

Sustainable Urban Design and Place-Making despite "Turbo-Planning"

The Case Study "Cancún Quintana Roo, México"

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1. Introduction

The township of Benito Juárez accounts 49.9% of the total population of the state of Quintana Roo. Cancun, is the town hall and it is recognized as an important international touristic destination.

In accordance of the INEGI's database, the population was of 572,963 citizens in 2005 and in 2010 raised to 661,176. In year 2020, the township could have more than one million people and more than one and a half million in 2030.

This dynamic population growth forced to the creation of some Urban Development Programs (PDU) for different zones of the city. This programs contemplate several uses, destinations and reserves, like the result of consider just a geographic part of the city immersed in a complex urban, social, economic and environmental framework.

This sustainable model of urban planning do not answer to the situation, that allow manage the growth of the city in systematized and orderly way for anticipate the changes in the growth trend. Particularly in the suitable land, infrastructure, urban equipment and services that demand the present and future population.

2. The Dates of The National Fund for Tourism Promotion (FONATUR)

In 1968 Banco de México reports that tourism had increased by 12% in the past two years. Therewith, the bank had decided to boost the national tourism creating a new organism that could improve the tourist infrastructure.

At that time, the Touristic Infrastructure Promotion Fund (INFRATUR) had the task to find where were the new mexican touristic development. By 1969, it existed many arguments to decide where will be placed Cancun.



Figure 1. Beginnings of Cancun



Figure 2. Workers on a dock

In 1970 a handful of workers placed a camp in the north-east region of the state of Quintana Roo with the mission to bring off a new city. The virgin jungle and the vermin had no effect for the five thousand workers and the two hundred million pesos that will be invested in the construction in 1971. Just one year after the kick-off.

Donald Pletsh by one side and the UNAM (National Autonomous University of Mexico) by the other, were commissioned to perform some programs and design the lineaments for the native nature including the master lagoon.

In September of the same year Mr. Luis Echeverría, Mexico's president, disclosed the first report of the construction progress of Cancun, and at the same time were contracted 21 million dollars in credit lines of the Interamerican Development Bank for additional infrastructure and regional improvement.

In Isla Mujeres, were built health service and infrastructure. Many archeological sites were enhanced. The highway that connects the cities of Felipe Carrillo and Tulum started the construction with the premise to connect the city with the rest of the region.

The construction goes faster. In 1972 was placed the "first stone" of the first hotel built in Cancun. By 1973, Cancun started to attract many people who decided to settle in the outskirts. However, Cancun didn't born with irregularities.

In the same year the International Cancun Airport opened and some national and foreign airlines began to operate.



Figure 3. Ancient picture of the airport



Figure 4. One of the first hotels in Cancun

In 1974 was signed the new trust for the national promoted tourism in the Secretary of Finance. "FOGATUR" and "INFRATUR" disappeared and emerged the National Fund for Tourism Promotion "FONATUR". In September the Bojorquez Hotel had become the first hotel in Cancun with 332 rooms.

Cancun increased his population by 8,500 in the first two years and the tourist supply was of 1,322 rooms divided in 15 hotels. Almost 100 thousand tourists arrived in that year and also one thousand flights were received.

In 1976, helped by another credit given by the BID, Cancun continued the construction of his basic infrastructure including health service expansion, transport, electricity, cultural and tourist attractions and some improvements in community services.

In the 80's, Cancun started to presume his potential like a real touristic destination. More important agreements were established during those years. Each year increase the numbers and daily more people around the world went to pass some days in this city. By the end of the 80's, Cancun had a very important increase of all the numbers (rooms, visitors, etc).

By the year 2000, Cancun was the most important beach in Mexico and the sixth in the world by the number of tourists that received. In 2005, Cancun has 526 thousand people. Two years later, the hotel supply in Cancun is shaped by 29,692 rooms distributed in 161 lodging installations, receiving more than two million people by year.

In the last two years, over the Bonampak avenue in downtown Cancun, it began the construction of large real state developments characterized by high rises buildings.



