



CHAPTER 4. JIUTEPEC

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4.1 Physical aspects

The main sources for this chapter are national and state statistics as well as governmental diagnostics on Jiutepec's developmental pattern. As mentioned before, cross-examination of values was undertaken whenever possible. Readers might find useful to review supplementary data on Jiutepec included in the appendix, while reading this section.

General features

Jiutepec is the second most populated municipality of Morelos with 181,317 inhabitants according to the statistics published by INEGI. It is an integral part of the Cuernavaca Region and merges along with the neighboring localities of Temixco, Emiliano Zapata and Xochitepec to the capital Cuernavaca. This is due to a process of rapid urbanization induced by the affluence of people towards more concentrated built environments in search of better occupation, and living standard. This has cultural, social and political consequences, which are outline further.

Municipal market and small food shop

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The well-known festivity called *Los Chinelos* is celebrated each year at the end of January



Jiutepec extends on 70.45km², representing 1.42% of the total surface of the state. It relatively small compared to other municipalities. Its borders are set as follow: to the north Tepoztlán (36,145 hab.) and Cuernavaca (349,102 hab.), to the east Yautepec (84,513 hab.), in the south Emiliano Zapata (69,064 hab.), in the west Cuernavaca and Temixco (98,56 hab.).

The municipality has always been privileged with rich natural resources and abundant water. Ancient civilizations, indigenous groups, Spaniards in colonial times and hacienda owners were all attracted by its fertile land and favored climate. Conflicts for water and land regularly took place throughout the 19th century, followed by several armed conflicts during the revolution period in the 20th century. The Texcal¹ area served as a strategic location for families as they could shelter in the existing caves.

The locality has valley regions and lakes which supply water to the residents. Like most parts of Morelos, the municipality is notorious for its mild climate and impressive natural surroundings, which stimulate a series of outdoors activities and ecotourism. Many residents treasure these natural resources and water plays an important part of the recreational activities of the town's folks.

Climate

With an altitude of 1,350 meters above sea level, Jiutepec's climate is sub-humid with warm episodes of rain during the summer. The average temperature is 21.2° C. The warmest months are April and May and the coolest period extends from January to February. Heavy rain showers are reported in the months of July and August. The average annual precipitation is reported to be 1,021 mm.

Hydrology

Located in the basin of Amacuzac, several water streams run through the municipality. They emerge from a mountain range located north-east. Water springs and a number of ravines can also be seen in the municipality. Today many are converted into sewage or contaminated (Thesis Consulting, 2005).

Land characteristic and use

The land is dark in some areas and clayey in other parts. A small percentage of the territory is designated for agriculture (500 ha. from 7,400 ha.). Most of the surface of the municipality is urbanized. 23% of the territory is reserved.

Natural resources

Jiutepec has a calcareous soil character and is known mostly for its mineral supply. Extraction of sand for the construction industry is one of its most lucrative activities. The sand mines are located in the districts of El Carril and Alta Palmira. Several environmental groups have expressed their concerns regarding the exploitation of those mines. Jiutepec is mostly characterized by a plane surface with the exception of a few hills located north and south of the municipality. One of Jiutepec's most important natural resources is the protected area El Texcal, an important aquifer of 408 ha. It was declared a protected area in 1992. It was built as a result of volcanic forma-

tions, this area hosts a large variety of tropical vegetation. According to CEAMA, a large number of living organisms have been identified within the Texcal ecosystem. Their records indicate the existence of 94 different species of plants, 65 species of mushrooms, 9 groups of amphibians and 44 types of birds. The area comprises a spring known as the Ahueyapan lagoon, which provides water to neighboring localities. All though described by local scientists as a natural water collection system, El Texcal is slowly losing its water storage ability due to the growing impact of the housing and commercial industry who are modifying its natural assets (2007).

4.2 Infrastructure and services

Electricity and water supply

Local statistics give an estimation of 92% of coverage of electricity. Among communities which are not yet electrified, we count not only small and isolated regions but also residential areas within the urban footprint. Local authorities recognize the need to improve the quality of the service. Frequent power failures have been also reported in some areas. A high percentage of those without electricity are groups established in unplanned settlements. With a growing population, one can expect an increase in the number of non-electrified communities if measures to reverse the situation are not taken promptly.

