CADERNOS
PROARQ 18

CARLOS LOCH, CAMILA CESÁRIO DE ANDRADE E YUZI ROSENFELDT R. ROCHA

Infrastructure as a determining factor for urban development – the case of Itapema, Santa Catarina

Carlos Loch is Engineer Surveyor, PhD, Professor of the Graduate Studies Course in Civil Engineering, Federal University of Santa Catarina (UFSC), ecv1clo@ecv.ufsc.br

Camila Cesário Pereira de Andrade is Architect and Urban Designer, Master's Degree, currently doing a PhD in the Graduate Studies Course in Civil Engineering, UFSC, specialization in Multipurpose Technical Cadastre and Land Management, camila@cesariopereira.net

Yuzi Anai Zanardo Rosenfeldt is Architect and Urban Designer, currently doing a Master's Degree in the Graduate Studies Course in Civil Engineering, UFSC, specialization in Multipurpose Technical Cadastre and Land Management, arquitetayuzi@yahoo.com.br

ABSTRACT

The limited capability of Brazilian municipalities in the area of participatory land planning and management hinders the drafting of master plans. According to Federal Law No. 10257/2001, municipalities must implement an urban policy for the planning and development of the social functions of the city and urban property. The municipality of Itapema fits within this requirement due to its interest in applying these instruments set forth in the City Statute, for being an area of touristic interest and since its population exceeds 20,000 inhabitants. The methodology that was used entailed the "City Reading" (Technical and Community, as recommended by the Ministry of Cities). The scientific aspect focuses primarily on the spatial distribution of this data using the Multipurpose Technical Cadastre (MTC). This document was structured, taking a cross-section from the overall theme, in order to present the constraints imposed by urban infrastructure on the development of one of the city's social functions, namely housing, establishing a correlation between the physical-territorial, socioeconomic and infrastructure aspects of the municipality and the issue of housing. The methodological procedure adopted included (i) a literature review; (ii) creation of documents: cartographic, digital, systematized by the MTC, with the help of ArcGIS 9.2 software; (Iii) data processing, analysis and discussion of the results. The results were i) the dissemination and socialization of the knowledge within the academic realm which, with the MTC, builds a land planning and management methodology; (ii) the provision of services and assistance to the municipality from the standpoint of equipping it to carry on the process of democratic management. The deliberations generated discussions on (i) the meaning of popular participation in urban management; (ii) techniques and tactics for land planning and social participation; (iii) the role and limits of planning in local government and (iv) the determining factors for local urban development. The systematized information effectively served as guidelines for urban policy aimed at (i) establishing rational and constructive urban land occupation; (ii) monitoring the urban components and (iii) determining the ideal moment for interventions and prioritizing investments.

Keywords: Multipurpose Technical Cadastre; Urban Development; Geographic Information Systems.

Introduction

It is evident that small and medium-sized Brazilian municipalities (up to 50,000 inhabitants) have difficulties preparing their master plans. This is due to the limited number of professionals with expertise in participatory land and urban planning and management. [1]

This situation led the Ministry of Cities to encourage institutions of higher learning to prepare participatory master plans through applying participatory management technologies and methodologies. The Participatory Master Plan of Itapema was developed as a university research activity. As such, it enabled an exchange of experiences with the scientific milieu as it shared the learning from professional practice materialized in academic research. The institutions involved were the Federal University of Santa Catarina and Itapema City Hall. According to the City Statute - Federal Law No. 10257/2001, municipalities must implement an urban policy for the planning and full development of the social functions of the property in the municipality (urban and rural). Itapema fits within this requirement for three reasons: (i) interest on the part of the municipality to implement the instruments referred to in § 4 of Article 182 of the Federal Constitution; (ii) for being part of an area of special touristic interest and (iii) for having a population of over 20,000 inhabitants. Thus, the municipality recognized the need to review the Master Plan, tailoring it to the City Statute.

The methodology used for the master plan review process was the "City Reading". This process consists of a Technical Reading and Community Reading (recommended by the Ministry of Cities). The Technical Reading integrates the systematization of data in relation to the Municipality of Itapema. The scientific aspect primarily entails the spatial distribution of this data using the principles of the Multipurpose Technical Cadastre (MTC). This paper endeavors to present the results from this multidisciplinary field of knowledge. The document was structured, taking a cross-section from the overall theme, in order to present the constraints imposed by urban infrastructure on the development of one of the city's social functions, namely housing. It establishes a correlation between the physical-territorial, socioeconomic and infrastructure aspects of the municipality and the issue of housing. The methodological procedure adopted included (i) a literature review; (ii) creation of documents: cartographic, digital, systematized by the MTC, with the help of ArcGIS 9.2 software; (iii) data processing, analysis and discussion of the results.

1. The data contained in this article is taken from Project No. 159/2009 UFSC/FAPEU/PMI, under the coordination of Professor Carlos Loch. The other authors were part of the technical team.

The Multipurpose Technical Cadastre and Planning and Land Management

Planning means (...) to simulate the unfolding of a process and management relates to the present and means, (...) to manage a situation within the frameworks of the resources currently available, as previously established in the planning process (SOUZA, 2004).

