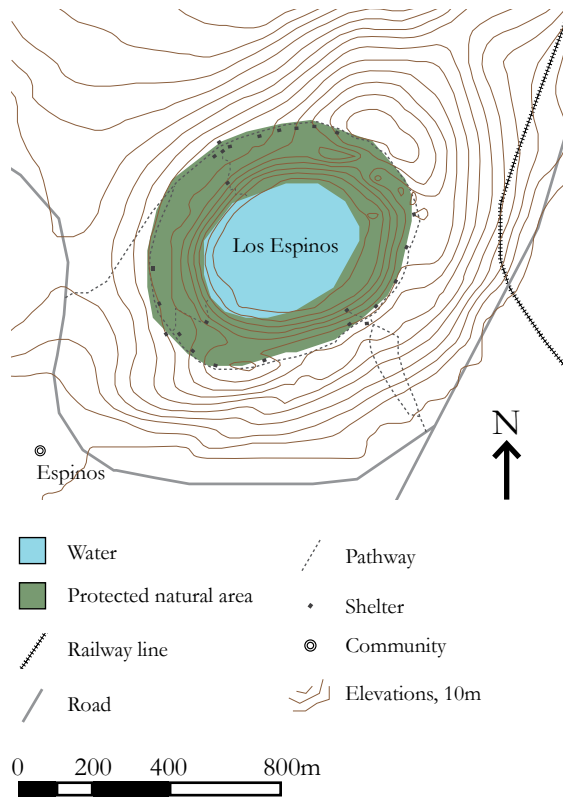
- Secretaría del Medio Ambiente y Recursos Naturales (SEMARNAT): The environment ministry of Mexico that have the mission to protect, restore and conserve ecosystems, natural resources, assets and environmental services of Mexico in order to foster a sustainable development (Secretaría del Medio Ambiente y Recursos Naturales, 2013).

- Comisión Nacional de Áreas Naturales Protegidas (CONANP): A decentralized agency of SEMARNAT that administrate the protected natural areas (Comisión Nacional de Áreas Naturales Protegidas, 2013).

The potential ecotourism sites in the municipality are Los Espinos, Tarejero and Naranja de Tapia, which are shown on the map. Later each and one of the places are described together with suggestions on how they can be developed.

LOS ESPINOS

Los Espinos is a passive volcano filled with water, close to a village with the same name. It is actually located outside the municipality of Zacapu but is still regarded as a part. It is on the Ramsar list of protected areas (The Ramsar Convention on Wetlands, 2012).

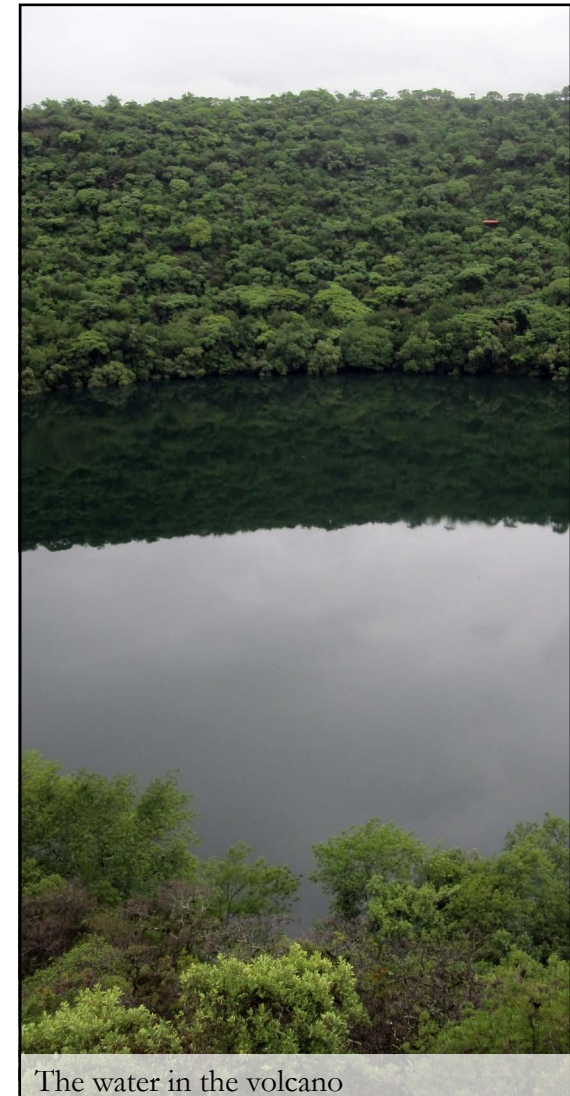


Map of Los Espinos 1:20 000

The site is chosen because it corresponds to the following criteria: closeness to water, educational possibilities and environmental importance. It does not match “stakeholders initiate project” because there are no new initiative takers but the project is running. Various species protected by the Mexican legislation have their home there. The forest in the crater keeps the sediments removed by erosion in place (The Ramsar Convention on Wetlands, 2012).

It is an important attraction both for domestic and international tourists (The Ramsar Convention on Wetlands, 2012), but locals also visit it to swim, have celebrations and socialize. On the top, all around the volcano, there is a pathway and shelters, where one can sit and for example have a picnic. Paved trails lead down to platforms from which one can jump or walk down the stairs into the water (Personal observations, 2012).

The trails and the platform need maintenance to increase accessibility and safety. Furthermore, there should be information boards about the volcano, the wildlife in the area and the water in order to meet TIES’s principle of building environmental awareness and become ecotouristic.



The water in the volcano

TAREJERO

Tarejero is an indigenous community east of Zacapu city. It is accessed by regional bus or by car. According to Orozco Rodríguez (1992) it was an island before the desiccation of the marsh. Up to 1500 people live here (PueblosAmerica.com, 2013), and many still talk the Purépecha language. They support themselves on agriculture and livestock, and some has immigrated to bigger cities. Their main festival is the days of the dead.

Tarejero matches all of the seven criteria but “stakeholders initiate project”. At least I do not know of anyone who is interested in starting a project here. Hopefully this report is an encouragement to start up a project. Tarejero is close to water, that is, the lagoon which via canals waters the surrounding agricultural land (Cuin, 2012, pers. comm, Oct. 3).



Map of Tarejero 1:20 000

The lagoon has great environmental importance since it is a source of freshwater and a natural wetland that cleans water. Tarejero is an indigenous community, which meets the second criteria. Furthermore, it has historical value and is a part of the cultural heritage since it was one of the first settlements of the Purépecha people in the area (Cuin, 2012, pers. comm, Oct. 3). The community has educational possibilities in the fields of history, culture and nature.

During a study visit, guided by the indigenous man Cuin from CUVZ, I noticed that the city center consists of two small squares; one in front of the church, with a big roof

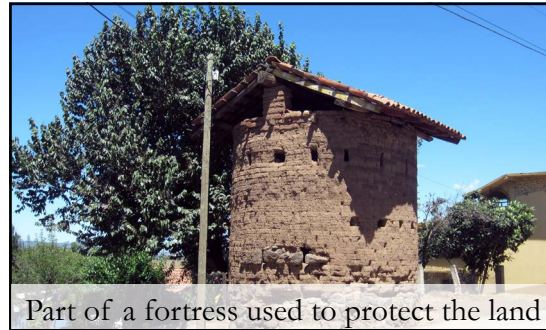


The town hall

for activities, and one beside it, a bit elevated from the ground and with benches. Around them there are town halls and small shops made in the traditional way with clear eaves and adobe walls.

The main roads are covered by concrete, but most streets have the original appearance, that is, small round stones in the ground.

The houses are mainly built of bricks but a big part of the buildings, unfortunately not in use or well-maintained, are made of adobe and have rock socles.



Part of a fortress used to protect the land

There are still parts of the defense buildings left, from the time when the inhabitants had to fight for their right to the land (Orozco Rodríguez, 1992).

The lagoon of Tarejero is relatively clean and very much in use. People swim and wash their clothes and raw materials for cooking in the water. There is a concrete construction around the water springs, to protect them from cattle destroying them. On one side of the lagoon there are several shaped stones to wash clothes on.



Women working

The use of the waters can be done in a more sustainable way, for example by collecting and cleaning the wastewater. What would attract ecotourists are the people's everyday life and their usage of the lagoon. The ecotourists would come here to see this indigenous community and experience a more natural way to handle everyday tasks.

There should also be better opportunities for swimming, partly by cleaning the water but also by making it more accessible by pathways to the lagoon.

NARANJA DE TAPIA

This rather small community is located so close to Zacapu that it feels like a part of it. It is on walking distance, about ten minutes, from Zacapu's city border in the south east and it takes only a few minutes to get there by car or bus from Zacapu's city center. Between Zacapu and Naranja there are a few other communities, like Buena Vista and Morelos, which merge with Naranja.

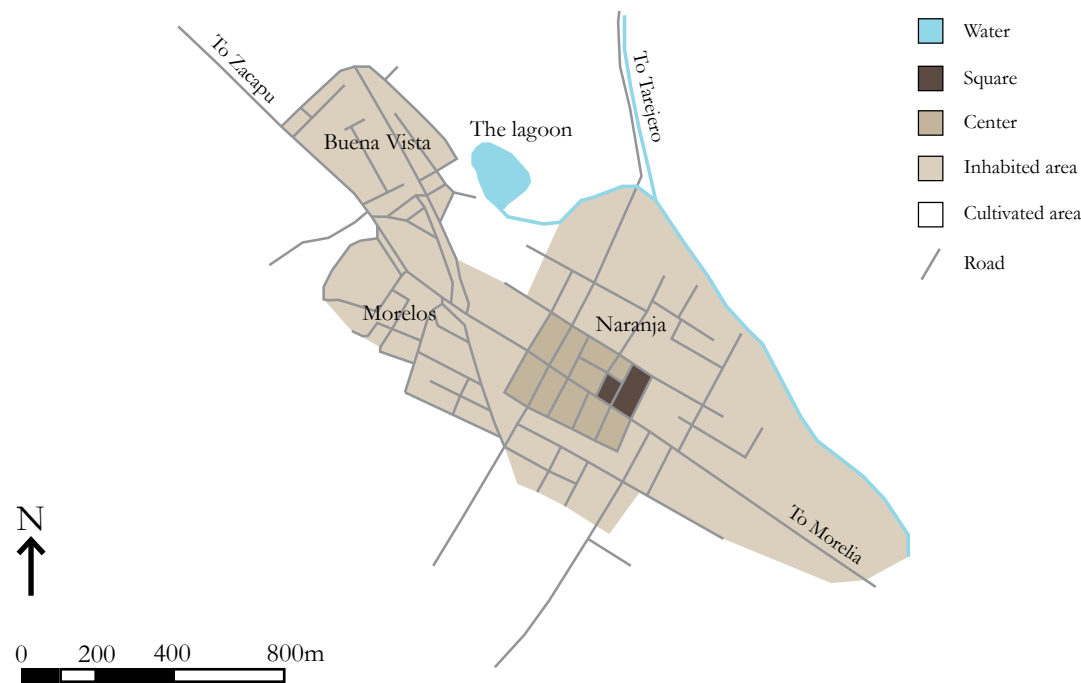
The community itself is located around the highway to Morelia. About 3000 people live here (PueblosAmerica.com, 2013) and support themselves on agriculture, livestock and small businesses (Orozco Rodríguez, 1992).

Naranja, like Tarejero, matches all of the criteria except "stakeholders initiate

project". Its lagoon has also environmental importance because it cleans water and is a source of freshwater. Canals run from the lagoon to water the agricultural land around the community (Cuín, 2012, pers. comm, Oct. 3). There are educational possibilities by learning about the cultural and historical heritage and about the environment.

Naranja is an indigenous community with the most remote origin. It was called Naranxhan before the Spanish conquest. They have several traditional feasts, for example "la fiesta de los Tigres" in October (Orozco Rodríguez, 1992).

The city center consists of a big square in front of a church from the 1730s. The interior of the church is beautifully decorated, with



Map of Naranja 1:20 000





paintings in the ceiling and on the walls. Around the square there are town halls, which are painted in traditional ways and colors. The streets are covered by concrete.

The lagoon of Naranja is highly contaminated by wastewater from the community and throwing of garbage into the water (Cuin, 2012, pers. comm, Oct 3). The water spring is protected by a high fence. The water is clear when it comes out of the spring but by the time it gets to the lagoon, via the canals, it is green.

If one disregards the dirty water, the surroundings are very beautiful, with a lot



of plants and a quiet and peaceful climate, perfect for strolling around, watching birds, reading a book, having a picnic or just sitting on a rock and think.

The lagoon is in need of restoration. I think the implementation of a park near the water spring can help to clean the lagoon. People would value it higher when it generates money and also learn to take care of our scarce resources when they notice that others from far, in other words tourists, also appreciate them. There should be a water treatment plant cleaning the wastewater from the community before it is let out in the lagoon. The treatment plant can be pedagogically



designed to educate people on how to clean water and why it is important.

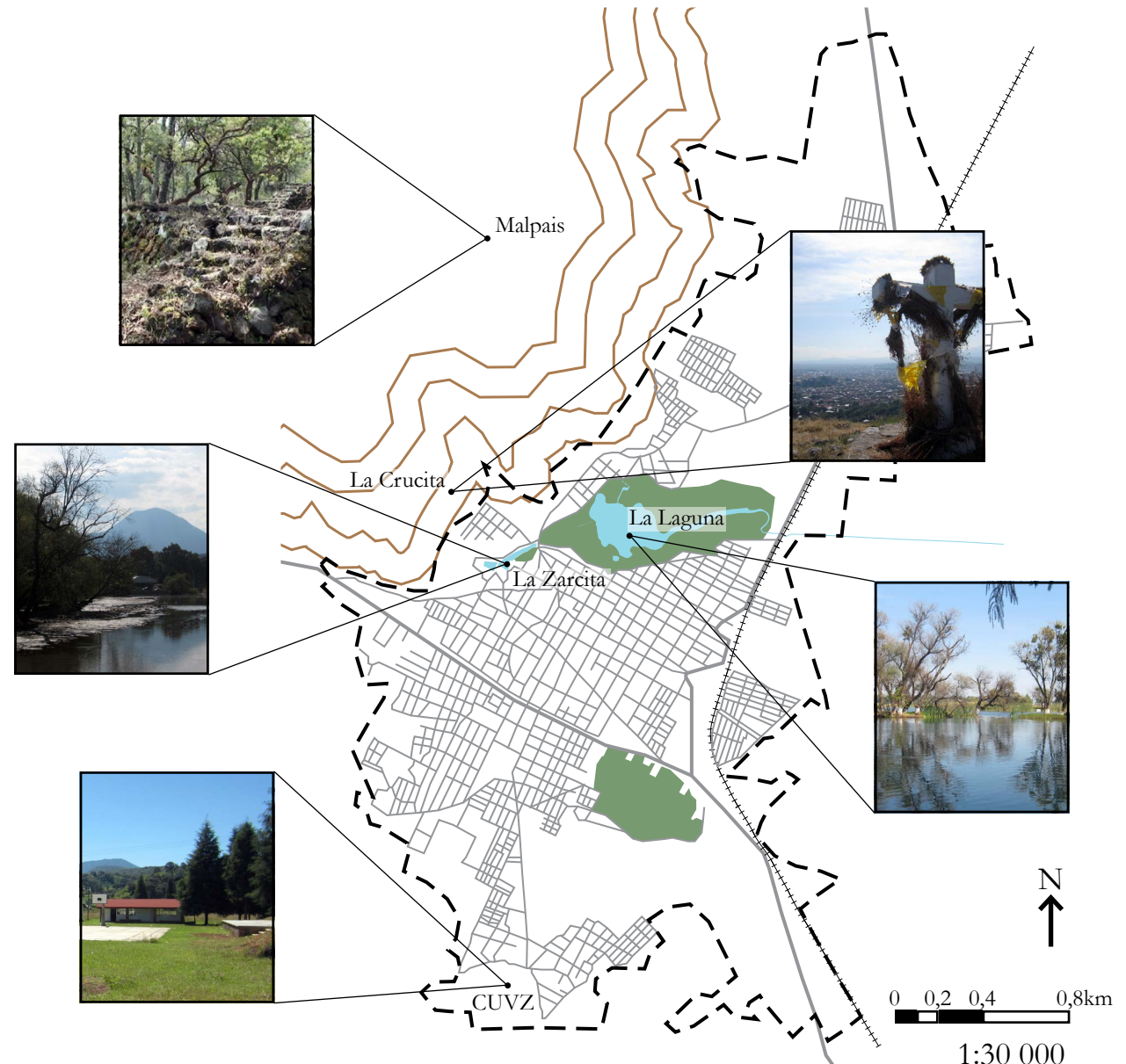
The design of the park should be done with the utmost consideration. If not it risks to damage the lagoon even more than now. The construction materials should be light and have minimum impact on the environment. As much as possible of the place should be kept as it looks like today, that is to say, to leave it as natural as possible. Many people seek these places to be close to nature. If it is changed too much, it will lose its charm and authenticity.