Water coverage is estimated to reach a large segment of the municipality. National statistics state coverage up to 88%. The Diagnostic on basic municipal infrastructure, published in Jiutepec's Development Plan 2006-2009 offers some useful clarifications:

- Residential districts such as Progreso and Independencia are known to have a lower percentage of coverage compared to other areas. (78 and 79%)
- 4 out of 10 households in residential districts such as Ampliación las Fuentes, Campo Morado, Rancho Paraíso have no access to water.
- In many residential areas water supply is rationalized to one or two hours every third day.
- Access to water is one of the strongest requests of the people of Jiutepec, which considers the service to be deficient (ibid.).

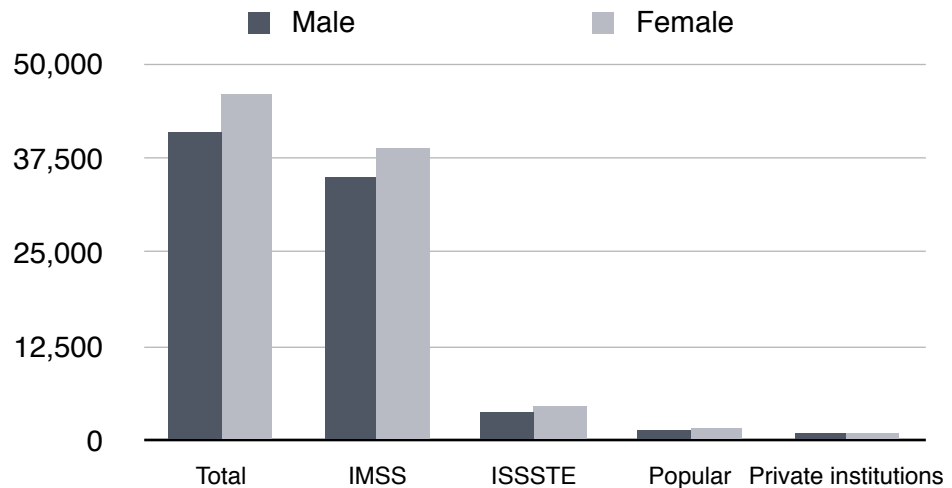
Salingaros et al. provides an accurate observation regarding the lack of services in remote areas and illegal settlements, where local authorities refuse to provide the means to formalize unlawful settlements by restraining basic services such as electricity, water and sanitary (2006).

Transportation

Jiutepec comprises of 21 kilometers of primary and secondary roads (INEGI, 2006). One of Jiutepec's main street is the Cuauhnahuac boulevard with a longitude of aprox. 7.70km. Initially designed as a highway, this street was urbanized and transformed into a wide pathway with abounding retail stores. There is also a rail-train communicating Mexico City with the basin El Balsas, an important natural site in the region.

Medical service

Medical service in Jiutepec is provided by two main public institutions IMSS and ISSSTE. 72,388 inhabitants have access to social health care (INEGI, 2006). Local authorities estimate that 55% of the population receive medical attention. The municipality features 14 units of health care, with 54 registered doctors. There are a number of mobile medical units, which reach out 16 of the most economically challenged sectors. Jiutepec's residents who can afford private care, attend health centers in Cuernavaca or in Mexico City. Figure 6 shows the rate of locals attending medical care in Jiutepec. Those figures represent a total of 87,190 men and 94,127 women who have access to medical care in the municipality.

Figure 6. Population with access to medical care in Jiutepec

INEGI 2006

Street cleaning

The municipality provides street cleaning service. This activity takes place daily with 11 sweepers operating manually. There are a total of 21 routes in the municipality. The group interview conducted with the sweepers, revealed interesting findings in terms of external/urban factors influencing their efficiency. Further details on the subject is exposed in the next chapter.

