



CHAPTER 2. METHODOLOGY

2.1 Characteristics of case studies

2.2 Research methods

Literature review

Newspaper analysis

Expert interview

Observation and photography



2.1 Characteristics of case studies

Berg mentions that a qualitative research approach provides “a means to accessing unquantifiable facts” and to understand the structure of a particular subject (2007, p.8). In that context, the nature of this study and the type of information that was required, called for the application of a qualitative method in order to obtain valid results.

To provide answers to the research question established in the previous chapter, special attention was given to a particular location. The Case Study approach, which is by definition “a detailed examination of one setting, or a single subject, a single depository of documents, or one particular event” was appropriate for the task at hand (Gomm, Hammersly, & Foster, 2000; Yinn, 2003, cited in Berg 2007, p. 283). The steps taken to build the case study are based on the work of experienced researchers such as Yinn and Levy who since 1984 and 1988, have provided detailed information on how to conduct case studies.

City center of Jiutepec

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Religious figures are often located in open spaces as to help avoid the illegal dumping of waste. This picture illustrates an open space converted into a place for prayer in Jiutepec.



Case studies were not always well regarded in the history of investigation says Tellis in his *Qualitative Report*. In his work, the author exposes some of the difficulties occurred to validate case studies as a reliable research tool in the field of sociology. He mentions the “denigration of case study” in the early 1900s, leading to its decay as a research procedure. The “renewed interest in case studies” occurred at the end of the 20th century due to the limitation of quantitative methods to provide answers to softer issues (1997, p.3).

Nowadays, Case studies are widely used as a rigorous and a valid procedure to explain, explore, define and understand phenomenon and people. Case studies are often criticized because general conclusions cannot be taken from the study of just one case. However, the overall quality of any research project depends on the setting of parameters. If those parameters are met, then the size of the studied subject has less relevance than the way that it has been conducted. In this sense one single case study is sufficient (*ibid.*).

Taking into consideration the parameters that Yinn proposes in terms of case study designs, the case study of Jiutepec could qualify as an “exploratory” and “explanatory” case because of the nature of the questions asked through out the research procedure, and ultimately because of the tools employed to explain the case of Jiutepec (*ibid.*, p.4).

The data collected followed the principle of triangulation also mentioned by Yinn and more recently by Berg, they both suggest the importance of having multiple source data while conducting a research study. Bruce L. Berg says in his book titled *Qualitative Research Methods for the Social Sciences*, that each research procedure “reveals slightly different facets of the same symbolic reality” and by combining “several lines of sight” researchers can achieve a more comprehensive “picture of reality” (2007, p.5). This study uses multiple data collection techniques and attempts to relate different source of data. This helped filtering unnecessary and misleading facts and avoiding reliability issues (ibid).

The body of information was obtained through:

- 1- The review of documents
- 2- Expert interviews
- 3- Direct observation
- 4- Photography

Each category had benefits and drawbacks. The following table shows in what way the research tools used to obtain data were beneficiary or disadvantageous to the overall project.

Table 2. Benefits and obstacles of the data collection

Source of evidence	Strengths	Weaknesses
document review (high relevancy)	repeated consultation / exact facts, names, data/ consultation availability outside the studied location	content partiality / one author or group of authors point of view
expert interview (high relevancy)	focused data / insight on the causes of events / direct contact with decision makers or targeted actors	bias due to contaminated answers. time pressure / incomplete data collection / influence that the interviewer played on the interviewees
direct observation (medium relevancy)	look at reality	time-consuming activity / selectivity / lack of global view
photography (lower relevancy)	evidence of phenomenon	selectivity / access availability

Adapted from Yinn cited in Tellis 1997, Weinagaertner, 2003.

2.2 Research Methods

Literature review

Official local documents, as well as several state and federal texts on waste, water and environmental issues served as primary literature. One study on waste management practices which included the case of Jiutepec was found¹. This document proved to be very helpful as it is used a reference document by local authorities and helped compare notes regarding the data obtained then and now. The figures included in this work, are based on the latest data published by Mexico's National Institute of Statistics, Geography and Informatics (INEGI) in 2006. Other data from state agencies and articles written by local columnists were also reviewed and compared with local policy documents.

List of documents

- Official papers
- Policy documents
- Annual reports
- Record books

The literature published by local authorities is composed by electronic and printed versions. The data was obtained through a careful search of current publications. It gave an understanding of the physical environment, the strategies proposed by local actors and the overall vision of decision makers. Reviewing official documents was beneficial. Its importance lies on the statistic and numbers that are made public. Local authorities take decisions and base their strategies on those figures. Their accuracy plays an important role in the overall scheme of the development of the locality.

Newspaper analysis

In our time, the review of press content is highly beneficial when it comes to capturing the nature of a social atmosphere and to obtaining a general understanding of the events that affect individuals. In this work the press consultation provided a valuable insight on the dynamics of the urban environment in the studied location. One of the challenges posed by the examination of newspapers, local magazines and brochures was how to obtain solid data and how to ensure coherent interpretations given that content analysis is specially time-consuming and it can be difficult to provide a detailed synthesis in a limited time period.

The solution was to identify news that was directly linked with the subject at hand (i.e waste management, people and nature). Attention was given to the headlines first. Then the most important data content was selected and a brief assessment of the content was made. Additionally the level of importance of the news was established by identifying the location of the article as well as its length and purpose.

Newspapers were reviewed in a systematic manner. The goal was to evaluate the relevancy of the subject of waste in the studied locality. To what extent waste issues were reported in Morelos? And what were the purposes of the stories published in the local news? Those questions were answered by looking at the frequency of waste news over a period of a month between August and September 2007. The consultation of local newspapers was very helpful considering that waste news were reported periodically. It provided relevant information related to the public discourse on waste issues in the state of Morelos. To get a sense of the local press content, a total of 14 newspapers ranging from August 23th 2007 until September 13th

2007 were reviewed. Special notice was given to waste news, local issues related to urban infrastructure, as well as social and cultural stories.