POTENTIAL ECOTOURISM SITES IN ZACAPU CITY

There are a few interesting places in the city that have the potential to become ecotouristic: La Crucita and Malpais, La Zarcita, La Laguna and CUVZ. In the long run, I think, all of these places should be developed and connected to each other by a bicycle lane. There are already many people riding bicycle in Zacapu, and with the annual bicycle competition, this is a natural continuation of an already existing culture. A bicycle lane will not only serve the tourists, but also benefit the citizens. It will also show that the city council is aware of the climate change and willing to do something positive about it, for example by encouraging its people to take the bike instead of the car.

The ecotourism development should be focused on educating people about their history and the environment in order to protect the natural and cultural heritage that we have. Additionally, it is about learning how to live sustainable, for example by recycling waste, producing local food and reusing and cleaning water.

The ecotourism investment will attract a new kind of tourist: the conscious and active tourist who wants to enjoy and experience by doing rather than observing (Honey, 2008).

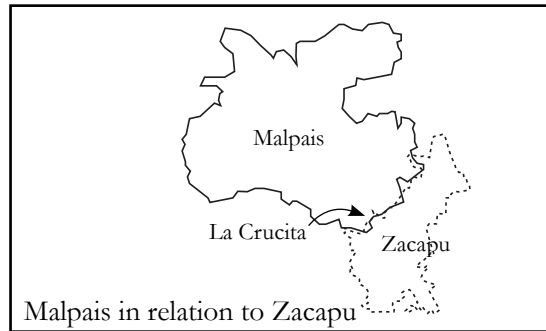


LA CRUCITA AND MALPAIS



West of the city center, up on the hill, is La Crucita (The Cross), accessed by a pathway. During religious celebrations people go up there to decorate the cross and have ceremonies (Martinez Vega, 2012, pers. comm.). Around it there are remains of more than 47 architectural structures with rock engravings, called El Palacio (Orozco Rodríguez, 1992), and also a natural stone pile that is mythical, called La Piedrera (Martinez Vega, 2012, pers comm.).

Further up north and to the west there is a vast area called Malpais. The terrain is not yet fully explored and quite hard to get to. After a lecture by the archaeologist Jesús Martínez Palomo it was clear that there are many pyramids, called yácatas, in need of protection. They are worn out since people



look for treasures and bring visitors without thinking of the negative impact on the structures. Nevertheless, many of the yácatas are untouched and several persons, among them the archaeologist Eugenia Fernández, are trying to map them out.

La Crucita and Malpais correspond to five of the seven criteria. They are both connected to an indigenous community, that is, an ancient civilization that lived in the area hundreds of years ago. The sites are of historical value and parts of Mexico's cultural heritage. There are educational possibilities since there is a lot to learn about the ancestors. Furthermore, stakeholders have initiated projects. Domestic and international archaeologists and other professionals and amateurs are interested in investigating and mapping the area.



According to Palomo (2012), Malpais was the first settlement of the Purépecha people when they came to Michoacán. They lived there until 70 years before the Spanish conquest. It is believed that they knew about the foreigners' arrival and therefore left the yácatas in order to keep them safe and hidden.

There are 17 archaeological sites in Malpais, of which four has been explored: La Ciudad Perdida, Las Iglesias, El Palacio and Milpillás. In each of the sites there are yácatas that are thought to have been temples. The Spaniards called them iglesias (churches).

It is important to explore the archaeological sites in order to answer questions about the past. How did people live in the ancient



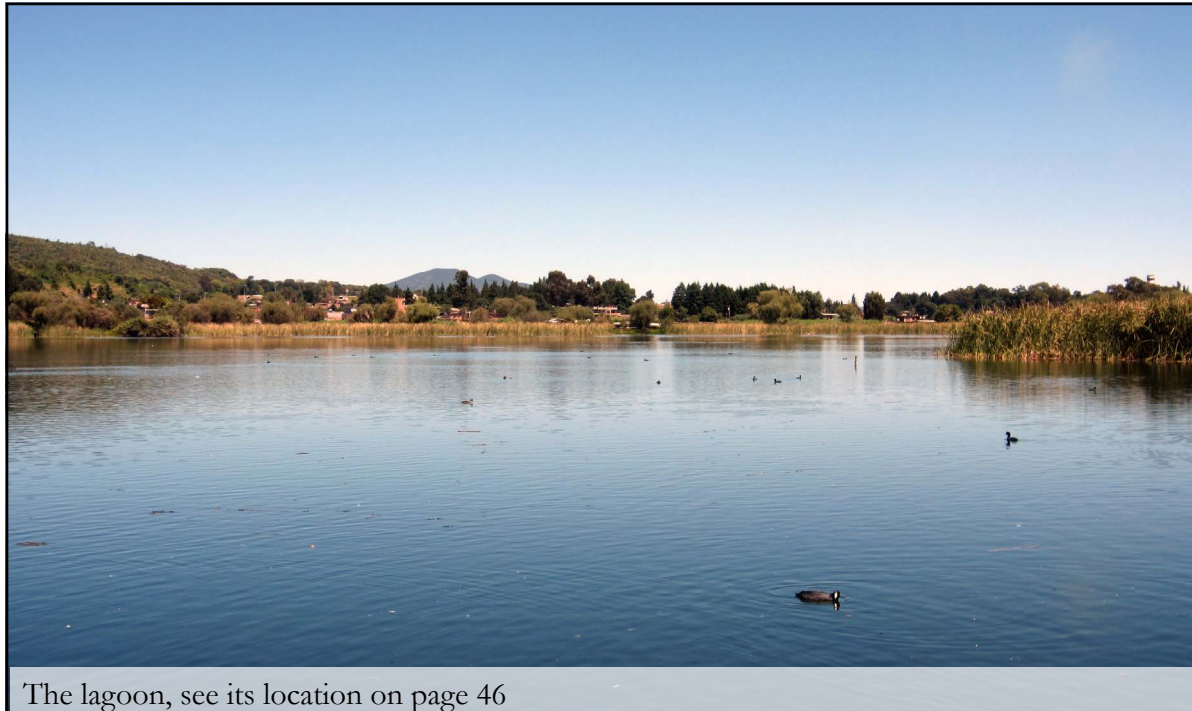
The mythical La Piedrera

times? What did they eat? How did they dress? And so on. Nowadays the Mexicans do not know much about their ancestors because the information was passed on orally

to the next generations (Palomo, 2012, pers. comm.). Thus, a part of their identity was deleted when the Spaniards conquered their lands.

If a trail is created, people can take a tour to see the yácatas and the fantastic volcanic stone landscape. The money can be used to further investigate the area and to develop the protection and the possible restoration of the yácatas. Resting places can be put along the trail for people to have a snack, rest and read about the site. With time a museum can be built connected to the trail. The design of the trail can be similar to or be inspired by the educational path at CUVZ (see page 54 to 55)

LA LAGUNA



The lagoon, see its location on page 46

The lagoon of Zacapu is located very close to the city center. It is a protected wetland, by Ramsar, CONANP and SEMARNAT. Despite its small size it hosts approximately 1,1 per cent of the Mexican duck population and at least nine indigenous fish species and one fish species that is only found in this lagoon (The Ramsar Convention on Wetlands, 2012).

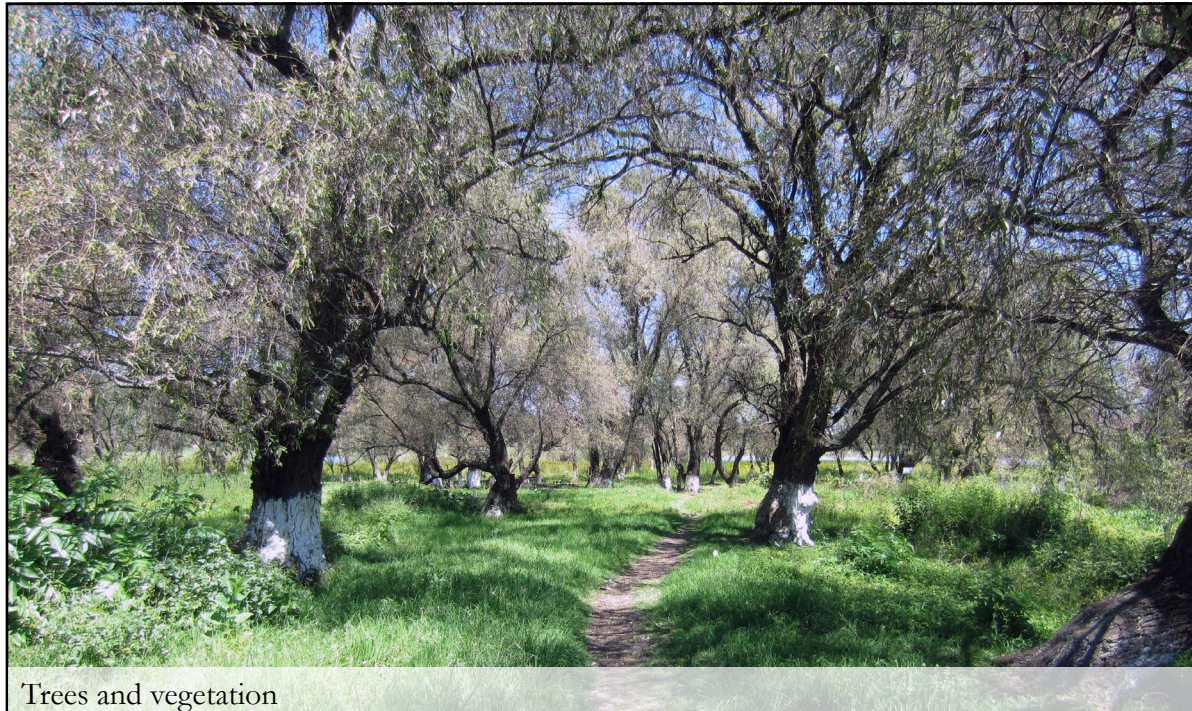
Furthermore, it is the home of the axolotl, an aquatic salamander that is highly endangered, partly because people hunt it (Martinez Vega, 2012, pers. comm.). Around the lagoon there are peatlands with and without trees. There are also underground water reservoirs (The Ramsar Convention on Wetlands, 2012).



The axolotl

The lagoon is threatened by contamination, the increasing sedimentation and the growth of Zacapu city. Before people could fish and catch freshwater here, but not anymore. They could also fish in Rio Angulo, a river that runs out of the lagoon. Much of the pollution is from the industries nearby, but also from the outlet of blackwater from the city (The Ramsar Convention on Wetlands, 2012 and Orozco Rodríguez, 1992).

Despite the pollution people still come here to have a pleasant time. They take a walk or sit on a bench or a stump. It is a calm and quiet place, emotionally far away from the city noise. The site feels very vivid, with a lot of insects and animals in and outside the water. There is always something in movement.



Trees and vegetation

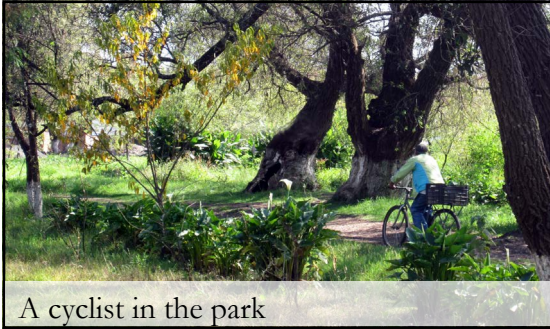
Unfortunately, it is an unsafe area at night due to robbers and corrupt policemen (Cisneros López, 2012, pers. comm.). It can be remedied by for example better lighting and around the clock-activities, like gigs, quizzes and organized bicycle tours and walks, that set more people in motion.

La Laguna matches several of the criteria. It is not only close to water, but the source of freshwater, which in turn is a scarce resource in Mexico (Central Intelligence Agency, 2012). Therefore it is an important place, not only for Zacapu, but for all of Mexico. The site has historical value since it has been

used for fishing and catching freshwater by the Purépecha people in ancient times and because it has changed appearance over the years. It has a story to tell. Because of its history and its environmental importance there are great educational possibilities. It is a wetland, that is, among other things, a natural water treatment plant that people can learn a lot from. Many species living in the lagoon are interesting to know more about and learn how to protect and co-exist with.

Stakeholders have initiated a project. Recently the city council decided to develop the lagoon area into an ecopark in order to attract tourists and offer its citizens leisure space. The park will include a restaurant, a stage, space for various kinds of activities, roofed space for picnics, workshops and offices, a bicycle path, a pier, space for commercials, and a sportsground. The plans are, however, highly confidential and almost no one knows what is going on or how the park will be built (Anonymous, 2012, pers. comm, Oct. 16).

According to Zosa Polida (2012, pers. comm.), the plans have got a lot of protests from the



A cyclist in the park

citizens who fear that the park will destroy nature and maybe end up like La Zarcita, a park that is suffering from environmental issues like sedimentation because of the heavy construction on and around the water. The worried citizens suspect that the project managers will not use the appropriate materials and put money in their private pockets instead of on the park. The park is estimated to cost five million Mexican pesos (about € 300 000). The protests have led to that the construction has stopped but the city architect Aparicio Moreno is convinced that it will be built in the near future (Aparicio Moreno, 2012, pers. comm.).

It is not a bad idea to develop the site further, in fact it might even be needed, partly because it can make it a safer place, but it has to be done with the utmost consideration. The citizens are proud of their lagoon and want to show it to visitors. Therefore it should be more accessible, with better pathways in light materials, such as mud and wood, not concrete. There should also be more seating and a trail around the lagoon. There are already information boards but they should be updated and developed. The wastewater should be cleaned before let out in the lagoon. Even though a wetland purifies water in a natural way, it has a limit.

The planning of the park can be done in consultation with the citizens, partly because they seem to care much about the lagoon and partly to make the implementation easier.

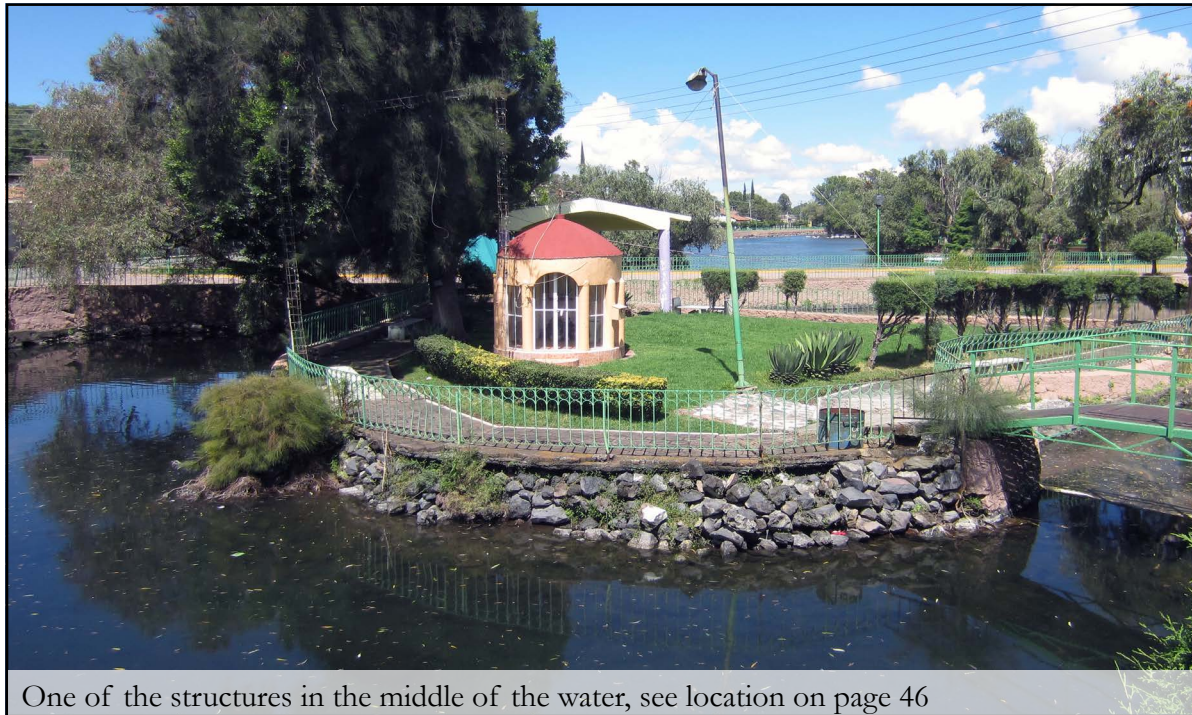
ABOUT WETLANDS

Wetlands are land areas that have water during a big part of the year. It is the vegetation that distinguishes wetlands from other water bodies. The hydric soil supports aquatic plants. The water can be freshwater, saltwater and brackish (Wikipedia, 2013).