Sewage system

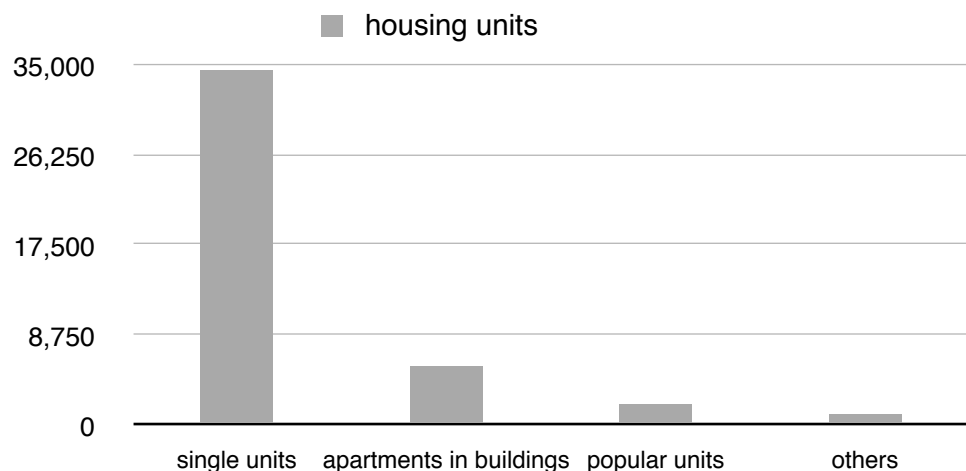
The diagnostic of sewage system coverage in Jiutepec is variable. The municipality authorities estimate a high coverage of 91.3%, the statistics published by INEGI reflects 97%; however, this figure includes all type of sewage systems, namely, septic tank, drainage in ravines, rivers and lakes. Specialists from the Institute for Water Technology (IMTA), indicate that the municipality's sewage system is clearly insufficient for the population

and the poor condition in which the sewage plant operate. Jiutepec hosts several sewage plants. According to the National Water Commission there are 14 private and 13 public plants in the municipality.

Housing structure

There are 45,793 housing units registered (INEGI, 2006) and 75% thereof are single units as Figure 7 shows. Most houses are constructed with materials such as bricks and cement in a square layout. They are commonly built on 1 to 2 floors with a garden inside the property. The vast majority of single unit houses have a garden area located in front or at the back of the propriety. Gardens are considered a important factor for local families they make up to 35% of the constructed area. As mentioned before, Jiutepec distinguishes itself by hosting a high number of single units houses regrouped in residential areas which access are restricted. They are known as *fraccionamientos*. Those have similar characteristics as a condominium. Tenants hold title to one ore more dwelling units; however they all share common areas and bear responsibility for maintenance. A large number of houses in wealthy *fraccionamientos* are used only on weekends.

Figure 7. Housing units typology in Jiutepec



Only a small group of residential buildings can be distinguished in Jiutepec's urban landmark. Research on their origin and actual conditions have been unfruitful. The following comments are based on the observation made during the field trip. The buildings located in one of Jiutepec's most affluent pathways appear to be in poor conditions. They reach about 5 levels. Substandard sanitary conditions can be deducted from their external look. They present a deserted picture elevated on concrete floor with very few trees and green areas.

Box 3. Social housing

Social housing blocks known as "*casas de interes social o medio*", have increased substantially nationwide over the last years. In Jiutepec, the need for affordable homes for the plants employees working at the industrial park CIVAC had contributed to the rise of social housing in the locality. Local authorities also participated actively into developing subsidized housing projects as a political strategy.

Opinions on social housing in Jiutepec and overall in the State of Morelos diverge. On one hand the rapid urbanization process and migration flows press the need to have more structured housing settlements for the less fortunate residents; on the other hand the quality of those settlements as well as their environmental impact have raised several criticisms.

4.3 Sociocultural aspects

Population

The latest statistics indicate a population of 181,317 inhabitants, which represents 11.24% of the total population of Morelos, placing Jiutepec as the second most populated municipality in the state (INEGI, 2006). A substantial percentage of floating population arrives on weekends. This was confirmed by many interviewers. However, the exact rate of temporary residents is unknown. Local authorities estimate an augmentation of up to 10%.