The choice of which newspapers to include in this research was based on their level of accessibility and popularity. In Mexico City the newspapers selected were *Reforma* and *Excelsior*. In the State of Morelos, daily papers such as *Diario de Morelos* and *La Unión de Morelos* were reviewed. In Jiutepec the only local gazette found which is titled *La Voz de Jiutepec* was also included in the study.

Given the quantity of newspapers reviewed it is difficult to demonstrate the evolution of waste issues over a long period time, however the study of the headlines and main content reveals a distinctive political, economical and social atmosphere floating in Morelos. Moreover, the orientation of established attitudes toward public hygiene and many cultural references is outlined in this work through the review of the local press.

The sample of newspapers, which may seem limited for some lectors, is however sufficient to express the ideas outlined in the chapter related to the behavior and attitudes of residents of the case study (see Newspaper analysis in Appendix).

Expert interview

According to Berg a semistandardized interview includes “a number of predetermined questions and special topics”. The questions are asked in a “systematic and on a consistent order”. The interviewee is allowed to expand or “digress” (2007). Table 3 shows the general characteristics of semistandardized interviews.

Table 3. Characteristics of semistandardized interviews

Semistandardized interviews
More or less structured
Questions maybe reordered during the interview
Wording of questions flexible
Level of language may be adjusted
Interviewer may answer questions and make clarifications
Interviewer may add or delete probes to interview between subsequent subjects

Berg, L.B., 2007

The value of the interviews undertaken in the summer of 2007 lies in the fact that a selected group of experts was chosen. Each had a particular view or knowledge on the subject of waste. Some of them are at the highest level of the local government, others are practitioners involved in the sanitary department, others are environmental consultants as well as group leaders.

By interviewing experts with different backgrounds, a diversified set of opinions on the subject of waste and the city of Jiutepec was obtained. This provided an integral view of the issues of waste in Jiutepec.

The chapters on waste management in Jiutepec and the overall conditions under which the municipality operates are based on those interviews. Some numbers and figures, which were previously obtained through the literature were corroborated. The interviews provided different views of waste management processes as well as insight on the disposition and good will of the general public. The data obtained has many purposes in this work; one of them is that it serves as a valuable tool to expose the main problems that authorities face in terms of waste management.

Local leaders, governmental officers, sanitary personnel, waste collection operators and private actors involved in waste management, formed the key experts team interviewed during the summer of 2007 in Jiutepec.

Those key individuals were targeted by means of the snowball technique. They were selected because they either knew first hand the issues of waste in their locality or they knew someone susceptible to provide answers. The questions were formulated in Spanish. The interviews proceeded from August 28th until September 22th 2007. 10 meetings with experts were undertaken (see Expert interview in Appendix).

Additionally, a number of informal talks with several members of the community enriched the study. Despite the fact that there were no predetermined guidelines for conducting those talks, the answers obtained gave great insight in the overall discussion and serve as a softer tool which enable a better understand of the context of the study. Talking to a wide range of

individuals from different backgrounds, listening to their stories and having their point of views were exceptionally visionary and entertaining. This made the research process even more enjoyable.

Based on the profile of semistandardized interviews proposed by Berg, the layout of questions included 3 types of questions:

- Essential questions (ES)
- Specific questions (SP)
- Secondary questions (SE)

The assumption was made that specific questions were only appropriate for a specific group of experts. For instance questions such as “How many street cleaning operators are there in Jiutepec” or “How many waste collections routes are there?” were only asked to experts in Jiutepec’s Sanitary Department. (After the second interview the previous assumption was confirmed).

The tone used for the interviews was familiar but also included technical and scientific terms. All questions were asked and answered in Spanish and later translated into English. The interviews were recorded. The interviewees could expand or add other comments to the question asked. As a general rule, introductory comments about my background and the purpose of the interview were made at the beginning of each session. The interviewees quickly realized that I was familiar with their culture and the topic at hand. This approach proved to be successful in the conduction of the interviews.

Observation & photography

Observation and photography were implemented as secondary data collection tools. Although they did not require any specific structured format, a specific calendar was made to undertake observation activities and a list of sites to photograph was previously established.

Observation was used concretely to collect information on the way collection services were undertaken in Jiutepec. Observation occurred on one occasion in two different sites. It provided depth information on the difficulties or particular situation that waste collectors face at work. However since observations were only conducted twice due to time restriction, it is difficult to generalize the results. Also, the possibility that the waste collectors were reacting to being observed and may have changed their behaviors is to consider.

676 photos were taken in Jiutepec during the field research. They can be distinguished in several categories:

Images of people - Local residents in public areas, people at work and in motion.

Images of infrastructure - Buildings and housing structure, transportation, traffic and public offices.

Images of nature - A sample of Jiutepec's natural asset was taken. It included reserved areas, green spaces, places with water and vegetation.

Images of waste - Including waste dump sites, waste collection, street cleaning, waste in public areas, illegal waste dumping, waste separation, final disposal facilities.

It is difficult to say whether the images you will find throughout this work offer a bright and truly objective view of the situation in Jiutepec. They are however, a reflection of what I have seen and chosen to record at a certain point of time. At all events, they are real and they reflect images of what Jiutepec is today.

¹ In 2004 the State of Morelos commissioned a feasibility study of the construction of 7 landfills in Morelos to a local agency named "CONSULTING". The final results of the research were published in two volumes known as "Thesis Consulting".