Figure 5. Sample of the new resorts



Figure 6. Satellite image of Cancun. 2012

3. Integrated Diagnostic

3.1 *Illegal Settlements*

The main problem experienced by the Population Center of Cancun are irregular human settlements, which are located in towns or areas split or subdivided land without proper authorization, whatever their system of land tenure. The presence of these settlements is due to the success of tourism, which causes a high rate of immigration.

3.2 *Urban Infrastructure*

The lack of basic infrastructure is linked with the presence of irregular human settlements.

3.2.1 Drinking water

The 10.28% of the population center of Cancun does not have this service according to INEGI. Another infrastructure problem is the lack of a drainage system of rainwater, causing frequent flooding.

3.3 Urban Mobility Roadways

The increase in annual traffic flow causes complications especially road crossings main avenues. In 2005, there were 114.021 vehicles in the municipality of Benito Juárez, 2010 increased almost twofold with a record of 220.415 vehicles. The increase in road infrastructure is not proportional to increase vehicle.

3.4 Natural Physical Environment

The main threats to biodiversity are the unplanned urbanization, the impact they generate. One example is the blockage of natural drainage of the lagoon and lagoon Chacmochuch Manati, in the north of Puerto Cancun. In Punta Cancun, also presents a similar phenomenon, there is a low water movement in the Nichupte Lagoon System causing the eutrophication of the place

3.5 Equipment

The Urban Equipment is the set of buildings, facilities, buildings and furniture used to provide the population of urban services and develop economic activities. There is a place of final disposal of solid waste (landfill) which has saturation in the amount of waste being dumped into it. We report a lag in offering top-level education and research. In turn, it has a low range of cultural and community center for the entire population. Tourism has a well-diversified, has remained the focus to the traditional tourism of sun and sand. The housing issue is paramount, there is a percentage of unoccupied private dwelling 19% of all private homes, occupying large tracts of land that have the infrastructure, but are not used. It also presents a low density population for 2010 is 50.54 inhabitants / ha, accentuated in the downtown area.

3.6 Social-economic Aspect, Marginalization and Social Disadvantage

The Town Center has 643.206 inhabitants, is a young population with a prevalence of between 20 and 34. Only 13% of the population resided in the study area 5 years or more. The ancillary activity is the most important and represents 91% of the population, with a strong presence of retail. These data are relevant for understanding the behavior of society, seeking a better quality of life. Furthermore, the EAP (hours worked per day) intended a high number of hours, from 33 to 48 hours a week. This represents a reduction of time spent on other activities such as recreation or sport. Another important fact is that 29% of the population of the study area has not completed basic education and it is a limitation on the ability to develop other economic activities. 32% of the population has no access to health services, more than half the population cannot be owed to a housing loan. These data show that tourism if it attracts a lot of people to develop business activities in this sector or related to, but the jobs created have an instability, which does not allow a continuous development for economic growth.