Population's structure

Jiutepec demonstrates the highest density rate with an estimates 3,683 inhabitants/km² according to the data published by the State government (see Table 4). 80% of the population is concentrated in one sector, the city therefore has a high urban character. 97.6% of the locals live in localities with over 2,500 individuals. The average population is young. Jiutepec features a high percentage of inhabitants between the age of 15 and 64. 1.90% of the population belongs to indigenous ethnic groups. Women outnumber men from 10%. This is partly due to the migration of young men to the United States. Table 6 shows the number of localities and population of Jiutepec.

Table 6. Localities and population in Jiutepec

no. of localities	population
7	1 - 49
5	50 - 99
7	100 - 499
2	500 - 999
1	2 500 - 4 999
1	5 000 - 9 999
1	10 000 - 14 999
1	100 000 - 499 999
25	total

INEGI 2006

Social composition & population migration

In Jiutepec the social composition is mixed, comprising a small percentage of agrarians, who migrated in 1940 from neighboring states, in search of better land quality. A large portion of the population works in the 250 industrial plants, which have also attracted skilled workers from the capital.

In the late 1900's close to 200,000 individuals were reported to have moved to Morelos, originating from the state of Guerrero located in the western coast of Mexico and other states such as the State of Mexico, Puebla and Michoacan. The migrants established themselves in Cuernavaca, Jiutepec, Temixco and Cuautla.

The change of land use favoring urbanization and its affordable price, has attracted wealthy residents from Mexico City. Many have established their weekend homes there. The minority groups are indigenous dwellers, they belong to the poorest sector of the locality.

Education

In Jiutepec education is available from kindergartens to high school including a number of technical schools. According to state's records, Jiutepec host 279 institutions. Table 7 shows the types of institutions in operations in 2006. Public institutions, which have been in operation for almost 20 years ago, are reported to have severe maintenance issues. In Jiutepec, boroughs with higher illiteracy rate have been identified. School discontinuity reached close to 15% in technical schools and over 10% in High school according to records from 2005-2006. (Plan Municipal de Desarrollo, 2006).

Table 7. Educational infrastructure in Jiutepec

description	public	private	total
Kindergarten	3	25	28
Special school	4	1	5
Preschool	50	44	94
Elementary school	69	29	98
Middle School	17	14	31
Technical school	2	1	3
Training school	6	-	6
High school	6	8	14
Total			279

INEGI 2006

The rate of illiteracy is 7.7% and the majority of those unable to read or write are women (5,478 women illiterate against 3,697 men). Yet this reality is expected to recover in the years to come, considering that those who currently attend alphabetization programs are women. Furthermore 89% male and 91% females between the age of 6 and 14 years old attend school.

Culture and tradition

In terms of religion, the vast majority of the people of Jiutepec are Catholics. Statistics indicate only 24,360 individuals distributed in 6 different religions. Tradition is a key element in Jiutepec's lifestyle. Families are conservative. Many traditions are kept alive in the town. Fireworks are a typical display of different types of celebration.

Jiutepec is located in an area with a rich cultural heritage. A series of historical monuments such as the ex Franciscan Convent located in the city center, a few churches and *haciendas* are some of the reminders of Jiutepec's endemic history. However those vestiges are treated by the growing urban flow. Many have already disappeared. There are no museums in Jiutepec, which could have helped promote the culture of preservation and conservation within its dwellers.

Religious festivities outnumber any other types of ceremonies in the locality. This is characteristic of traditional Mexican towns. The festivities, which are not religious are prehispanic, colonial and agricultural related. Only in later years other types of ceremonies have been incorporated to the list of yearly festivities.

Bernadette Quinn views festival as arenas where local knowledge is originated and where historical and cultural inheritance are revised. When genuine, they refresh people's identity and sense of communities (Urban

studies, vol.42). In that sense, cultural activities, sport and entertainment are set to play an important role in slowing or shifting social problems.