Wetlands have a great ecological importance. Among other things, they purify water, stabilize shorelines and control floods. They are also considered the most biologically diverse of all ecosystems, because they are homes for many plants and animals (Wikipedia, 2013).

Unfortunately, the wetlands around the world are threatened by pollution and drainage. There are international agreements, like the Ramsar Convention directed to governments, but common people still need to know the role and the importance of wetlands. Year 2012 was the year of tourism and wetlands for Ramsar. Touristic wetland areas have been highlighted (The Ramsar Convention on Wetlands, 2012).

LA ZARCITA

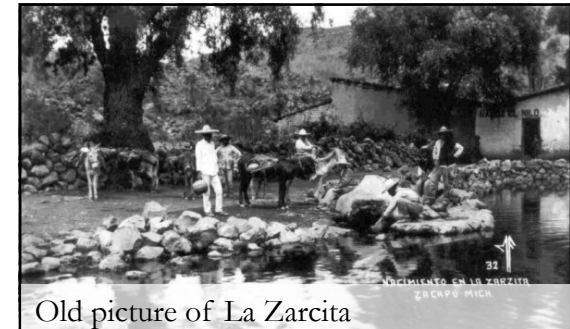


One of the structures in the middle of the water, see location on page 46

La Zarcita is a park for both locals and visitors. It is built in a Ramsar and CONANP/SEMARNAT protected area, around a water spring, and is connected to La Laguna by a narrow creek (The Ramsar Convention on Wetlands, 2012).

The park consists of a well-shaded pathway lined by benches, two playgrounds, an

outdoor gym, a small island with an altar, public toilets and a ball field with roof. There are also small stalls selling fruit, a few garbage bins and information panels about the park. The panels tell about the Ramsar Convention but it seems to have little importance, with regard on the appearance of the park. Along the pathway there are also drinking water machines but they are out of function.



Old picture of La Zarcita

In the water there are small fishes, birds looking for food and imported ducks swimming around. It is prohibited to fish but children do it anyways. In the park stray dogs walk around and children play with them. The atmosphere is very pleasant and nice but at times the wind carries smells of urine and garbage. There are not a lot of people moving around, mostly elderly and children.

The water level is low due to the concrete construction that has clogged the water springs and because the water that manages to get out is transported elsewhere through pipes (Martinez Vega, 2012, pers. comm.). Since the water is stagnant it is very dirty and contaminated, and also dust is gathered in the bottom and makes the water shallower with time. Fish and other animals have a hard time surviving when they cannot move freely.



The playground and the outdoor gym

Like La Laguna, La Zarcita corresponds to many of the criteria. It is also a water spring which makes it an environmentally important place. The site has historical values since it has been used by the locals throughout the history, for freshwater catchment and fishing. It has educational possibilities because there is a lot to learn from nature and the construction's impacts on the environment.

The park has a lot of potential to become vivid again. Before people came here to fish and take freshwater, which means it has not always been dirty. The construction of the park has to be evaluated and suggestions on improvements should be developed in order to save the water and the area from pollution and extinction. The city council can take on the responsibility for the improvements, for example by trying to restore the waters.



Low water level



Information panel



Concrete ball field on top of the water

CENTRO UNIVERSITARIO DEL VALLE DE ZACAPU



University buildings

Centro Universitario del Valle de Zacapu (CUVZ) is a university in a neighborhood called Ajolotes in the outskirts of Zacapu, but still only about 3,5 km from the city center. It takes about twenty minutes to walk here from the city center. It is also accessed by bicycle, car and bus. The bus station is only a few meters away from the university entrance. All buses go to and from the city center.

According to CUVZ's two founders, Maria Elena Zosa Polida and Felicitas Amada Flores Fuentes (2012, pers. comm.), it was founded 28 years ago. They wanted the university to have an ecological profile and work in the interests of indigenous people. The land they spotted was a corn field before. It is divided into three parts, of which two parts are rented out to a secondary school and several



The entrance

ball fields. All of the land is kept for future expansion.

The women started off with one building that was made as ecological as possible; factory waste wood covered by chicken wire and plaster. In the beginning the university was not certified to examine professionals but the demand was still big. The first education was on the rights of indigenous people and how to protect them, in other words they educated lawyers.

Over the years the university has grown and more buildings have been added. Today there are about 400 students, not only from Zacapu but also from neighboring communities. The university is still growing and developing, hence the unfinished appearance of the site.



Sign with “Our strength” in Purépecha

The university staff members and the students are very engaged in what is going on in Zacapu. Right now their biggest concern is the development of the lagoon and its surroundings.

The university owners are planning on building an educational park for children. They want to teach children how to be environmentally friendly and about their cultural heritage. They have already started building a stage that also serves the interests of the students. The stage looks like a yácata. However, it takes a lot of time to build new structures since the university is non-profit and has to save money for a long time.

CUVZ corresponds to three of the criteria. It has a strong connection to indigenous



A classroom

communities since its students and staff members work in favor of the locals and emphasize the Purépecha people and their language and culture. There are educational possibilities because it is a university with both students and teachers who are capable and competent enough to teach others. Since the owners want to build an educational park, there are stakeholders who initiate a project. With the introduction of an educational park the site can match some of the other criteria as well. The park can offer closeness to water, make visible the people’s cultural heritage and have environmental importance by for example restoring lands or producing food.

The construction of an educational park can be the starting point for a new type of ecotourism development in Zacapu, based



Students

on education. The park will show that there are other tourist attractions than nature and recreation. People want to learn and get something out of their visit (Honey, 2008). The park can be an inspiration for the other places. Furthermore, there will be a pressure from the society to build places in this way than the current.

On the following pages it is described why I chose to continue working with CUVZ and developing it into a pilot project.

SELECTION OF PILOT PROJECT

There are several places in and around Zacapu that can become ecotouristic. Most of them are connected to water, but there are also other interesting places, such as the university and the ruins. All of the places meet at least three criteria that I have set up. The table below illustrates which sites meet which criteria.

In my selection of site to investigate further and develop into a pilot project, the most important criteria have been “educational possibilities” and “stakeholders initiate project”. The educational importance is due to my belief that education is the key component of ecotourism. The reason why it is important with stakeholders who want to

start a project is because I want to work with a project that is going to be realized.

As shown in the table, CUVZ meets the two important criteria, as do La Crucita, Malpais and La Laguna. On the next page I explain more why I chose CUVZ out of these three places.

	Closeness to water	Connection to indigenous communities	Historical value	Educational possibilities	Environmental importance	Cultural heritage	Stakeholders initiate project
Los Espinos	X			X	X		
Tarejero	X	X	X	X	X	X	
Naranja	X	X	X	X	X	X	
La Crucita		X	X	X		X	X
Malpais		X	X	X		X	X
La Laguna	X		X	X	X		X
La Zarcita	X		X	X	X		
CUVZ		X		X			X

I chose to continue working with the educational park at CUVZ also for the following reasons:

1. CUVZ has the “right” mindset to implement an ecotourism project. That is to say, they are open-minded and environmentally friendly; they welcome sustainable systems and care for indigenous people (Zosa Polida, 2012, pers. comm.).

2. Some of the places, like La Laguna, are politically sensitive and part of an on-going intense debate. I was actually told a few times not to engage myself in the development of La Laguna.

3. A big part of ecotourism is about educating people and increasing awareness about the environment and the culture, which are the purposes of an educational park. The idea is that awareness and knowledge will make people more demanding on the authorities to plan for the long-term and in a sustainable way.

4. The educational park can be a catalyst of change in Zacapu. It will demonstrate an alternative way to build and develop interesting touristic places. The alternative is much more sustainable than the current and will attract more tourists since people are more and more aware of the human negative impact on earth and seek more sustainable ways to spend their leisure time.

5. The pilot project empowers the citizens and gives them an example to use in negotiation with the city planners.

6. It is important to put resources on educating children since they are the future. They will become the next leaders of the city. The next generation of Zacapu citizens (and others) will have better understanding and more knowledge than the current about how to take care of the environment, the resources and each other.

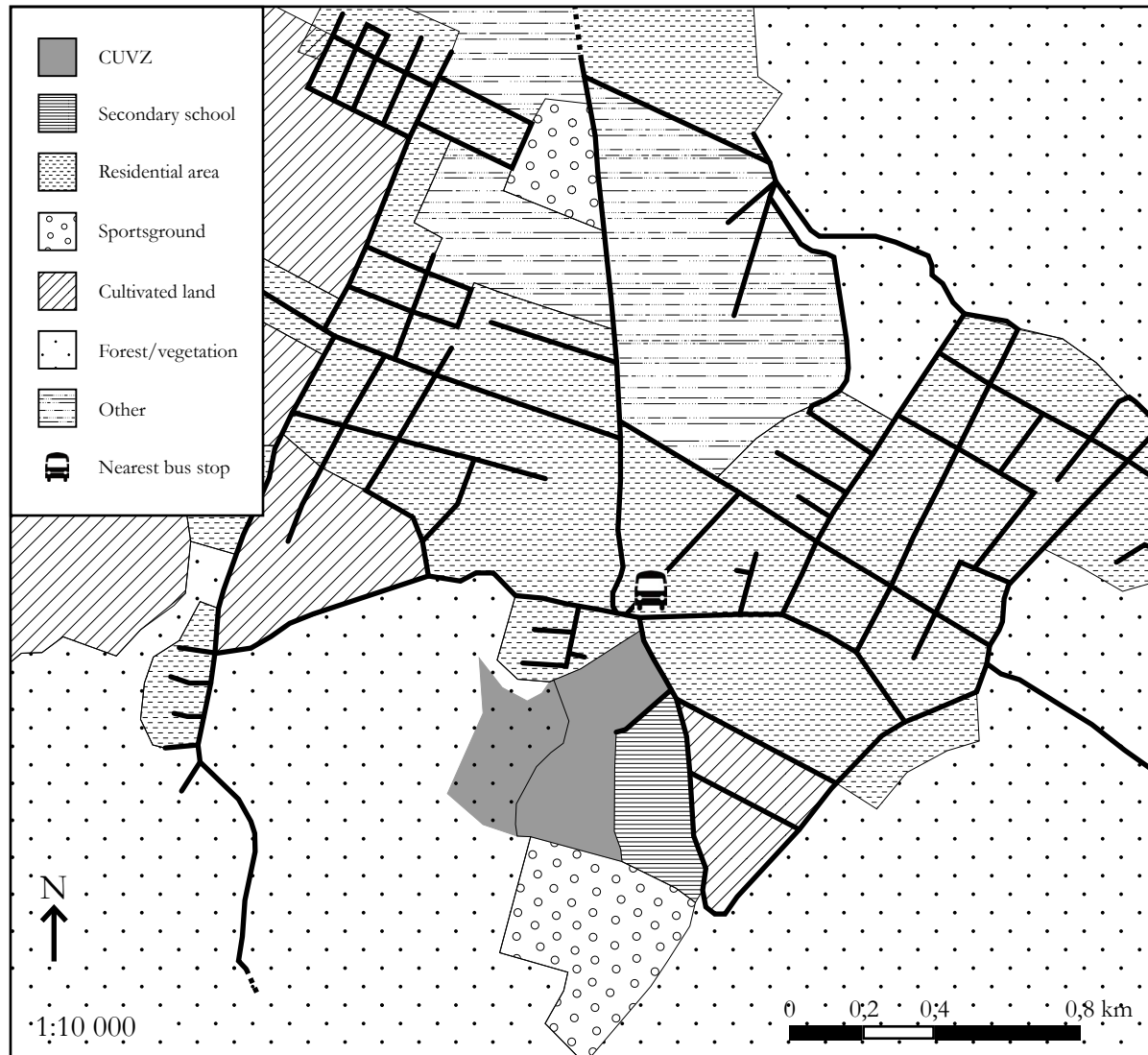
7. Currently, there is not enough information about the archaeological sites in Malpais and La Crucita in order to turn them into a pilot projects.

THE PILOT PROJECT



Students writing exams in the fresh air at CUVZ

CUVZ TODAY



CUVZ is located in an area where most land is residential, agricultural or forest (see map). The cultivated land and the forest continue further south and to the west. In the residential area there are a few small businesses, like kiosks and brick manufacturers. In the areas called “other” there are cattle and some agricultural land.

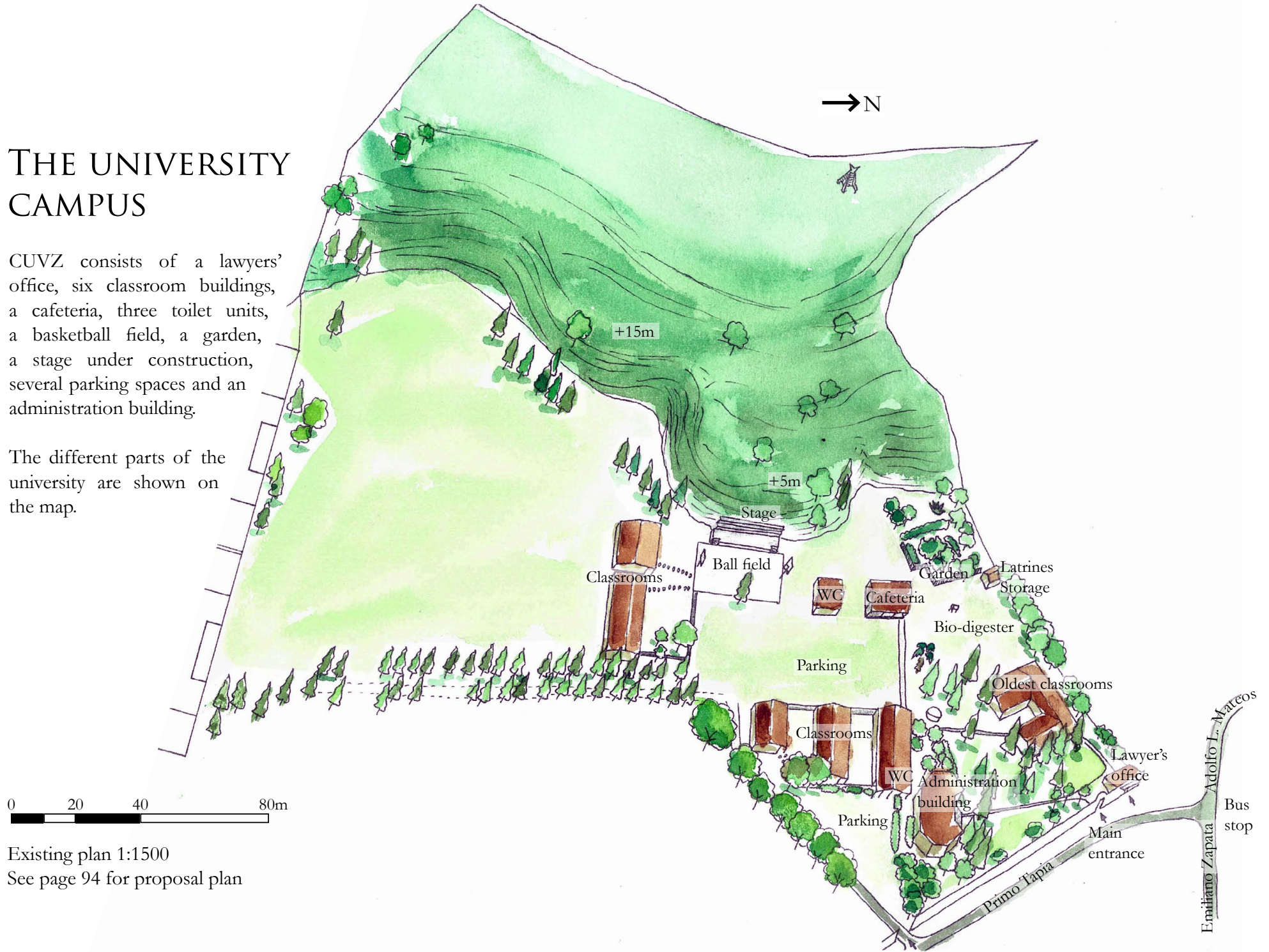
The road from CUVZ to the city center is quite deserted and even dangerous at night, if walking alone. There are only a few residential buildings besides the empty areas along the road which give a sense of insecurity. There are not many people walking at night. Furthermore, there are a lot of drug users and desperate people living in the area that may attack. People generally take the bus to avoid any problems (Martinez Vega, 2012, pers. comm.).