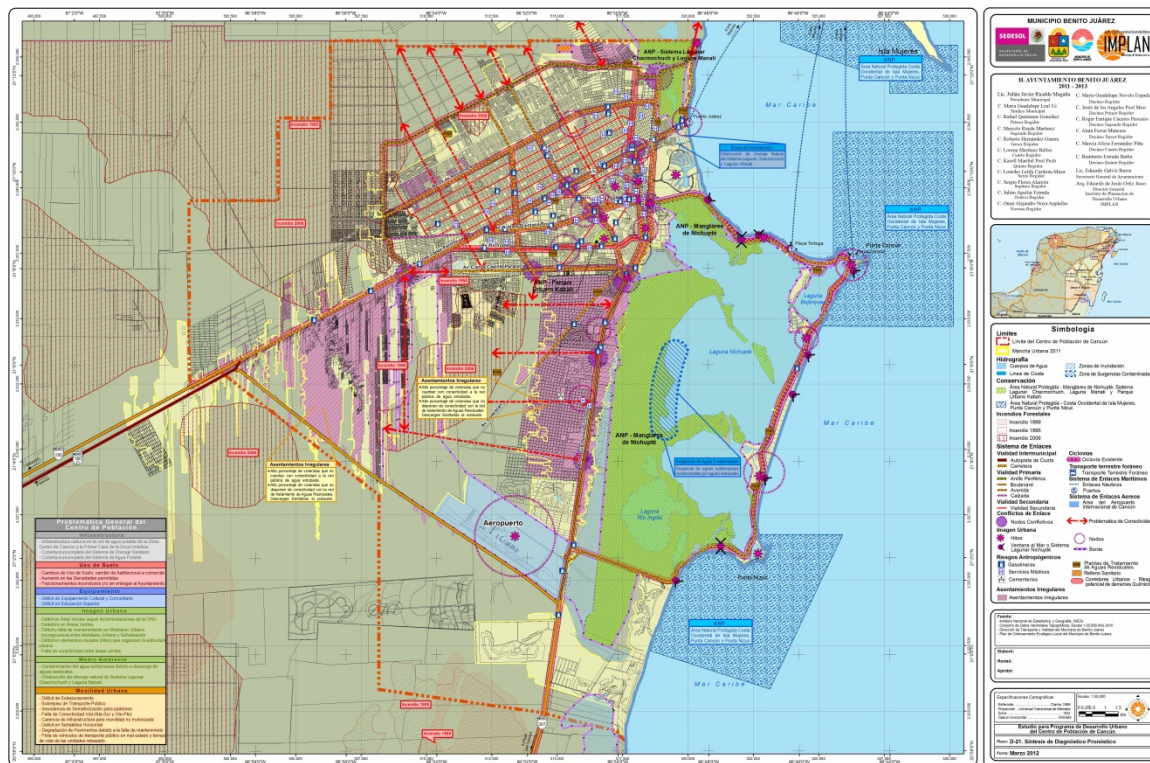


Figure 7. Integrated Diagnostic Map of Cancun. 2012

4. 2030 Strategy Planning (IMPLAN)

4.1 Themes

The objective is to break down some of the most important themes for the IMPLAN, doing it in accordance of the geographical and social conditions. This strategy must consider important pillars for a study that will have eighteen years projected.

The Environment, Land Planning, Mobility, Tourism & Economic Development, Development & Social Inclusion, Institutional Strengthen will be the thematic axes for the development of this strategy. Look at all of this themes could have more certainty for the success of the study.



5. Environment

5.1 Protection of Extraction and Catchment Drinking Water Zones

1- Diagnostic. The growth of the urban sprawl and the productivity activities in the township of Benito Juárez put in hazard the contamination of the extraction aquifer zones of drinking water, useful for the city of Cancun, Alfredo Bonfil and Isla Mujeres. Currently supplies eight thousand people and the 3.5 million visitors by year.

The Local Program of Ecological Rearrangement in township Benito Juárez has established regulations for the development in the extractions zones and their influence area. However, it exists a lot of popular demands for changing the regulation of the urban planning and others for the development of farming zones in the area that will look after.

2- Objective. Establish a formal protection structure for extraction zones of drinking water and the influence area where been constituted by the particular interest of the public benefit in a congruent way.

3- Benefits. Keep constantly the quality and quantity of the aquifer that could supply the appropriate water. That will allow to attend the real and the prospective demands of water for the people and their economic activities of Cancun (Benito Juárez and Alfredo Bonfil)

4- Achievements. The Local Program of Ecological Rearrangement is adapted to the township of Benito Juárez (POEL-BJ) allowing the construction of the Eco-Urban Park in 107 hectares that have been donated by FONATUR. This increase the size of the park into 384.44 hectares that represent a total with 38.56%.

The agreement to make jointly the first version of the Program Management and Conservation of Flora and Fauna of Mangrove Nichupté with the Natural Areas Commission.

The urban growth boundary (UGB) between Benito Juárez and Isla Mujeres and the delimitation of all the right-of-way in the Nichupté bridge.