Despite the fact that religious festivities are abundant in the town, Jiutepec lacks cultural substance and activities such as concerts, theater and sports events are limited. Those types of spectacles are concentrated in the capital Cuernavaca. Jiutepec does not feature a forum or cultural center. Limited budget has been established for cultural activities and there is limited space to allocate those types of displays. The current spaces available for sport activities are often seen in poor conditions.

Vulnerable groups and poverty

Within the population of Jiutepec two specific group are considered vulnerable. Those are physically an/or mentally challenged and senior citizens. The area adjacent to the industrial park known as Ciudad Industrial del Valle de Cuernavaca (CIVAC) contains the highest number of people reported to be disable. This number is estimated to be 12,000 according to local authorities. Further research is required in order to determine the causes and types of impediments. One medical unit has been rendered to assist these people, this is a clear indication of the urgent need to provide more attention in this area.

6.3 % of the local population is over 65 years old. The main crises affecting senior citizens is the abandonment issue. Many of them have been reported to live alone with no support from their family, which often times have moved away from their hometown. Senior citizens in Jiutepec have very little resources to live decently. Few benefit from social security, they are often not acquainted with modern infrastructure, have little medical attention and few job opportunities.

Poverty indicators from the Municipality of Jiutepec show:

- 74 out of 100 homes have patrimonial poverty (lack of quality housing)
- 81 out of 100 have individual poverty
- 61 out of 100 have food poverty
- 68 out of 100 have opportunity poverty which is characterized by the inability to develop one's skill due to the lack of opportunities
- Patrimonial poverty is what strikes the majority of the people of Jiutepec
- Average salary is 1874 pesos (aprox. 124 Euros) per month

Economical activities

Sectors in which Jiutepec has a significant employment base are mainly industry and manufacture. Figure 8 compares the economical sectors of Morelos and Jiutepec.

The primary sector, which is related to agriculture and farming is low compared to other sectors. Rice and tomatoes are some of the food produced in the locality. With 1,5 % of the total value of agricultural production, Jiutepec is the less cultivated municipality in the State of Morelos (Plan Municipal de Desarrollo, Jiutepec, 2006). In contrast, Jiutepec is a major exporter of a large variety of ornamental plants.

The secondary sector which regroups mining, manufacture and construction, is a major force in the local economy. The industrial park CIVAC has attracted national and foreign investments in the state.

Figure 8. Economical activities in Morelos (percentage value)

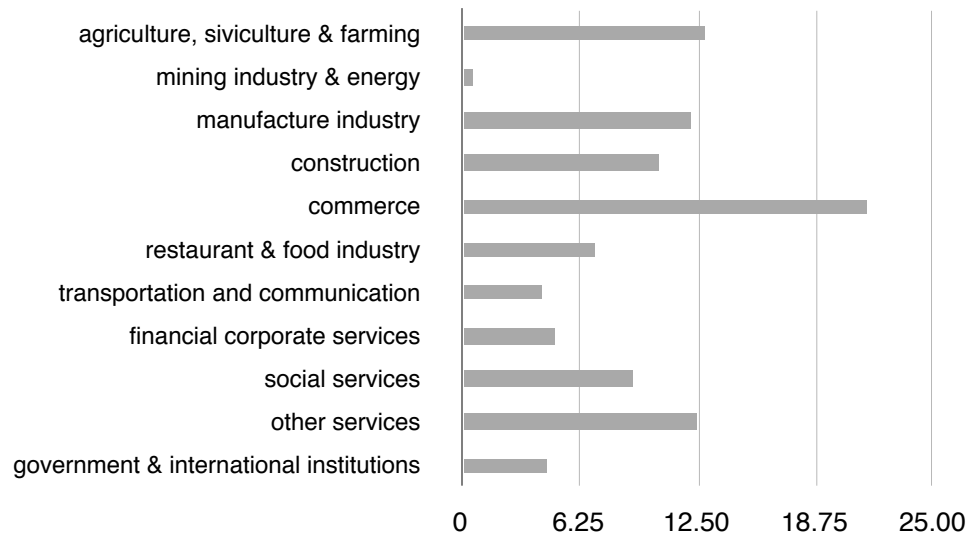
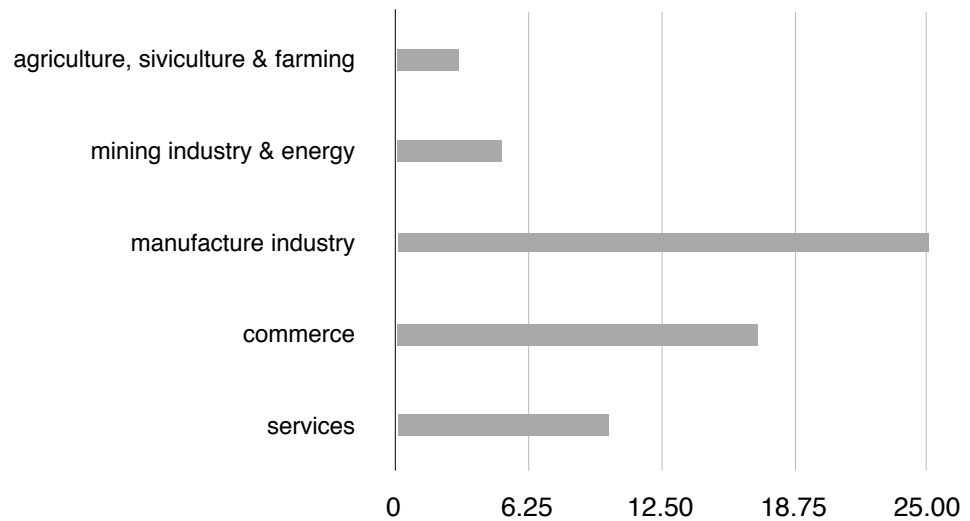