An educational park for children would fit the surroundings in two ways. The park will have a natural transition into the rest of the landscape because of the forest around, and it will be easy for children to learn to cultivate and absorb information when there is a lot of cultivated land around them. Furthermore, the park can make the area safer since more people will be in motion, both day and night.

THE UNIVERSITY CAMPUS

CUVZ consists of a lawyers' office, six classroom buildings, a cafeteria, three toilet units, a basketball field, a garden, a stage under construction, several parking spaces and an administration building.

The different parts of the university are shown on the map.



Existing plan 1:1500
See page 94 for proposal plan



The lawyer's office

In the lawyer's office students and teachers at the university help people from the neighborhood with their legal issues for free. The cafeteria is divided into a morning service and an afternoon service. Except from providing light food, snacks and beverages, they also copy paper.



Board in the cafeteria to stick bubble gum on

The toilet units are separated for teachers and students. The smallest toilet unit, consisting of dry latrines, close to the garden, is not in use. The basketball field, together with other outdoor space, is sometimes used for writing exams. Otherwise the students enjoy playing ballgames there. The purpose of the garden is to grow native plants and run a compost. The students practice every evening after school for a play on the stage. The administration building is a two stories building with a reception, offices for the teachers, a library, a meeting room and two classrooms.

The opening hours are Monday to Saturday, from 8.30 in the morning to around one o'clock in the afternoon and then 4.30 in the afternoon to around eight in the evening. Between one and half past four the students have lunch and free time to study. Some of the students, as well as some of the part-time working teachers, work in the morning or in the evening and study the rest of the time.



The administration building

At CUVZ the environmentally friendly approach is very much visible. There are several garbage bins separating the waste into paper, organics and plastics. The paper waste is carried away in the garbage truck and the paper waste from the toilets is burnt at site instead of mixed up with other waste. There is almost no organic waste but when it is an event they throw the waste into the compost in the garden. There is also a bio-digester but it is unfortunately not in use; it was a student project. The plastic waste is sold to a recycling company. There are also containers for used batteries, which are brought back to its producer in Morelia or Queretaro. Some of the benches are wood stocks from Germany that were supposed to go to waste. There is a garden with native plants, such as corn and trees (Zosa Polida, 2012, pers. comm.).



Before the university grew to its present size the blackwater was cleaned on site in an underground device. Even today one can see that the grass is greener where the device is located.

The cultural heritage is visible in the architecture and the layout of the campus. Although the buildings are in bricks and concrete, they remind of the traditional Purépecha house, the troje, with the porch where one can rest in the shadow. Another element is the stage that is built to look like the Purépecha pyramid, the yácata. The ground is kept untouched and is covered by grass. At some places a pathway has been constructed in concrete blocks in the grass, or lava-stones spread out between two concrete blocks to mark where to walk if not in the grass. There

are also a lot of trees which reminds of the Purépecha people's love for nature. Indoors the walls are decorated with pictures and photographs made mainly by national artists.

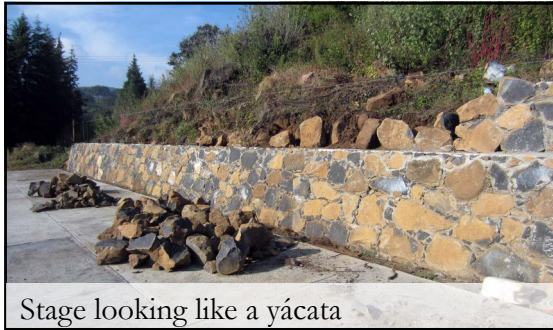
One very characteristic thing about the campus is the high hills in the west. They are estimated to range from five to fifteen meters above ground level and are covered by stones and various kinds of trees, bushes and grasses. Different kinds of animals and insects live there.



CHARACTERISTIC PARTS



Hill



Stage looking like a yácata



Garden



Separated garbage bins



Fireplace to burn paper waste



Bio-digester



Oldest building



Fenced windows



Benches made of reused materials

CHARACTERISTIC MATERIALS



Lava stone and grass



Vegetation



Stone



Construction stone



Wood and plaster



Brick



Concrete blocks or pathways



Lava stone pathways



Tiles

WISHES AND OPINIONS FROM THE TEACHERS



Model from workshop with Florest Fuentes



Me and Flores Fuentes talking

I had several meetings with the teachers Flores Fuentes and Zosa Polida. Early in the project they shared their thoughts about the park, which became a strong basis for the design program. Here is a summary:

PURPOSE

- Make people aware of environmental issues and how to live more sustainable, and empower indigenous people

TARGET GROUP

- Children from preschool to primary school, up to twelve years old
- Children in the neighborhood and later further away
- More educational for urban children than rural

ACTIVITIES

- Watch play by students
- Discussions, reflections (interactive talks)
- Lecture on healthy and local food
- Cook and eat traditional food

CONTENTS

- Both ecological and cultural elements
- Compost container

- Dry latrines
- Benches along the pathway
- Estufa lorena (traditional stove)
- Troje (traditional house)
- Information signs
- Fence around the whole area
- Animals close to the campus buildings
- Medicinal herbs
- Indigenous toys
- Sleepover possibilities
- Multi-functional building
- Nursery
- Guard
- A cow to milk
- Chickens for eggs

DURATION OF STAY

- One to three days, one to two weeks
- Most relevant during summer

DESIGN

- Ecological and local materials and appearance

OTHER

- The park is non-profit
- The students can volunteer

SWOT ANALYSIS FOR ZACAPU

A SWOT analysis is used to better understand the Strengths, Weaknesses, Opportunities and Threats of a project when specifying its objectives (Management Study Guide, 2012). It is a method devised by the American business and management consultant Albert S. Humphrey in the 1960's and 70's (Wikipedia, 2013). The method is a popular tool for architecture students at Chalmers.

In the SWOT analysis, the strengths and the opportunities are helpful for achieving the objectives while the weaknesses and the threats are harmful for achieving the objectives. The strengths and weaknesses are of internal origin while the opportunities and threats are of external origin (Wikipedia, 2013). Therefore the SWOT analysis is often illustrated according to the table to the right.

	Helpful	Harmful
Internal origin	S	W
External origin	O	T

In my study I have used the method also to show how the educational park at CUVZ supports the strengths and the opportunities

of Zacapu city and counters or minimizes its weaknesses and threats. The SWOT analysis on the next page shows the importance of an educational park in Zacapu. When applying the purpose of and the activities in the park to the SWOT analysis, it is evident that the park will be a positive addition to the city.

The SWOT analysis was also useful for me when deciding which of the potential ecotourism sites to continue working with, as a complement to the criteria. The educational park touches upon the majority of the strengths, weaknesses, opportunities and threats.

The content of the SWOT analysis on the following page is based on literature studies, my personal observations and conversations with the staff at CUVZ.

STRENGTHS

- Purépecha culture and ancient heritage
- Rich in natural sites, e.g. La Laguna, Los Espinos and other water springs
- The university works for the rights of indigenous people
- Indigenous communities with much and valuable knowledge of the region
- A will from organizations to make a change and make things better
- A will from the city council to attract tourists which generate income to the people
- Archaeological sites that are not yet explored
- International bicycle competition and festival each year
- People bicycle a lot

OPPORTUNITIES

- Develop the natural sites into ecotourist sites so they are accessible for all, in order to educate people, conserve the areas and protect the indigenous people
- Develop and explore archaeological sites so they become accessible and educative
- Develop a design strategy for the buildings in the city

WEAKNESSES

- Too little general knowledge about nature, environmental issues and history
- Too little knowledge on sustainable living
- City planners apply European symbols and construction models instead of Mexican or Purépecha, which leads to confusion and the loss of identity
- People throw garbage in the streets which makes the city dirty
- The water springs are getting more and more polluted and drained
- No uniformity on city buildings

THREATS

- People forget their history, especially children and youths
- Big business chains compete with small local ones which leads to global products instead of local and also unemployment in the end
- Trees are disappearing because of overexploitation and demand
- The municipality has an irresponsible way of planning which leads to pollution of nature and the water springs, and confusion among the inhabitants and visitors

The educational park affects the bold parts in the SWOT analysis by:

- Raising interest for the long history of Zacapu and the Purépecha people and culture
- Spreading knowledge about ecosystems, resources and environmentally friendly behaviour
- Strengthening the indigenous people
- Attracting children from other cities
- Using local construction materials
- Educating people on the importance of wetlands

MEETINGS AND STUDY VISITS

Besides the close contact with the teachers at CUVZ I went on study visits to relevant places, like a primary school in Morelia and a museum in Pátzcuaro, and I familiarized myself with the Purépecha culture and people, for example by participating in a traditional market day (trueque) and spending time with an indigenous man and his family. It was important to gather information about

the indigenous culture since it would be a significant part of the educational park and I did not know much about it before.

The choice of meetings and study visits depended mainly on the information I got from my contact person Martinez Vega and the teachers at CUVZ.

MEETINGS WITH EDGAR

Edgar Alejandro is an indigenous man who works for Secretaría de Pueblos Indígenas (The Secretary of Indigenous People) in Morelia. I had the privilege to meet with him and his family several times during the field study. They showed me how the Purépecha people live today and their current manners and celebrations, which are of importance when deciding what kind of activities and elements to include in the educational park.

In Alejandro's hometown Santa Fe de la Laguna it is a mix of modern Mexican life and traditional Purépecha life. The television is on but people sit on carpets made of reeds. The mix is most obvious in the kitchen, where there is an old clay oven for making bread, a traditional stove fueled by wood made in glazed tiles and a modern gas stove. Only the two last ones are in use since no one has the time to make bread. People in this small community still speak the Purépecha language even though it is sometimes mixed with Spanish. Many women still dress in traditional clothes and wear the characteristic scarf around their shoulders, while the men dress more modern in jeans and t-shirt or



Edgar in front of flower decorations in the temple in Santa Fe de la Laguna

sweater. The feasts are celebrated in the most traditional way here. For example the Night of the Dead is celebrated by making big altars of yellow flowers for the dead and visit friends and family. They go to the cemetery to be with their ancestors. They also know and cherish indigenous symbols, unlike bigger communities.

PARTICIPATION IN A TRUEQUE

Trueque is an ancient way to trade, to exchange an item to another. No money is used. In San Andres they arrange trueque to continue the tradition and pass it on to the children. People come from the surrounding communities and exchange pottery, carpets, furniture, fruit, food etc. Nothing has a fixed value. Instead it is an agreement between two parts. It is believed that in this way everyone is happy. I exchanged a cup for a coconut.

STUDY VISIT TO PÁTZCUARO MUSEUM

Most of the information I got from Museo de Artes e Industrias Populares is written in the “Background” chapter. I got a guided tour and the chance to see a traditional stove and house, which are interesting for the project.

VISIT TO A PRIMARY SCHOOL IN MORELIA

It was a quick but informative visit which involved a presentation of a camp organized by Campamentos Educativos, Faro de Bucerías, Michoacán in collaboration with Universidad Michoacana de San Nicolas de Hidalgo (UMSNH).

The camp has many similarities with the project at CUVZ. It is a social and educational camp where the children learn about nature, environmental issues and indigenous people. The children are between ten and twelve years old and away for approximately one week. The differences from the educational park at CUVZ are that the camp is in the coast and that they stay in the homes of local indigenous people.

What interested me the most was the children’s response to the presentation and their excitement for the trip. They wanted to know a lot about the plants and the animals that were presented, and they asked many questions about how they could be used, for example if they are eatable. An educational tour seems to be a good and attractive way to teach children important things.



Handicrafts made of reeds, Pátzcuaro m.

INSPIRATION AND CASE STUDY ANALYSIS

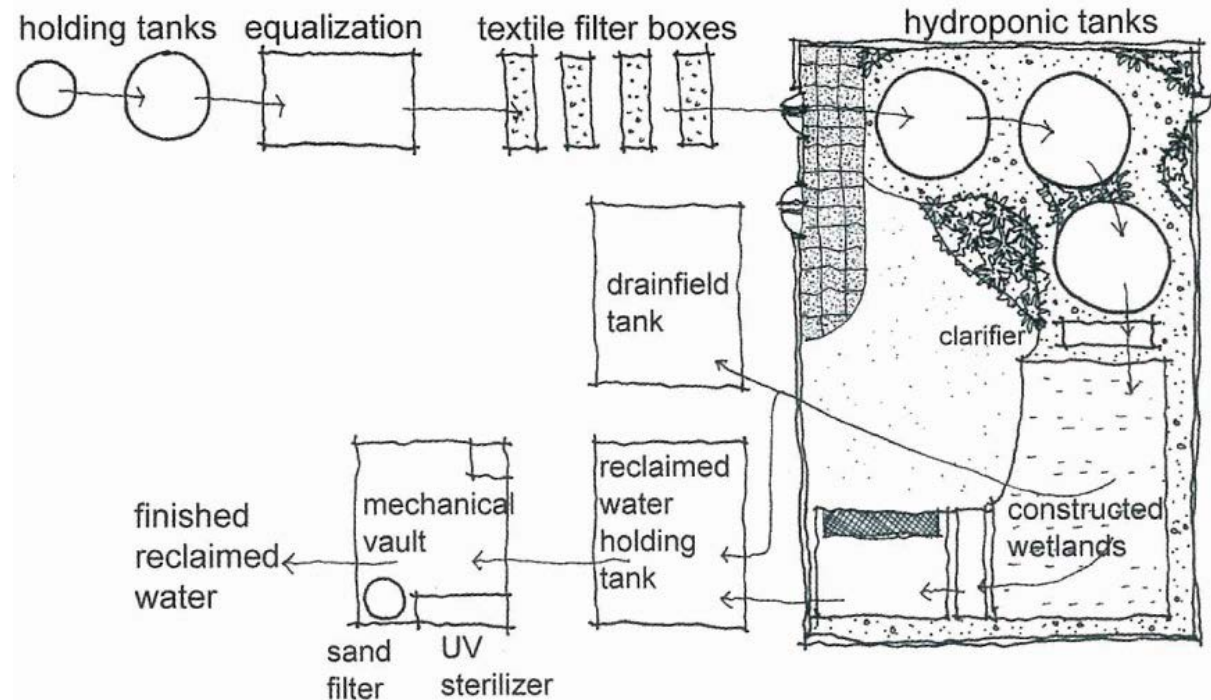
I took a closer look at similar projects that could give me inspiration and ideas, before and during the field trip, as well as before and after I had chosen the pilot project. The case study analysis gave me an insight in what has been done before, what is going on and what can be done. I looked especially deeply into projects related to education, wetlands, water cleaning, material reuse and (eco-) tourism. The following projects are the most interesting findings.

WALNUT CREEK

Walnut Creek is an educational park developed together with the community members in Raleigh, North Carolina, USA. A part of the goal was to restore the urban wetland to its original state by educating people about the wetland and the environment. Other aims were to enhance community pride and encourage economic development. The project includes a park with trails and activity stations, mainly for children (Natural Learning Initiative, 2012).

ISLANDWOOD

IslandWood is a non-profit “school in the woods” on Bainbridge Island, Washington, USA. Children (and adults) learn about the

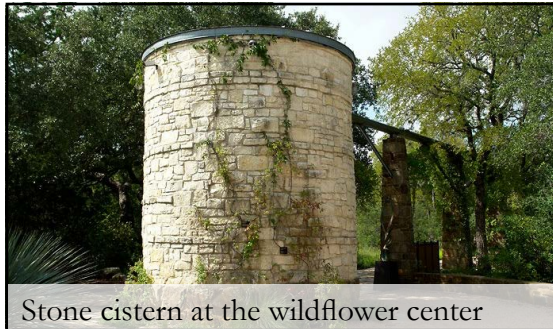


environment by doing and by being in nature (IslandWood, 2012). Among other things there is a water treatment plant called The Living Machine that cleans water through natural processes and with the help of plants and micro-organisms rather than with chemicals. The schematic illustration above shows how the water cleaning works (The Green Studio Handbook, 2007).

The water runs through several filters and tanks before it can be reused. The system is complex and complicated but imitates natural water cleaning and can be done in various ways. There are specialist companies that design these kinds of water treatment plants. The wastewater may be greywater or blackwater, and be cleaned to such an extent that it is drinkable or for watering plants.

LADY BIRD JOHNSON WILDFLOWER CENTER

This public garden in Austin, Texas, USA was built to increase conservation and sustainable use of native plants in North America. Here rainwater is collected and partly stored in a big cistern made of native rocks (Lady Bird Johnson Wildflower Center, 2013).



Stone cistern at the wildflower center

KITENGELA GLASS

This glass studio complex outside Nairobi, Kenya, has its buildings and structures made of mud, grass and recycled materials in artistic ways. In the area there are also a few guesthouses and pathways following the same design (Kitengela Glass, 2013 and personal observations, 2012).