Figure 7. Influence area.

6. Land Planning

6.1 *Partial Program of the Cancun-Airport Corridor*

1- Diagnostic. The last urban planning hadn't considered arrange the corridor. Many rights-of-way were invaded in Colosio avenue. Human and Commercial illegal settlements. Visual pollution. Environmental pollution. Municipal services missing. Roads required.

2- Objective. Develop a Partial Program of the Cancun-Airport corridor, including the arrangement of Alfredo Bonfil and the close neighborhoods.

3- Benefits. More than 13 thousand people will have a urban certainty. In future, more than one and a half million people will have a worthy city. Near of half million will indirectly benefit having an efficient mobility. Better Urban Image. A worthy access to the most important touristic pole in nation.

7. Mobility

7.1 *Mobility Plan*

1- Diagnostic. The city average speed has reduced a half in twenty years. The transfer time has duplicated with a implicated high social, economic and environmental cost. Comparing the 25% annual increase in the number of vehicles, the infrastructure only increase in a bashful 1% per year.

Near of 35% of people use the public transport, 28% uses the car and other 19% uses the taxi. The rest use other alternatives for displacements.

2- Objective. Satisfy the social need to move free, communicate, commercialize, and establish relations without sacrifice the present and future human and ecological values.

3- Benefits. Recover the public space for mobility, accessibility and the citizen stay, getting over the traffic. Privilege the urban public transport above the private transport for discouraging the car use. Give facilities, induce and increase the alternative transportation, use the no motorized systems (walk, bike) looking for decrease the pollute emissions.

4- Achievements. At this moment, some elements has been created like real instruments for this proposal. The street map of the city is one of those. In this has been established the traces proposed and the definition of street sections that allows to increase in 130% the actual right-of-way, ensuring more than 180 thousand kilometers of future roads additional to 140 thousand present. Together, they add up 8,640 million of square meters. The investment approach is about 4,500 million pesos for road constructions for the next ten years.

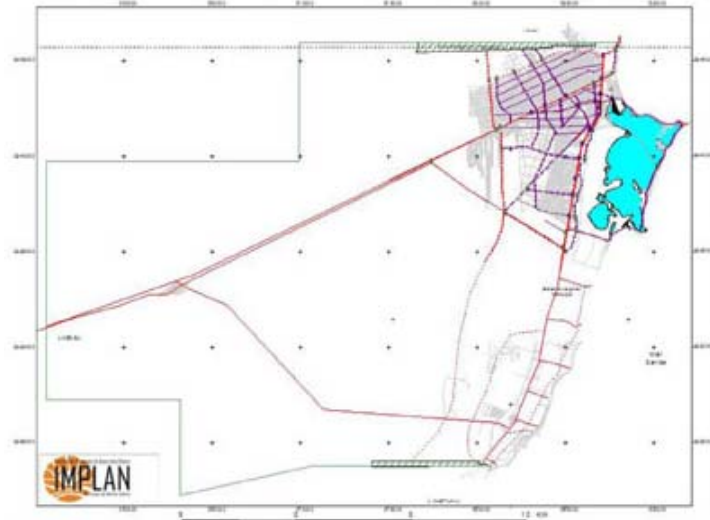


Figure 9. City roads map

8. Tourism & Economic Development

8.1 Rearrangement of Hotels Zone

1- Diagnostic. Cancun is one of the most touristic cities in the world, receiving more than 3.5 million visitors annually and it count with second most important airport in the country and the first in the world according to the number of annual operations.

More than 30% of the motive trip are related with commerce and touristic services. That is the reason why is needful the planning, management, evaluation and operation of the road infrastructure of the hotels zone.

The hotels zone have a certain capable of lodging that cannot be exceed. Bring it off means a slope in the level of the services.

2- Objective. Preserve the city of Cancun like the most successful tourist destination of Mexico and the Caribbean, supporting, boosting and promoting the touristic activities like the engine of the social-economic develop of the township and the region.