Planning is viewed as the planned intervention of the State in the national sphere (ARAUJO, 1993; BONDUKI, 1996). All complex variables, environmental, ecological and socioeconomic parameters, land use and covering and data with known spatial and temporal accuracy should be taken into account in the process (CLARKE et al., 2002; HEROLD et al., 2001).

One of the fundamental purposes of land planning and management is the organization, systematization and access to land information (SELTZER and CARBONELL, 2011). A cadastral system is a methodical record of land information, composed of and represented by thematic maps: (i) the urban road network, (ii) infrastructure services, among others (LARSSON, 1996; LOCH and ERBA, 2007). It basically encompasses three essential elements: measurement and cartographic representation in terms of property; the laws governing land occupation; and the economic development of the occupant of the land (LOCH and ERBA, 2007). The cartographic data must be able to accurately depict the characteristics that define the land as well as meet the objectives established for the intended study (ARTIMO, 1994; GÁNDARAS et al., 1996).

The evolution of technology has thrust cartography into the digital realm. The combined use of Geoprocessing and Remote Sensing for Mapping techniques enabled the Cadastral Database to be established. Coupled with computer programs, the Geographic Information System (GIS) was consolidated and made it possible to use Remote Sensing tools to develop and validate projects (ROSENQVIST et al., 2003).

Conceptually, it involves measuring or acquiring information about certain properties of a given object or phenomenon, at a distance (ANDRADE, 2004; KRAMER, 1996; KRAUSS, 1993; LUHMAN, 2000; WOLF, 1995).

The integration of the GIS with the Multipurpose Technical Cadastre (MTC), as a support to urban planning, enables the (i) collection and storage of information describing the urban environment, in temporal intervals, and specialized in relation to the land; (ii) implementation and maintenance of the mapping system; (iii) maintenance and updating of the system which describes the characteristics of cities and (iv) provision of physical data for urban planning.

The MTC provides the groundwork for drafting a Master Plan in that it (i) provides clear definitions and goals, due to the existence of parameters for preparing an assessment of the past, present and future; (ii) provides cartographic products consistent with the local reality, which allows for a discussion based on real information; (iii) strengthens popular participation, making it possible to prepare thematic maps by combining alphanumeric and cartographic data of different types (PEREIRA, 2009), which then serve as illustrative instruments of the local reality.

The use of the MTC as a planning instrument provides an archive of necessary data and ensures the establishment of a rational and constructive occupation of urban and rural land and control over zoning (LOCH, 1993). The Master Plan is trustworthy when based on a reliable and temporal database. When this database is deficient, the Master Plan does not fulfill the City Statute in its entirety (CASARIN, OLIVEIRA AND LOCH 2006).

In order to develop the social functions of the property in the municipality, it is necessary to identify how the populations are physically allocated within the territorial space. Monitoring urban components is an essential activity in order to determine the ideal time for interventions and to prioritize investments. It's necessary to know their arrangement in the physical environment, as well as their interface with the use of the land. The MTC permits the work and spatial visualization of the associated urban variables: infrastructure networks, population, urban and community public facilities, public transportation, green areas, buildings and pavement, among others.

Case Study: The Municipality of Itapema

The Municipality of Itapema was colonized by European immigrants, mainly Portuguese, giving rise to its development in the mid-eighteenth century. It is located in a center-north portion of the state and became an independent city from Porto Belo in 1962 (Figure 1). It occupies an area of 59.022 km² between the parallels 27°02'54"and 27°09'04" South latitude and the meridians 48°35'03" and 48°41'22" West longitude. To the north it borders on the Municipality of Balneário Camboriú; to the south, the Municipality of Porto Belo; to the west, the Municipality of Camboriú; and to the east, the Atlantic Ocean.

The municipality is officially subdivided into the following 11 urban neighborhoods: Downtown, Canto da Praia, Ilhota, Sertãozinho, Alto São Bento, Casa Branca, Várzea, Taboleiro dos Oliveira, Morretes, Leopoldo Zarlling (better known as Jardim Praiamar) and Meia Praia. According to the estimate from the IBGE 2007 Census, the population of Itapema is 33,766 inhabitants (Figure 2).

FIGURE 1
Source: Technical Cooperation Team UFSC/ FAPEU 2010 – Itapema Master Plan Review Project