AGRO-ECOLOGICAL EDUCATIONAL PATH

The University of Applied Sciences, Eberswalde, Germany, made a project proposal for a non-governmental organization in Octavio Cordero Palacio, Ecuador. The idea is to educate people on

sustainable and ecological agriculture in order to increase the demand of the products among Ecuadorians and in turn increase the income of rural families. The visitors would walk through the process by a path and get close contact with the animals, nature and the native people (HNE Eberswalde, 2013).



Structures made of reused material at Kitengela Glass

GOAL

The goal with the educational park is to teach, in a fun and pedagogical way, children alternative ways to live that are sustainable and connected to the local native culture. The park should be interactive, with many opportunities to learn by doing and using all five senses. Play should be integrated in the learning process. For pedagogical reasons the systems and the knowledge taught should be visible and usable even when not “in class”.

PROGRAM

It was clearer what the park should include after investigating the needs of the park and its possible development, through meetings with the stakeholders, study visits, analysis of the site, case study analysis and systems mapping, and then defining the goal.

To the right is a summary of the content. On the following pages there are more in-depth descriptions of the different parts.

GARDEN

- Native plants
- Medicinal plants
- Fruit trees
- Flowers
- Greenhouse
- Compost
- Basic food production for local use
- Storage for the garden tools

ANIMAL FARM

- Animals
- Bio-digester

PATHWAY

- Native plants
- Platforms with information boards
- Full-scale images of animals
- Viewpoint
- Rainwater collection roof
- Water cistern
- Garbage bins
- Benches

SUSTAINABLE SYSTEMS

- Water treatment and reuse
- Waste management
- Solar energy systems

PURÉPECHA CULTURE AREA

- Troje (traditional house)
- Estufa lorena (traditional stove)
- Workshop space for arts and crafts
- Space for dance, music and games

RESTING PLACE

- Fireplace

PLAYGROUND

MULTI-USE SPACE

- Open space
- Multi-functional building

CAMPING SITE

PARKING

SANITATION

- Toilets
- Showers

SAFETY

- Fence
- Guard
- Nurse

GARDEN



Nisperos

PURPOSE

Learn about different species, how to cultivate and to compost, get inspired, respect the plants and the earth, and see cycles rather than lines.

ACTIVITIES

There are many things to do in a garden. Here are some examples:

- > Plant trees
- > Grow plants
- > Make mini-ecosystems in glass jars
- > Study genetics of plants
- > Have small plant in an eggshell to take home and plant
- > Test medicinal plants and make herbal medicines

CONTENTS

Native plants, for example corn

In Mexico there are around 350 corn species, many of which are disappearing or getting replaced because of the global demand of only a few types (Study visit to Pátzcaro museum, 2012). To ensure the biodiversity it is important to protect the species and educate people about them.

Medicinal plants

In nature there are many plants, such as chamomile and arnica, which have relieving or curing effects. Some of the plants have been manipulated in laboratory in order to optimize the effect, but they are powerful in their natural state as well. However, much of the information about them have been forgotten or disregarded in our modern society. Therefore it is interesting for children to learn about them.

Fruit trees

There should be fruit trees that the children can pick from so they know where the fruits come from. There could be for example nispero (see image to the left), black sapote or ciruela which are the fruits that grow in the region (Martinez Vega, 2012, pers. comm.).



Different types of corn



Plant in eggshell

Flowers

The garden should not only have useful plants but also beautiful ones to please the eye and show the richness of our planet. The yellow rose, for example, is rooted in the region since the whole neighborhood is called Rosa Amarilla, which means yellow rose (Flores Fuentes, 2012, pers.comm.).

Greenhouse

In the greenhouse the children learn how to, with very simple means like putting up glass-plates around a plant, grow plants that usually do not grow naturally in the local climate. They also get to see and know more about plants like papaya, bananas and tomatoes that need warmer climate in order to grow.

Compost

Instead of throwing the organic waste together with other kinds of waste, we can separate it and turn it into the finest soil to grow with. This is an important lesson for the children.

Basic food production for local use

For example the Mexican bean, frijol, can be cultivated and eaten on site. It is a very common part of Mexican dishes and therefore it is interesting for the children to see how it is grown. Other common ingredients are lime and different types of chilli.

Storage for the garden tools

The storage is necessary for the maintenance and the sustainability of the garden.



DESIGN CRITERIA

- > Information sign for each plant
- > Possible to get close to the plants
- > Located close to the other campus buildings to prevent theft and vandalism
- > A pathway through the garden
- > Greenhouse made of recycled or reused materials if possible, for example old windows or bottles
- > The storage can be integrated with the greenhouse
- > Benches for relaxation and observation

ANIMAL FARM



PURPOSE

Get contact with animals, learn how some animals are useful for humans, respect animals, and learn about bio-digestion.

ACTIVITIES

Here are a few examples on what the children can do:

- > Milk a cow
- > Collect eggs
- > Feed the animals
- > Study the food and waste chain

CONTENTS

Animals

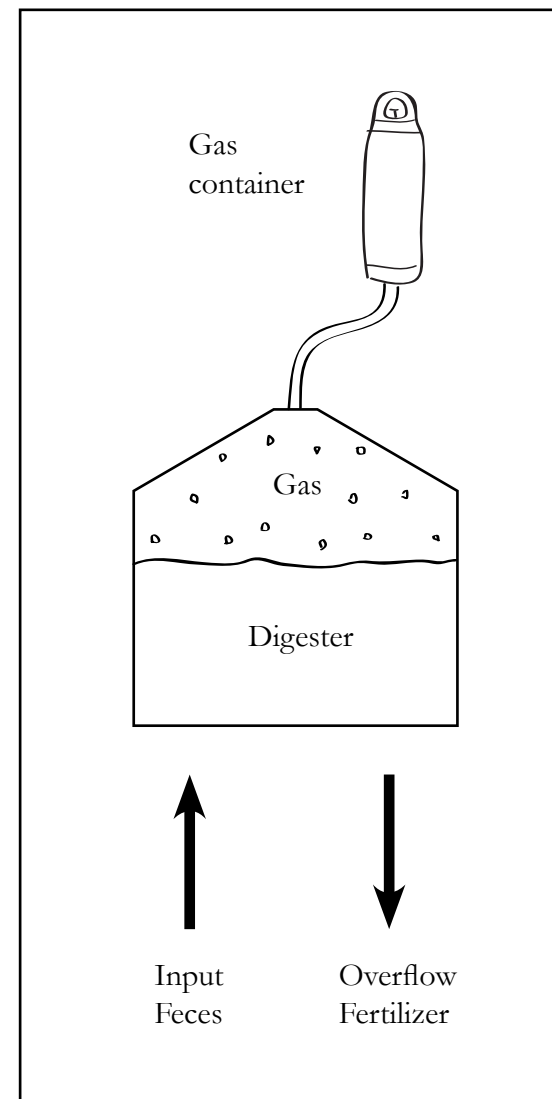
There should be a cow and some chickens partly because they are the sources of most of our animal related food products and partly because they are easy to take care of. Other interesting animals are pigs, goats and bunnies.

Bio-digester

The animal feces can be transformed into biogas in a bio-digester and then used for heating or cooking. It is an easy process that the children can remake at home (see image to the right).

DESIGN CRITERIA

- > Located close to the other campus buildings to prevent theft and vandalism
- > Space and/or shelter for the animals
- > Fence around the farm
- > The shelters should be made of local materials
- > The bio-digester should be connected to a kitchen



PATHWAY



Wooden stairs

PURPOSE

See and learn about native plants and ecosystems, and be close to nature.

ACTIVITIES

Here are some examples on activities along the pathway and on the hill:

- > Guided tours
- > Orientation
- > Walking quiz
- > Exercise
- > Walk or run
- > Identify leaves from plants
- > Bird watching

CONTENTS

Native plants

The main purpose of the pathway is to demonstrate plants native to Mexico. The children see, touch, smell and learn about trees, bushes, cactuses and other kinds of plants that live wild and free in Mexico.

Examples of appropriate plants are pine, oak, nopal, fraxinus, bursera, mammillaria, willow tree, ahuehuete, jacaranda, maguey, yucca and lime tree (Martinez Vega, 2012, pers. comm.).

Platforms with information panels

The pathway should include a few platforms on which the children learn thematic things, for example about ecosystems and wildlife. Here they can also have short lectures about the environment.

Full-scale images of animals

In order to know more about the animals living in the region, there should be full-scale images of them along the pathway. In this way the children get a good sense of the animals' appearances even though a living animal would be the most optimal choice.

Viewpoint

One of the platforms should have a viewpoint over the part of Zacapu city that is visible from the hill, with information about its history.



Steel roof for rainwater collection

Rainwater collection roof

When it rains the water can be collected and stored in a cistern after that the particles have been separated. The children learn alternative sources of water and hopefully think about it when taking a shower in rainwater. The water can also be used for flushing the toilet and watering the plants in the garden.

Water cistern

There should be a big tank where the rainwater is stored. The children see how much water one can save by collecting rainwater.

Garbage bins

Wherever one goes there should be garbage bins that remind of not throwing waste into nature.

Benches

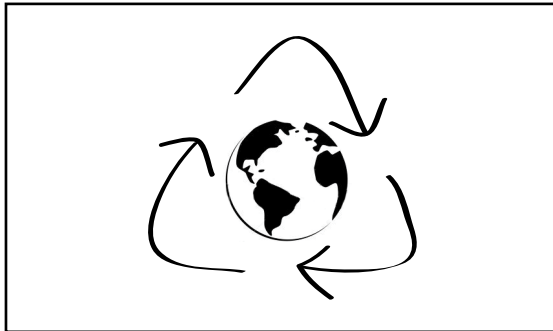
The visitors should be given possibilities to relax and enjoy the pathway while seated as well as while walking.

- > Rainwater collection roof made of uncoated stainless steel or baked galvanized steel to minimize particles in the water
- > Benches and garbage bins close to the pathway or on the platforms
- > Benches close to trees that provide shadow
- > Separated garbage bins colored pedagogically, for example green for organic, blue for plastics and white for paper

DESIGN CRITERIA

- > Light and/or natural materials, for example wood, stocks and (native) rocks, to minimize negative impact on nature
- > With time parts of the pathway can be replaced with children-designed blocks
- > A big map of the area at the entrance so the children get an overview
- > Information sign for each plant
- > Pedagogical information panels on adapted height and easy to read for children
- > Stairs with balusters
- > Platforms with roofing that protects from rain and sun
- > Viewpoint combined with rainwater collection

SUSTAINABLE SYSTEMS



PURPOSE

Learn where resources come from and where they go, learn new and alternative ways to (re)use resources, and learn about renewable energy.

ACTIVITIES

Some of the activities can be:

- > Test alternative systems
- > Reflect and discuss
- > Watch play about the environment
- > Create new things with waste
- > Separate waste
- > Cook with solar energy

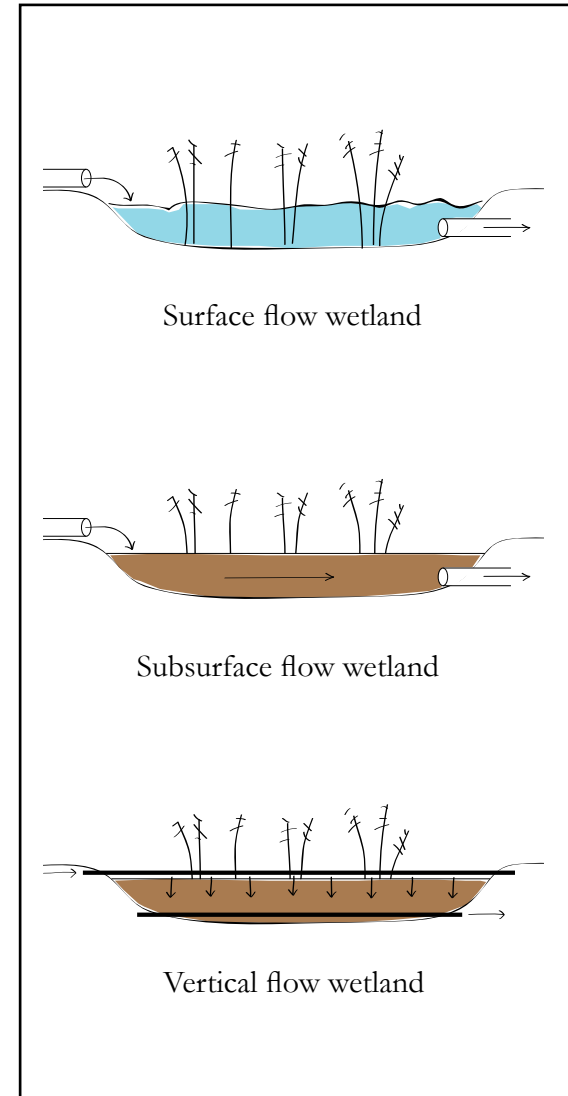
CONTENTS

Water treatment and reuse

When it comes to the sustainable systems, the main focus is on water treatment and reuse since water shortage and pollution is a big issue in Zacapu and all of Mexico (Central Intelligence Agency, 2012).

There are many ways to clean water, both naturally and chemically. One way is by the use of a constructed wetland that imitates the cleaning process of a natural wetland. This is an appropriate method since it already exists a wetland in Zacapu. By introducing an artificial wetland in the park the importance of La Laguna is more obvious.

There are three types of constructed wetlands: surface flow, subsurface flow and vertical flow. All three types are placed in a basin with some kind of substrate. The bottom consists of clay, concrete or geomembrane, which is rubber or plastic. The substrate can be sand or gravel, generally limestone or volcanic rock. Above the substrate grow different kinds of reeds, where the microorganisms that feed on the wastewater live (Wikipedia, 2013).

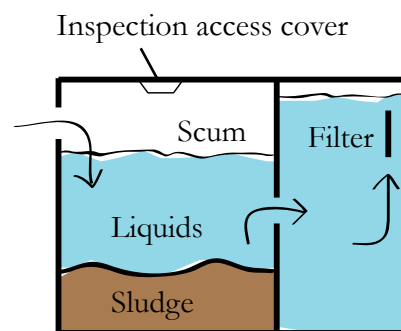




Constructed wetland

In the surface flow wetland the wastewater flows horizontally across the roots of the plant. In the subsurface flow the wastewater flows between the roots of the plants and no water is surfacing but kept below the gravel. This system is more efficient, does not attract mosquitoes, and is less odorous and less sensitive to winter conditions than the surface flow system. But on the other hand, the surface flow wetland is more beautiful, can have fish and is more pedagogical since it is more visible than the subsurface flow system. The vertical flow wetland is similar to the subsurface flow system but the wastewater flows vertically instead of horizontally (Constructed Wetlands, 2012).

In the educational park the surface flow wetland is the most appropriate.



Before the blackwater can enter the constructed wetland and get cleaned, it has to go through a primary treatment, a so called septic tank (see image above, a section through the tank). The liquids are separated from the solids by sinking to the bottom and then led through a filter to the pond. The solid waste, the sludge, can be composted or turned into biogas (Constructed Wetlands, 2012).

The clean water from the constructed wetland can be used to flush the toilet or water the garden and the park. In this way the used water is reused and there is no need for any new water. Greywater from the showers and the sinks can also be reused after treatment in the constructed wetland. When using the rainwater collected on the hill, water can be saved.

The whole water system should be displayed on an information panel for the students and the visitors.

Waste management

It is very common that Mexicans throw garbage in nature or in the streets without thinking about the consequences and the effects on the environment. The garbage is often non-organic and hard, if not impossible, to digest by the organisms in nature. There are workers who clean the streets but they are few and would not have been needed if people did not throw garbage in the first place. One of the problems is also that there are very few garbage bins visible and available in Zacapu.

One positive development in Mexico recently is that there are recycling businesses that buy waste, such as plastics, glass and metal, and sell to a third part.

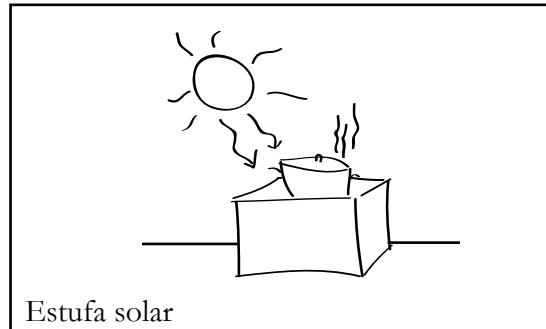
At the educational park the children should learn the importance of separating waste in order to recycle or reuse it. They should also learn to compost and make biogas.

Solar energy systems

The sun is one of our renewable and endless resources. In Mexico there is a lot of sun. If people learn how to get energy from the sun, their lives would be easier and not dependent on for example the gas price or supply.