3- Benefits. Count with a Urban Development Program of the hotels zone updated and particular for this part of the town. Economic optimization of the tourist activities. Promoting the construction of more hotels above the condos. Assign a land use by sustainable arguments where converge the social, economic and environmental criteria.

4- Achievements. The creation of some thematic maps that contain the complete information for carry out. Urban public transport routes. Map of the roads of Cancun. Historical sample of the last PDUs (Urban Development Program) and other planning instruments since the establishment of the city. Urban Map of Cancun including streets names, suburbs names and blocks names. Historical growth map. Population density map. Vehicles density map. City road classification map. Land use map. Equipment map. Services map. Housing Developments map. 3D digital hotels zone model.

9. Development & Social Inclusion

9.1 *Regulation Programs and Management of the Non-Regulable Human Settlements*

1- Diagnostic. Today exist more than 3 hundred hectares of encroaching parcels, the illegal sale of land, no urban services, city boundaries full of misery, groundwater contamination.

2- Objective. Endow of legal, environment, social and urban certainty the life of the people of Cancun, promoting the human harmony in the settlements.

3- Benefits. Urban certitude for 8,950 people. Urban certitude for 102,240 people in the future. Regeneration of all the water catchments zones.

4- Achievements. Implementation of the instruments of SEDESOL normative system for making all the Plans and Programs. Implementation of the recognition program of the urban equipment areas in Cancun.

10. Institutional Strengthen

10.1 *Nichupté Agreement*

1- Diagnostic. Isolated efforts for the social organizations. Lack of knowledge of citizenship for each sector activities. Lack of resources in Civil Organizations. The lack of organization by the societies that attend social ills, accordingly, they don't give tracing the general problems.

2- Objective. Strengthen the social sector in Cancun, establishing links of cooperation and responsibility between the three sectors of the society: civil organizations, private sector and public sector.

3- Benefits. Generate one instrument that allow to manage resources for achieve the proposed objectives. Strengthen the respect for work from each one of the sectors. Promotion of the team work. Boost and coordinate the social participation. Generate better ways to communicate and cooperate that guarantee better results.

10.2 *Planning Center. Regional Level Leader*

1- Diagnostic. Interest for open spaces in different sectors to the society that want to be a part of the Institute. The actual regulation is inoperative to the Municipal Institutes in national level. Do not consolidate in common interest, projects between the township of Isla Mujeres, Solidaridad and Cancun. Do not resolve technical situations between each township.

2- Objective. Strengthen and guarantee the citizen of Cancun participation for the Institute decisions. Boost the creation for regional project promotion the Metropolitan Institute. Locate the city of Cancun as the seat of active representation and promotion of national and international urban planning.

3- Benefits. Multi-disciplinary team for consults and opinions. Improve the operation, projection and elaboration of projects. Add up more citizens to the Institute. Homologate the image and connectivity of citizens. Strengthen the cooperation between townships. Efficiency for expenses in projects and studies. Guarantee more resources.

4- Achievements. Entailment of a national and international positioning with Institutions and public and private associations. Vice-presidency of the AMIMP (2007-2008). The "Arc view"

program helps to improve the performance and the efficiency of the information. Specialized works do by accurate and accuracy information. A constant update of database for been used in future backups, classifications, overlays, connectivity, etc.

11. Conclusion

Since the city conception, Cancun has been a good example of ecological research, for urban planning, economic tourist activities, worldwide knowledge to know how the things must be. But, Cancun really get over the root problems? Cancun is a good example for environmental care? Is Cancun the best example in land planning? We think no but it could.

Cancun is a very important destination that is visited by thousands of people each year, but it is not enough the public and private sectors homework for keep the city in line with the global requirements.

The citizenship must to be involved, the people that has decided to live there, for pleasure or necessity, must to help his city to grow up in all the areas but with a 21st century vision. Development programs are not enough for boost the city for a so much better road but if we add up the citizen participation, this could be the clue for have more Cancun, for more years.

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