Figure 9. Economical activities in Jiutepec (percentage value)



Established in Jiutepec in 1966, CIVAC is described as a dissociated industrial development, somewhat disconnected to the reality of lives in the town of Jiutepec. The industries were given legal incentives to install their plants in the area of Tejalpa where 4,000 ha of land were expropriated (Enciclopedia de los Municipios de México, 2005). Construction of the factories triggered the migration of dwellers from neighboring localities. They established their homes and small businesses adjacent to the park. This has created unexpected issues regarding land use, which are still encountered to this day.

The tertiary sector comprises commerce and services. Many jobs are in this sector. Activities in chemical, automobile, and construction sectors are most common. The cement industry is also high. It contrasts with tourism and the production of plants and flowers which are other aspects of Jiutepec's economy.

Numerous rivers and springs located in the area have attracted a growing number of visitors, which consequently have inspired the creation of weekend clubs. Jiutepec comprises attractions such as cloisters from the XVI century, well-known spas and water attractions. The locality also hosts a few luxurious hotels and exclusive golf courses.

4.4 Political aspects

The municipalities are administratively independent from the state's political organization. They form a second-level of executive division. Each one has a president who heads a municipal council, responsible for providing public services such as water and sewage, street lighting, public safety, traffic, cleaning and maintenance of public areas and waste management. A municipal president heads the executive power.

Municipal elections are held every 3 years. The short terms of municipal executive divisions look to promote democracy and renovation to small urban centers however, this has proven to be a factor that contributes to the lack of continuity of municipal projects and initiatives. Programs involving water, sanitation and waste management often require to run over a long period of time. The absence of disruptions in municipal plans are necessary to assure a state of stability and to promote development. This is a major challenge in Jiutepec. Municipal local authorities acknowledge indeed the lack of institutionalization of innovative and successful practices proposed in past administrations (Plan Municipal de Desarrollo Jiutepec, 2006).

The Municipality features:

67 *colonias*²

26 residential areas

44 multiple housing units

4 towns

¹ The Texcal is an important aquifer located north of Jiutepec (see Natural sources in this chapter)

² Colonias is a spanish term used commonly in Mexico to refer to a neighborhood or community. Colonias are strong urban components. Their physical layout offer a structure that supports family network, education and social interactions. For more information on the importance of colonias and its influence beyond Mexican borders please consult The Encyclopedia of Human Ecology edited by Julia R. Miller et al.