With sun energy one can heat water, make electricity and cook. There are advanced solar water heaters on the market, but they are very expensive. It is not impossible to build one on your own. One way to do it is by putting a water-filled black-painted container inside of a glass-box. The black color absorbs sunlight and heat, and the glass keeps the heat inside the box and maximizes the absorption of the container according to the principles of the greenhouse effect. The hot water can later be used to shower or clean dishes. In this way the children understand the use and the power of renewable energy.

Some parts of the park should have electricity made of solar energy. This is to demonstrate for the children that it is possible to light a lamp or start a fan by using what is available for everyone: the sun.



The solar stove, estufa solar in Spanish, is a portable unit that some households in the rural areas use for cooking.

It is a very simple construction, made of a carton box covered by aluminium on the inside and filled with water. The aluminium heats the water with the sunlight and one can put a pan on it and cook. It only works during daytime though.

DESIGN CRITERIA

- > Visible for pedagogical reasons
- > Separated garbage bins throughout the area
- > Organic form on the constructed wetland
- > Axolotl in the pond if possible
- > Septic tank under the ground to prevent bad smell
- > Solar water heater connected to showers and sinks

PURÉPECHA CULTURE AREA



Handmade pottery

PURPOSE

Learn about the Purhépecha culture, understand and respect differences and similarities between people, learn traditional way of cooking, try indigenous games, toys, dance, music, and arts and crafts.

ACTIVITIES

Among other things, the visitors can engage in the following activities:

- > Cook traditional food
- > Play music
- > Dance
- > Weave baskets and toys with reeds
- > Make pottery and sculptures out of clay

CONTENTS

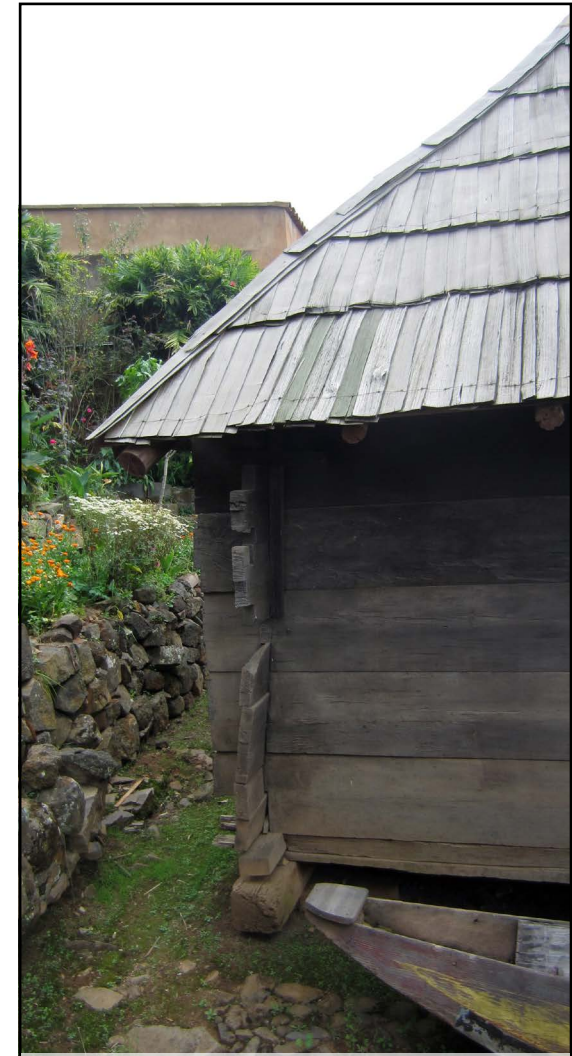
Troje

The traditional house of the Purépecha people is called troje. Its origin is not yet decided but it is believed to have Pre-Hispanic roots.

The construction of a troje is very similar to the Nordic log cabin. It is made of flat slices of pinewood placed horizontally on each other and joined together with a cut in the end of them. The roof is made of tiles of wood. The house is elevated to prevent reptiles from entering and minimize the risk of flooding when it rains. Nowadays a troje would cost approximately 150 000 Mexican pesos (€ 8 900), but before it was very cheap since there were more trees.

The troje was, and still is in some areas, used for sleeping or storing mostly corn. Some had even a stove in there, while others had the kitchen outdoors. One family had one or several trojes, depending on the size and the economy of the family. A poor family had only one and used the attic for storage and bedroom for the children.

(Study visit to Pátzcuaro museum, 2012)



Close-up on the troje, Pátzcuaro museum

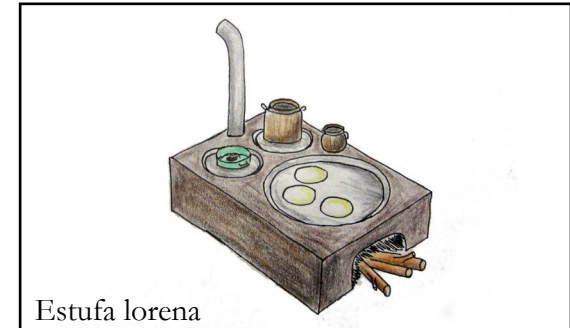


Repairing of the roof of a troje, Pátzcuaro museum

The design of the troje was almost always the same; a room without windows since people only slept in there and spent their time outdoors, and a porch to relax, work and socialize on. The walls inside the troje were filled with household items, such as baskets, cups and cutlery. In the ceiling on the porch they hanged corncobs to dry.

A troje can stand for centuries but the roof has to be changed every 25 years. The troje in the museum of Pátzcuaro is from the 1700s.

(Study visit to Pátzcuaro museum, 2012)



Estufa lorena

Estufa lorena

Since a big and important part of the Mexican culture revolves around food, there has to be a traditional stove to cook on in the park. The estufa lorena can be found in other Latin American countries as well.

The stove is very easy to construct, with clay or bricks. It is efficient and does not consume a lot of firewood since the stove concentrates and conserves the heat. The heat can later be used, for example, to warm up seats made of clay around the stove (Perma Dub Dream, 2012).



Estufa Lorena, Pátzcuaro museum

Workshop space for arts and crafts

The Purépecha people are known for their beautiful and sculptural pottery and artwork. There is a long history and tradition behind the handicrafts. Not all of them are suitable or easy enough for children, but they can at least learn about them and try the techniques.

Space for dance, music and games

Besides the arts and crafts, the Purépecha culture has special dance and music that the children can try. There are also traditional games that the ancestors played.

DESIGN CRITERIA

- > Traditional design and materials
- > Local materials
- > Some of the spaces can be combined
- > Interior design of the troje
- > Estufa lorena close to the troje
- > Open and flexible spaces

RESTING SPACE

PURPOSE

Rest, eat, snack and socialize.

ACTIVITIES

- > Storytelling
- > Gatherings
- > Ice-breaking games
- > Lunch and dinner
- > Lie in the grass
- > Barbeque

CONTENT

When there are no scheduled activities, the children are free to use the resting spaces to do whatever they feel like. These are important parts of the park since the children can decide themselves what to do and get to know each other in a natural way. They also get time to reflect on what they have done and learned during the visit.

Fireplace

There is something mystical and exciting about open fire. It is not only beautiful and warming but also possible to cook on. It can also be also dangerous, which makes it even more exciting for children.

DESIGN CRITERIA

- > Natural and local materials, for example stock, wood and stone
- > Several resting places
- > Benches and tables
- > Trees or roofs that give shade
- > Separated garbage bins
- > One resting place close to the estufa lorena

PLAYGROUND

PURPOSE

Have fun, learn about indigenous toys, and get to know each other.

ACTIVITIES

- > Play
- > Try indigenous toys

CONTENT

Play is children's way of getting to know each other and themselves. Children have a great imagination and, especially in the young ages, a wish to include everyone.

In this playground the children can play with indigenous toys, like the trompo and the balero.



DESIGN CRITERIA

- > Natural and local materials
- > Simple constructions, for example with rope and wood
- > Reused materials, for example tyre
- > Storage for the toys
- > Trees or roofs that give shade

MULTI-USE SPACE



PURPOSE

To be used for whatever reason, demonstrate alternative building constructions.

ACTIVITIES

- > Lectures
- > Art classes
- > Workshops
- > Sleep
- > Build small huts out of grass and wood

CONTENTS

Open space

In this working area the children should be able to use their creativity to construct things under supervision, for example Purépecha artwork. They can also make experiments here.

Multi-functional building

It is not always sunny in Zacapu. Therefore there is a need for a building where the children can be when needed.

One of the purposes of the building is to show and inspire the visitors to use alternative construction materials that are reused and environmentally friendly.

DESIGN CRITERIA

- > Open and flexible area
- > Local and/or reused materials
- > Trees and bushes to define the outdoor area
- > A building for activities when it is cold or raining
- > Storage for toys, tents and tools
- > Tables outdoors to work on

CAMPING SITE

PURPOSE

To camp if wanted and needed, and learn to cooperate and co-exist.

DESIGN CRITERIA

- > Big and open space
- > Trees and bushes to define the area
- > Grass on the ground
- > Storage for tents and sleeping bags to lend out

PARKING

PURPOSE

Accessibility for students, staff and visitors.

DESIGN CRITERIA

- > Combined with trees and greenery
- > Parking for both vehicles and bicycles
- > Shelter or roof for parking bicycles

SANITATION

PURPOSE

Meet basic human physical needs and take care of the personal hygiene in alternative and sustainable ways.

CONTENTS

Toilets

In the rural areas people have dry latrines in their homes because they are not connected to the municipal sewage system. They use sawdust to cover the excrements and to get rid of the bad smell. The waste digests by itself with time (Zosa Polida, 2012, pers. comm.).

In the educational park there should be a few dry latrines that the children can use. They should be designed in an attractive way so that the children want to use them.

Showers

The showers should be connected to the rainwater collection and the solar water heater. It is very educational for children to try sustainable systems themselves.

DESIGN CRITERIA

- > Water cleaning on site
- > Dry latrines attractively designed
- > Dry latrines connected to bio-digester
- > Reuse water

SAFETY

PURPOSE

Feel safe, comfortable and relaxed

CONTENTS

Guard

There is a need for a guard who protects the children if something dangerous happens.

Nurse

It is not unusual that children get hurt and need help. Therefore there should be a nurse who takes care of the wounded.

DESIGN CRITERIA

- > Fence around the campus
- > Lights run by solar energy when possible
- > Small office for the guard
- > A room possible to close for the nursery

HUMAN ACTIVITY SYSTEM

In the park and at the university the visitors, students and staff members will have activities that are connected to, what I consider to be basic physical needs: eat, sleep and take care of personal hygiene. The activities need an input, for example a fuel, and they have an outcome, for example waste. For each of the inputs and outcomes there is a solution, for example an energy converter. Sometimes the outcome of one activity can be the input for another, which is interesting and of educational value when trying to create energy and resource cycles in order to have a more sustainable living.

The illustration on the next page shows the human activity system on the university campus, that is, the linkages between the activities, inputs, outcomes and solutions in a schematic way. Some of the activities and

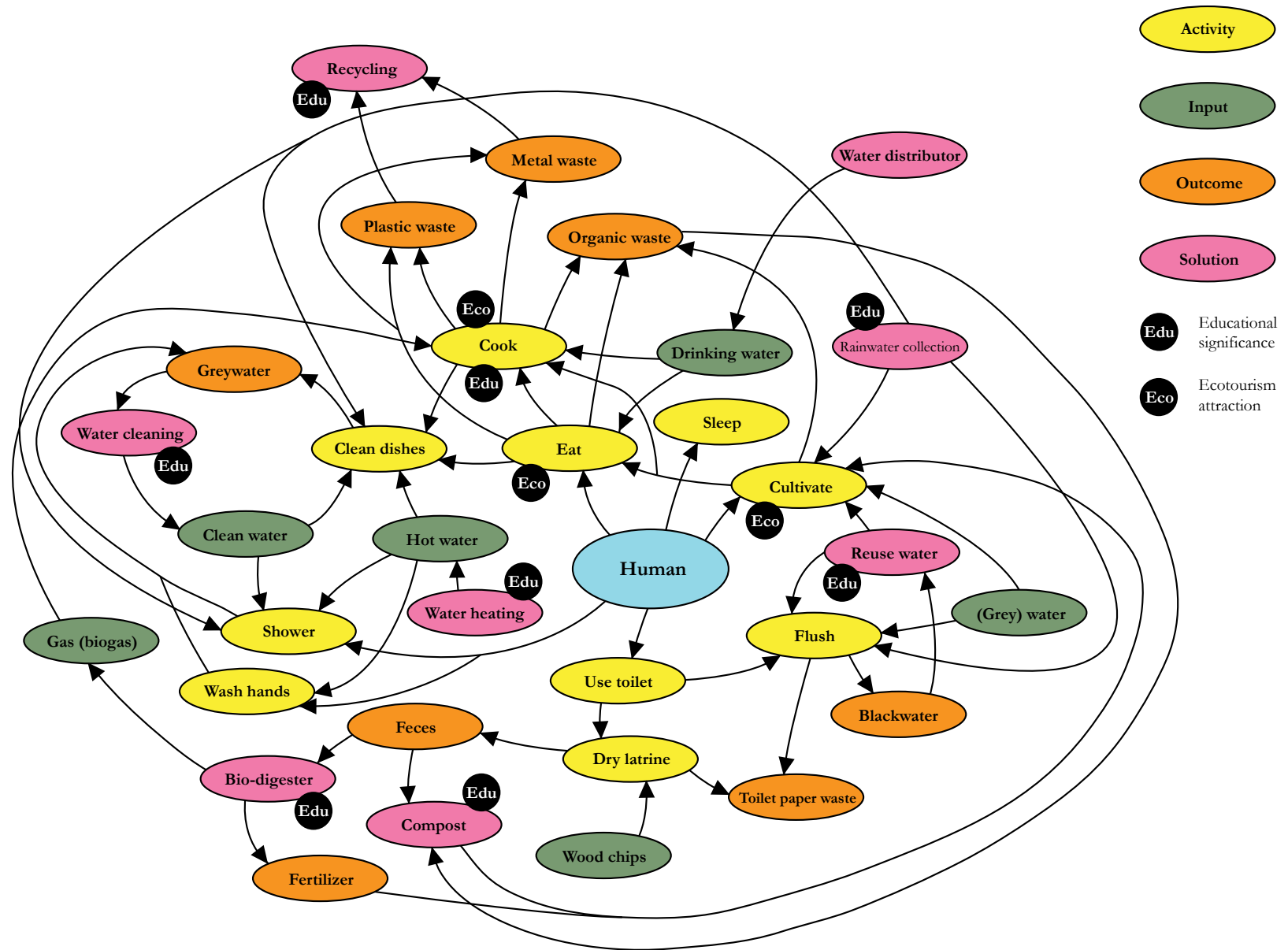
solutions are of educational significance and some are ecotourism attractions, as shown in the illustration.

The human activity system helps to decide where on the university campus to locate some of the elements that are described in the program. It does not give guidance for each and one of the program items since it is limited to the basic physical needs of a human being, but it is still helpful and responds to the goal with the educational park: to teach, in a fun and pedagogical way, children alternative ways to live that are sustainable and connected to the local native culture. In our everyday life we have to find ways to meet our basic physical needs and the illustration shows how this is possible in a more sustainable way. Hence, the system can be implemented, not only on the park

and the university, but also in the everyday life of any human being, which is important and possible to learn when visiting the educational park.

The system also offers an overview and an understanding of why some of the sustainable systems in the program are important to include in the park. For example we see that the reuse and cleaning of water connects to our basic physical needs. By reusing water we can grow food that we eat, and by cleaning water we can clean dishes and ourselves.

The only basic physical activity that is not connected to any input, outcome or solution is sleep. Of course one gets energy from sleeping but in this case I do not find it relevant for the motives of the park to connect it to the other parts of the system.



WORKSHOP AT A PRIMARY SCHOOL

Since the educational park is for children and families, it is essential to know what children think about it. I went to a public school and a religious school before a private school, Escuela Primaria Cristobal Colon, agreed on letting me talk to the children. The main objectives were to find out if there is a demand for, or an interest, in an educational park, and how the park can be developed in order to respond to the needs and wishes of the children.

Before the workshop one class from each grade got a presentation of the educational park and answered the following questions:

1. How many would like to visit the park?
2. How many want to know more about nature?
3. How many want to know more about the Purépecha culture?
4. How many would like to sleep in the park?
5. How many would like to go to another city to visit a park like this one?

The children answered by raising their hands. The result is shown to the right.



Age in years	6-7	7-8	8-9	9-10	10-11	11-12
Question 1	26	8	8	13	19	17
2	27	6	10	16	19	17
3	26	5	10	16	19	17
4	16-20	5-7	10	15	18	14
5	20	5-6	10	13	19	15
Total amount of children	28	8	10	16	19	17

The questions were easy so the children could understand them fast and keep focus throughout the questionnaire. Depending on their ages, some of the words, like “nature” and “Purépecha”, were explained further with examples. Nature included plants, animals, ecosystems, compost, bio-digester, water reuse and treatment, solar energy systems and similar elements. Purépecha was explained by references to their grandparents, traditional food, music, games and other things that they know a little bit about.









Many children raised their hands because their classmates did so, but it was still obvious that they would enjoy an educational park. They were most enthusiastic about camping and learning how to cook traditional food. A few did not like the idea to go to another city to make a visit, which means that the park might not be very attractive for non-citizens but at the same time the majority would like to travel.

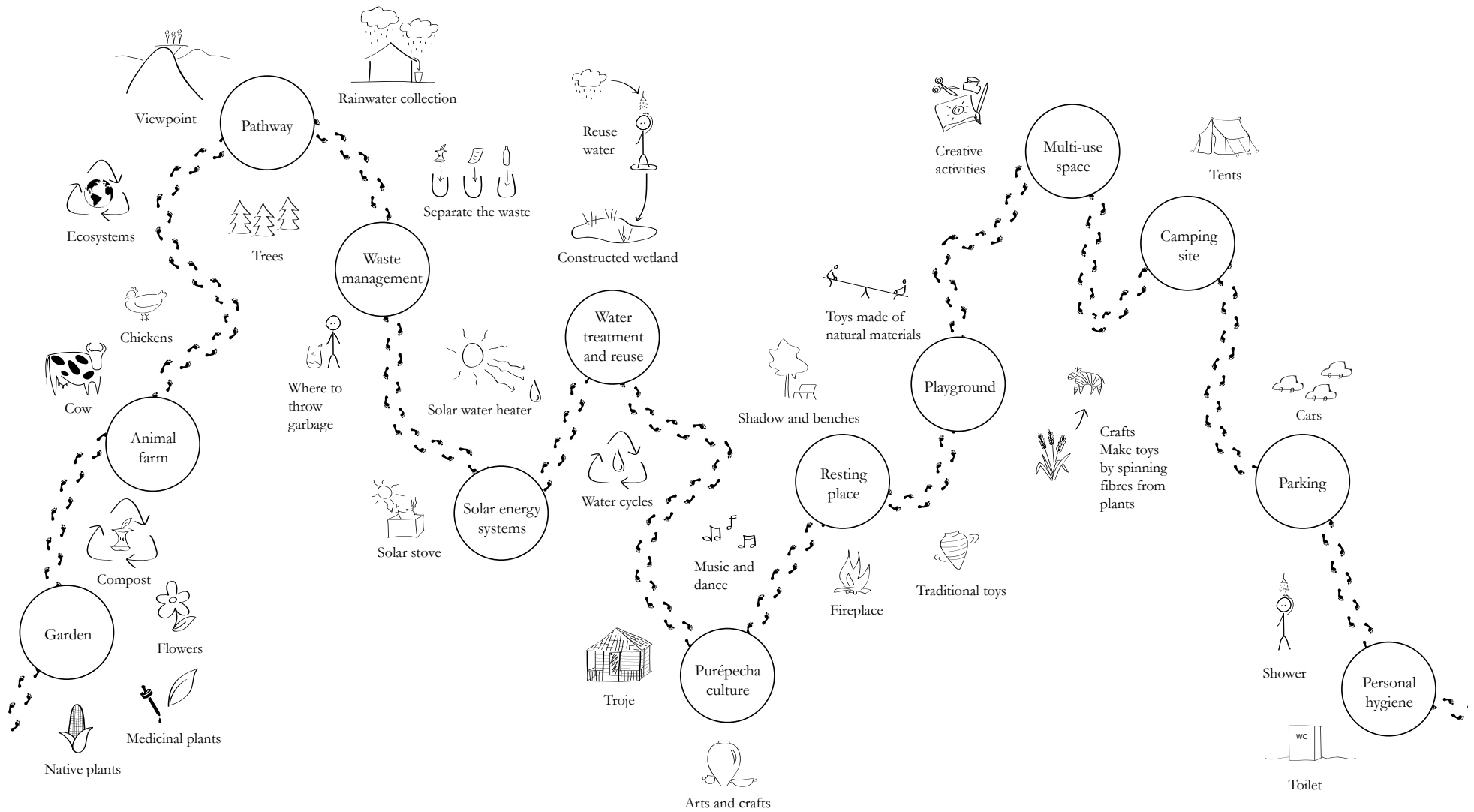


Active children

Later, the eleven to twelve year olds were asked to put stickers and notes on a symbolic map of the educational park with its different parts. It was three groups with four to five children in each. In the end of the exercise they were free to paint the maps.

The map that the children used is shown on the next page. The only differences are that theirs were bigger and in Spanish. The stickers they used are shown to the right.

-  I like
-  I don't like
-  I want to know more
-  I want to see
-  I want to hear
-  I want to smell
-  I want to taste
-  I want to touch



After taking a look at the results and analyzing the maps, the following conclusions could be drawn. Most of the children are eager to know more about the different parts of the park. They welcome examples on sustainable methods, such as rainwater collection and solar heating. They want to use all senses when learning new things, especially the sight, the touch and the taste. Some of the elements they did not like, they did not understand or thought are dangerous, like the traditional solar stove and the fireplace. The children seem to know the importance of taking care of the planet, but one has to take into account that it is a private school and they are from wealthy families.

They also wrote some valuable comments that show what is important for them:

“We have to use the food that we don’t need to heat”
 - About the solar stove

“Because we can see whole of Zacapu”
 - About the viewpoint

“Because we can reuse the things we have already used”

- About separating waste

“To live together”

- About music and dance

“To try what we have yet not tried”

- About arts and crafts

“The water reuse is brilliant because if we recycle the water we can use it again”

- About water treatment and reuse

“To see how it is made. YES! YES!”

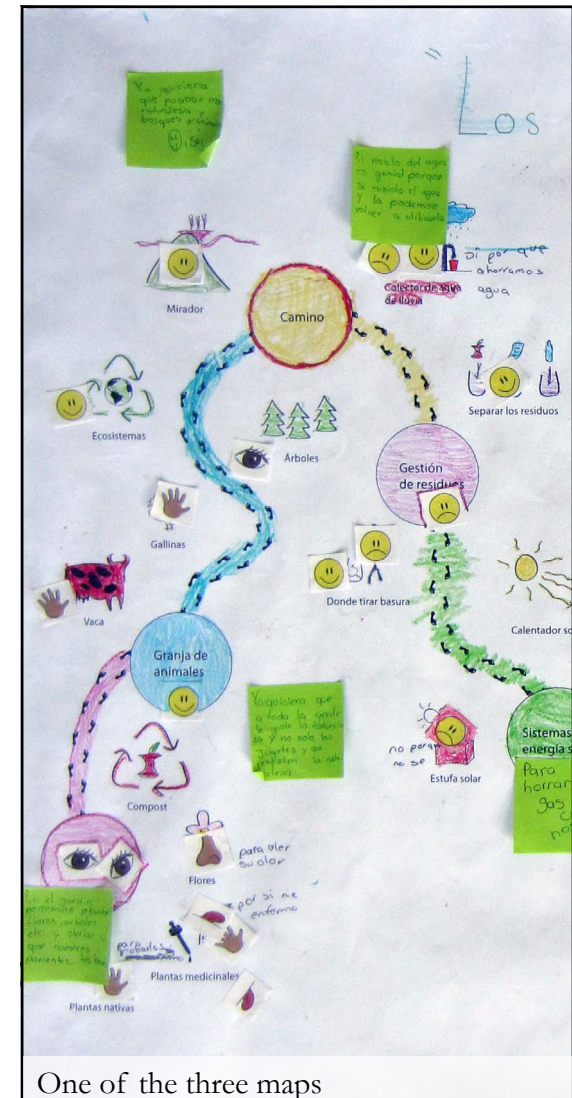
- About the troje and arts and crafts

“Don’t charge”

- About the parking

“To save gas”

- About the solar energy systems



One of the three maps

PROPOSAL

The multi-use space and Purépecha culture center



Proposal plan 1:1500
See page 61 for existing plan

THE PATHWAY

I made a master plan proposal based on the findings and the program. In the map to the left the existing buildings are darker than the new elements. The educational park is integrated in the university campus so that both the staff, the students and the visitors can take advantage of the new structures and systems. The density is also to save space, to have least impact on the environment, to have control and overview of the different components and to minimize the distances for the visitors. The new elements are located around the university buildings since the teachers want to have the space in the center open and free for events, like graduations, celebrations and exhibitions. Across the open space a pathway is added to simplify movement and to better connect the buildings to each other. The parking, which was in the center before, is moved to the space in front of the soccer fields in the south.

The park consists basically of three parts: the pathway, the garden and animal farm, and the multi-use space and Purépecha center. There is also a shower building in the center. Since most children come here during the summer when the university is closed, there is no fighting over space.

Just behind the animal farm and the cafeteria is the entrance to the educational path. On the walk up on the hill the children learn a lot about Mexican plants and the wildlife around Zacapu.

Along the pathway there are several platforms on which there are information panels about plants and animals. One or several of the platforms' roofing also serve as rainwater collectors. The rainwater is then stored in a big cistern by the pathway entrance, fully visible for the visitors.

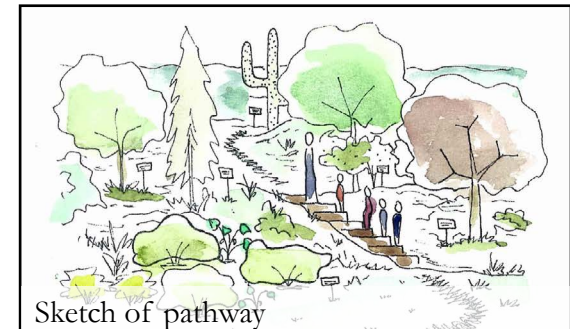
From one of the platforms it is possible to see a great part of Zacapu. From another platform one can see the solar water heater on top of the roof of the shower building.

There are many seating possibilities along the pathway. The benches are made of stocks and stones. Beside them there are separated garbage bins.

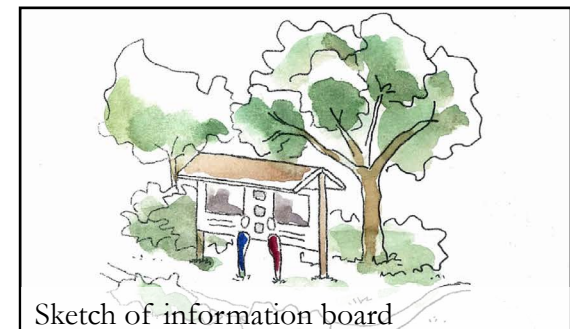
Because there is much vegetation, there are also birds in the trees and the air that the children can hear and observe through binoculars.



Overview



Sketch of pathway



Sketch of information board

THE GARDEN AND ANIMAL FARM



The garden part consists of a medicinal and herb garden, a greenhouse, a compost, a constructed wetland, an animal farm and a bio-digester. There is a pathway through the garden and along the pond and the animal farm. There are also benches and information signs.

The garden and the animal farm are located close to the other campus buildings to prevent theft and violation. Here the staff members and the students have a good view of what is



going on. At night one of the workers, who sleep in the house next to the garden, hears if something happens. Additionally, a guard circulates the area.

The greenhouse is made of old windows bought from people repairing their houses or found at the local dump. Inside there are flowers and vegetables that cannot grow naturally in this climate. There are also a few benches to relax on, for example during breaks for the teachers and the students. The

old latrine is now used as storage for the garden tools.

In the medicinal and herb garden there are plants like chamomile, rosemary and arnica. In the rest of the garden and inside the greenhouse there are fruit trees like orange, plum and tejocote. There are also flowers like roses and bougainvillea. It also grows vegetables like cassava, squash, pumpkin and chilli.

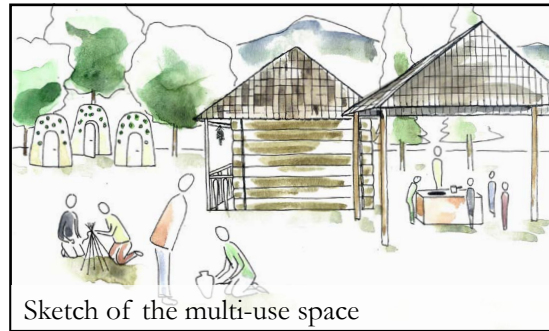
The constructed wetland is located close to the garden so that the water can be used to water the plants. Inside the pond there are fish and axolotl since the whole neighborhood is called Ajolotes and the children want to see a few axolotls if it is possible. Inside and around the pond grow aquatic plants like elodea and tule.

THE MULTI-USE SPACE AND PURÉPECHA CULTURE CENTER



This space is supposed to be open and flexible. There are a few permanent structures: the multi-functional building, the dry latrines, the troje and the shelter for the outdoor kitchen. South of the area there is space to camp and park vehicles. The multi-functional building is a new structure that is a pilot project for alternative construction materials. Together with the latrines, it demonstrates how to reuse materials in buildings and build with local materials.

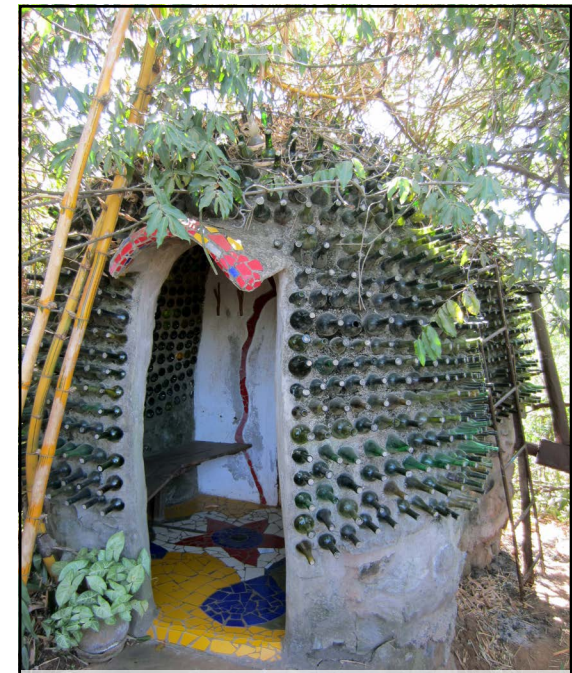
The idea is that the visitors eat around the tables where the fireplace is. If it rains there is room in the multi-functional building.



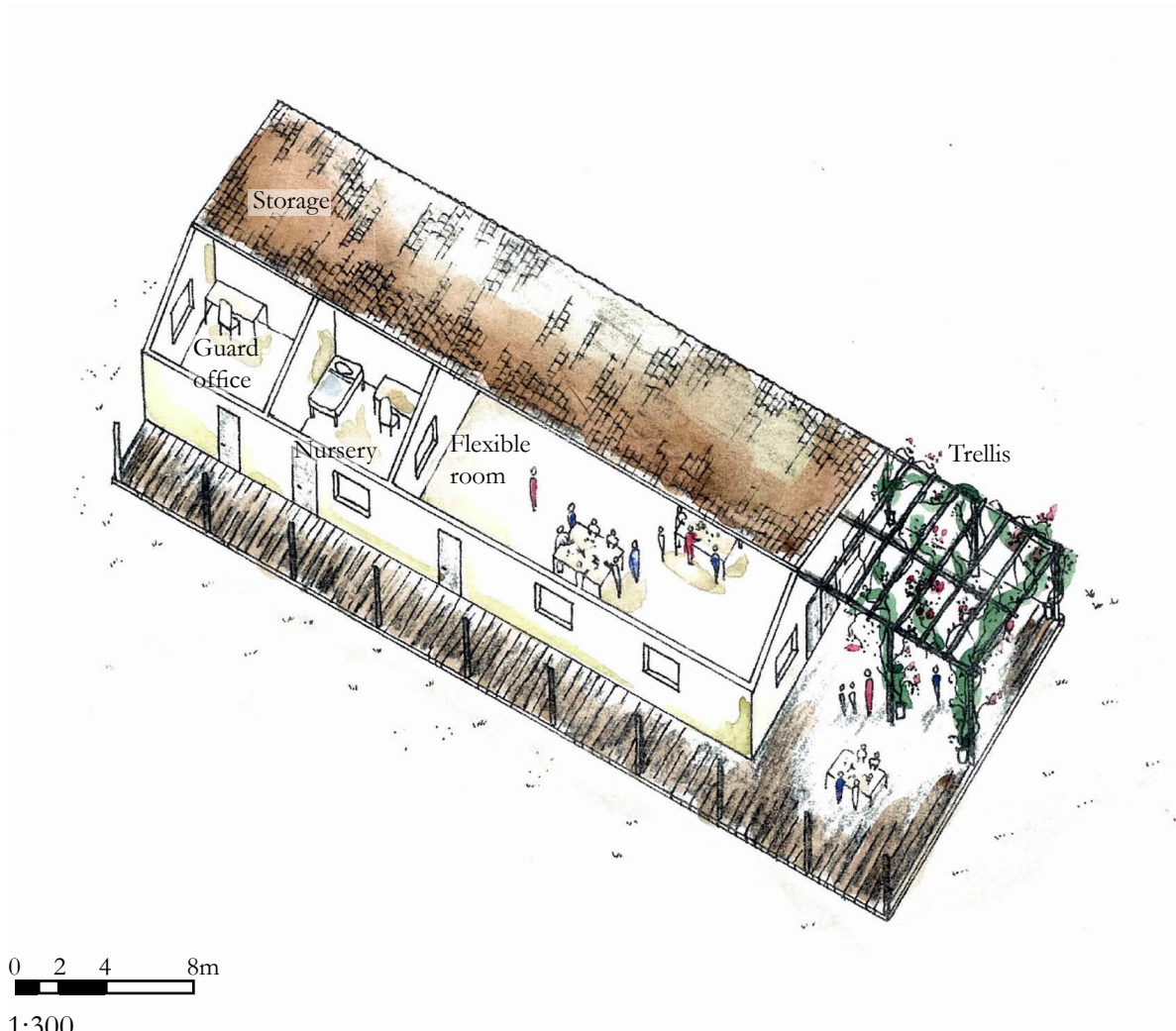
The estufa lorena is located underneath a wooden roof that looks like the roof of a troje. The roof protects from sun and rain.

Inside the troje there are kitchen items and space to have small gatherings. It is also possible to go up the attic.

The latrines are made of clay and glass bottles (see images to the right). They are shaped round to make them more interesting and fun to use for the children.



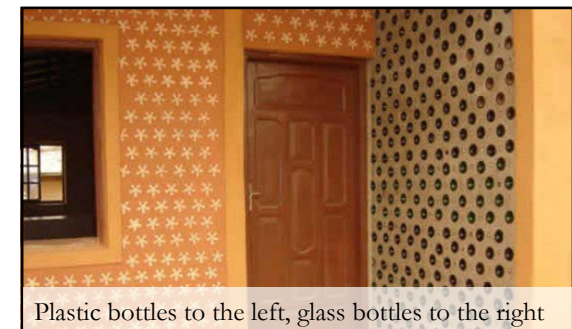
THE MULTI-FUNCTIONAL BUILDING



The multi-functional building consists of a big flexible room, a guard office, a resting room and a storage. Outdoors there is a trellis on which it grows climbing plants and thus provides shade. The space underneath can be used for activities.

In the storage there is room for tents, sleeping bags, toys, chairs, tables etc. In the big room there are lockers to keep clay, paper, pens, books and other useful materials for creative activities. The resting room has a bed and a desk for the nurse. The guard office has a desk.

The whole building is made in adobe and plastic or glass bottles (see image underneath). The shape of the building matches the other buildings on the university campus.



Plastic bottles to the left, glass bottles to the right

ONE DAY VISIT TO THE PARK

The visitors arrive early in the morning, by bus, to the parking space. They put away their bags in the multi-functional building and gather by the stage to get information about the visit. They get some time to snack while their leader goes to the administration building to pay for the visit. Afterwards they put up the tents together, if they are supposed to camp. Sometimes they arrive the night before the visit and put up the tents directly. After agreement they eat dinner by the troje where there is a kitchen and benches.

Since there are several parts of the park, the children can split up in smaller groups. One group can stay at the multi-use space and learn about the Purépecha culture. Another group can go to the garden and the animal farm and learn how to cultivate and where our commodities, like milk and egg, come from. Yet another group can go up the hill

and learn about ecosystems and the rainwater collection.

By lunch time, around 2 pm, they gather to eat. The kitchen staff members have prepared a meal partly on the vegetables in the garden. Meat is an important part of the Mexican food culture but here they eat vegetarian food to show the children alternatives and because it is more environmentally friendly than meat. The children eat in the cafeteria and in the small park with benches and trees just outside it. Some even take their food and sit in the grass by the constructed wetland.

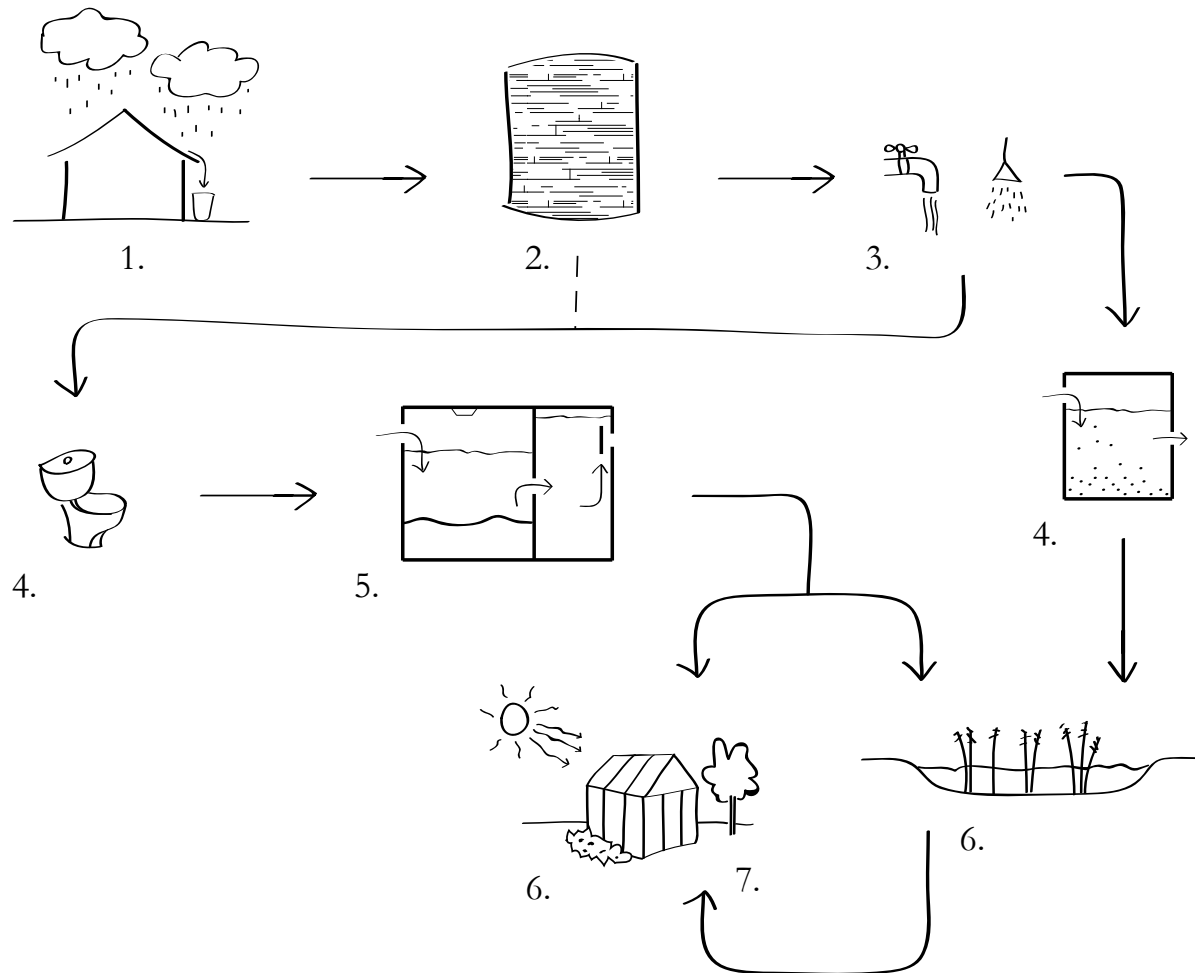
After lunch the tour continues and in the evening, around 5 pm, they gather by the stage to watch a play performed by some university students. The play is about the environment and afterwards they discuss its content and get exercises that give them reason to reflect.

In the evening they eat dinner and then it is time to sleep, in tents at the camping site or in the multi-functional building.

- 8.00 – arrival
- 8.15 – gathering by the stage, information, snack and payment
- 9.00 – put up tents
- 10.00 – breakfast
- 11.00 – part 1 of the tour
- 12.30 – part 2 of the tour
- 14.00 – lunch
- 15.00 – part 3 of the tour
- 16.30 – free time
- 17.00 – watch play
- 18.00 – discussion about play and exercises
- 19.00 – free time before dinner
- 20.00 – dinner and time to sleep






WATER SYSTEM



The illustration to the left demonstrates the water system at CUVZ in a schematic way.

1. The rain water is collected.
2. After segmentation the water is directed to a container.
3. The water is used for washing hands, dishes and showering. Some water is also used to flush the toilet.
4. The wastewater (greywater) is used to flush the toilet or goes through a settling tank, where the solids are separated from the liquids, to the constructed wetland.
5. The wastewater (blackwater) is treated in a septic tank.
6. The liquids are directed to either the garden or the constructed wetland.
7. The clean water is used to water the garden.

The map to the right demonstrates the flow and direction of clean water, greywater and blackwater at CUVZ.

-  Clean water
-  Greywater
-  Blackwater



BUILD STEP BY STEP

Since CUVZ is a non-profit university, they will need time and a strategy on how and when to build the park.

The park can be built step by step. First they should build the garden together with the greenhouse made of reused materials. It will be a great attraction since the children in the neighborhood want to learn about plants and how to cultivate. Afterwards it is important to install the septic tank and connect it and the old one to the newly built constructed wetland in order to take care of the wastewater and minimize the cost for watering the plants in the garden.

With time the path up on the hill can be constructed, together with the platforms and the plantation of new plants. The water tank is built with the same technique as the

stage and minimizes the cost for water. It is important to build the showers so that the children can stay here for a few days during summer time. They sleep in the empty classrooms.

Thanks to the reduction of costs, the university can save money and build the multi-use space. The animal farm can also be built in this step. The park is now complete and can welcome children and families outside Zacapu and Mexico. The money they get is used to maintain the park and campaign and sponsor cleaning of the lagoon in the city center.

PRESENTATION AT CUVZ



Cuin introducing me to the audience

A few days before I left Mexico I presented my work for about 30 teachers and students at CUVZ. The room was prepared with a stage with a table and three chairs. The moderator, Cuin, sat to the left, I sat in the middle and the university founder Flores Fuentes sat to the right. After the introduction by Cuin I presented in Spanish with the help of an English teacher and my translator.

I told them a little bit about myself, my investigation in Zacapu and my project at the university. In the end I tried to have an open discussion, but the teachers spoke the most and it was only one student who commented my work. Afterwards, and the day after, I got more comments from other teachers and students. They said that they were impressed and can see the project realized. They were

already aware of the local materials and some of the sustainable techniques, but found the way to organize the park and the mix of the materials and the techniques interesting. The most popular thing during the presentation was the use of bottles as construction material, which was new to most of them.

Flores Fuentes compared my work with another European architect student who had made a proposal for an auditorium at the university. She was glad that my proposal is possible to implement, partly because of the low costs.

It was great to present the work, even if it was not fully finished, and to get response on it. I hope it will be realized even if it is not done exactly according to my proposal.

After the presentation I got to know that it is not permitted that institutions have other materials than brick and concrete on their buildings. That is to say that adobe is not considered an appropriate material for institution buildings. Adobe is only accepted as temporary and seasonal buildings. Luckily, the adobe structures I have proposed are thought to be used during the summer, which makes them seasonal.

LONG-TERM VISION

In the future, when the other parts of Zacapu are also developed, the educational park will be a part of a whole city that highlights current problems, such as water shortage, by offering its citizens and visitors knowledge and entertainment connected to the environment and the native culture. People come to Zacapu to enjoy natural, educational and historical sites and at the same time contribute to their continuation and conservation.

The awareness and knowledge will lead to more responsible treatment of the city and thereby the world and people will care more for their surroundings. The water springs and the lagoons will be clean and full of life. People will be able to fish in there, which creates jobs. The interest in Purépecha culture and the history of the region encourage people to seek more information about the past and feel surer of their identity.

REFLECTION

Since my personal aims have been to learn how to work by myself in a foreign country and explore what kind of role I play as an architect student from a developed country in a developing country, I want to share some of my thoughts about them. They have affected the way I have been working which I first realized when I had returned from the field trip.

During the field trip I was aware that I was a foreigner in Mexico. I regarded it as a strength rather than a weakness. It was a strength because it enabled me to view and interpret things, that are obvious to locals, from a different perspective. At the same time I tried to be as humble as possible to not step on anyone's toes. I soaked all the information I could get hold on in order to better understand the situation I had put myself in. It was a situation where I had traveled across the Atlantic Sea to a rather small town that I found interesting and beautiful because I had visited it before. I did not know a lot about the town, or even the country in fact, but I was wanted to do a project there without an invitation from the host country. I do not think anything is wrong with the picture but of course it made me wonder what I was

doing. Now that the work is done I am glad I went there. I think this is one of the ways ideas are shared and people around the world get closer to each other. I do not feel like a stranger in Mexico anymore.

One thing that struck me was how easy it was to build up a network of contacts. In the beginning I had only one contact in Zacapu but with time I got to know more people and everyone were helpful in their own way.

As to the role I played, I learned that I gained a lot by being a listening architect. I gained trust and a willingness to collaborate. I was not there to tell people how to be, but to listen and learn how they are so I could come up with new ideas. I think it was important to listen also because I came from a so-called developed country and many people I talked to were well aware of that Mexico is a developing country. In general I faced assumptions that people in developed countries go to developing countries to teach how to live a better life, as to say a life similar to the developed countries, by means that are not rooted in the local culture or traditions. I think I was seen as one of them in the beginning, but by listening I showed that I

wanted an exchange of knowledge and ideas.

Throughout the thesis I went through a change, partly because of my personal aims and partly because of the circumstances. Before I went to Mexico I had a clear vision and idea that I wanted to do a proposal for a park close to water in order to clean it, but I was open-minded in case I would find something else. With time my ideas changed as I got to know more about Zacapu. I was prepared that it would be tough to do the thesis there, because of the differences in language and culture, but I never imagined it to be like it turned out to be. The difficulties I encountered depended on the current political situation, of which I was acquainted with corruption, suspicion and the lack of transparency of information. I was told not to engage myself in some of the places, like the lagoon, because they were too sensitive at the time. I did not get the plans for the ecopark from the city planning office so I had to meet someone in secret to get the information I needed. I think it is a democratic right to know and have opinions on what is going to be built and changed in one's neighborhood. That is why I first wanted to continue working with the lagoon and make

an alternative proposal for an ecopark. Later I decided to concentrate on the educational park instead because I thought it was where I could make the biggest difference. However, it was an instructive experience to face such difficulties. I learned that in order to engage in some matters one has to have the full picture and I did not feel that I had enough time to investigate more in the subject.

To work alone was a great challenge. It was an even bigger challenge because I did not have daily contact with other architecture students. I am used to work in groups, which I enjoy the most, and to be in an environment with the same kind of professionals. However, I think it was useful to work alone in order to test my ability and practice on all the different parts of the thesis, and to try another environment to see how it shapes my work.

I feel that the project would have been much better if I knew more Spanish. I managed it and got help from translators, but I still think that the project would have been more developed if I mastered Spanish. Furthermore, the time was always an issue. I was fighting time throughout the whole project. It was not only that the time was

short, but also that some things took more time than I planned. Sometimes it took several weeks to get hold on documents and drawings.

In the project work I chose to follow TIES's definition and principles of ecotourism because I thought it was the most comprehensive I found. The principles that I found most interesting and wanted to emphasize were to "build environmental and cultural awareness and respect" and "provide financial benefits and empowerment for local people". I think it is because I find the other principles self-evident to include. Some of the principles, like for example to "minimize impact" I think always should be considered, ecotourism or not.

While reading about ecotourism I reflected on if the best thing for nature is to leave it alone. It is a tricky question since we, as human beings, are a part of nature. When we add or change something in nature we always have some kind of impact, negative or positive. We can try to minimize the impacts but maybe it is better to not even go there. At the same time, one can wonder who has the right and the capability to hinder people

from enjoying attractive places.

However, I think ecotourism has positive effects on Zacapu and the surrounding communities. The most crucial problems right now are freshwater shortage and water pollution. Ecotourism can make people value the existing water resources higher than today by educating them about their importance and offering a source of income. Ecotourism can also help to restore environments and even produce resources, as mentioned on page 21. The development of La Crucita and Malpais will also be positive because it will strengthen the identity of the citizens and create job opportunities which will generate more money to the locals. The educational park at CUVZ will be a good starting point because it will show some of TIES' principles of ecotourism in practice.

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