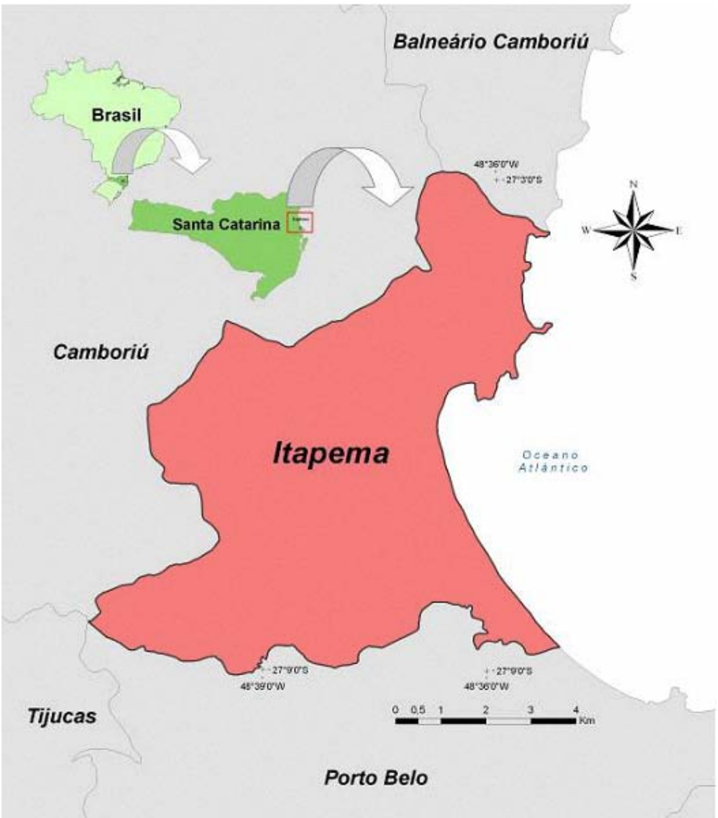
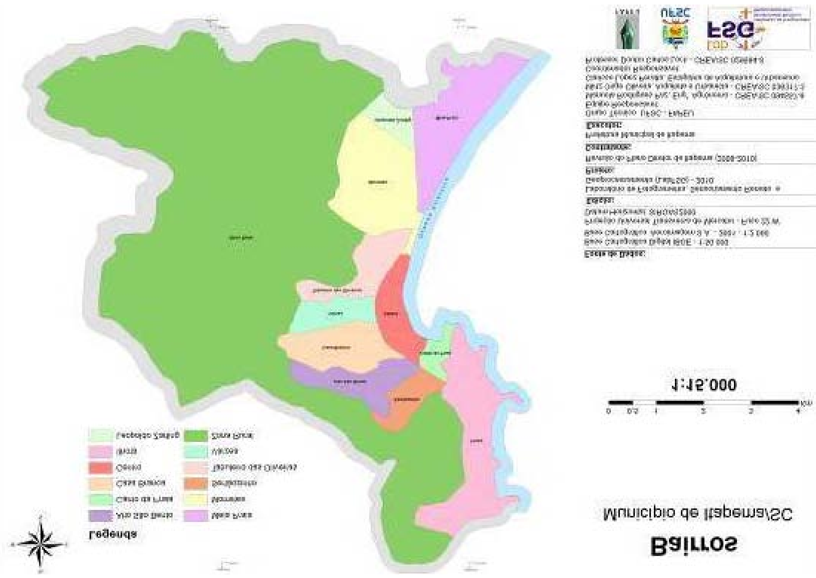


FIGURE 2
Territorial division, according to Law No. 20/1981 and Law No. 2279/2004 of Itapema. Location: 27°02'54" S 48°41'22" W. Source: Technical Cooperation Team UFSC/FAPEU 2010 – Itapema Master Plan Review Project



Housing Situation

Since the 1980s, the country's housing sector has been expanding, with construction being one of the main driving forces in the economy. As occurred on the national level, this sector also grew in Itapema, resulting in significant changes in the local landscape. This phenomenon is linked to the increased flow of tourism, which has raised the municipality to a place of prominence in Santa Catarina.

It is common knowledge that Brazil's housing situation, as a rule, is characterized by the social and spatial segregation of the disadvantaged sectors of the population, land irregularities, housing shortages, lack of urban infrastructure services and occupation of risk areas, as well as legally protected areas. In Itapema (SC), the local reality is no exception to the rule.

There are housing settlements in different locations with poor urban infrastructure and services, and which lack areas designated for public use. Basic urban infrastructure consists of storm drains, street lighting, sewage and water supply networks, public and residential electricity and roadways, whether paved or not (Law No. 6766/79). Depending on the location of these settlements, the precarious construction (foundation, structure, roof and electrical and water/sanitation facilities) exposes its occupants to situations of extreme risk. In the following topics, the existing infrastructure networks in Itapema and their correlation with housing construction in the city will be presented.

Land Use

The Rural Area, which is 38.98 km^2 in size, accounts for 66.05% of the total area of the municipality and is comprised of three communities, Areal, São Paulo and Sertão do Trombudo. Land used for agricultural crops represents 8%, with rice-growing being the predominant one, and a significant portion of the area is occupied by native forest in an advanced stage of restoration. The remaining 33.95% of the land in the municipality is considered urban. Buildings occupy 15% of the entire municipality, particularly for residential use, followed by trade and services. Although urban occupation represents little more than 1/3 of the entire municipality, Itapema is a city which primarily generates its income in this portion of the municipality.

With the rare exception of cliffs where native forest is still preserved and some fields and pastures in the northern part of the municipality, it is evident that the entire coastline is occupied by buildings (Figure 3).

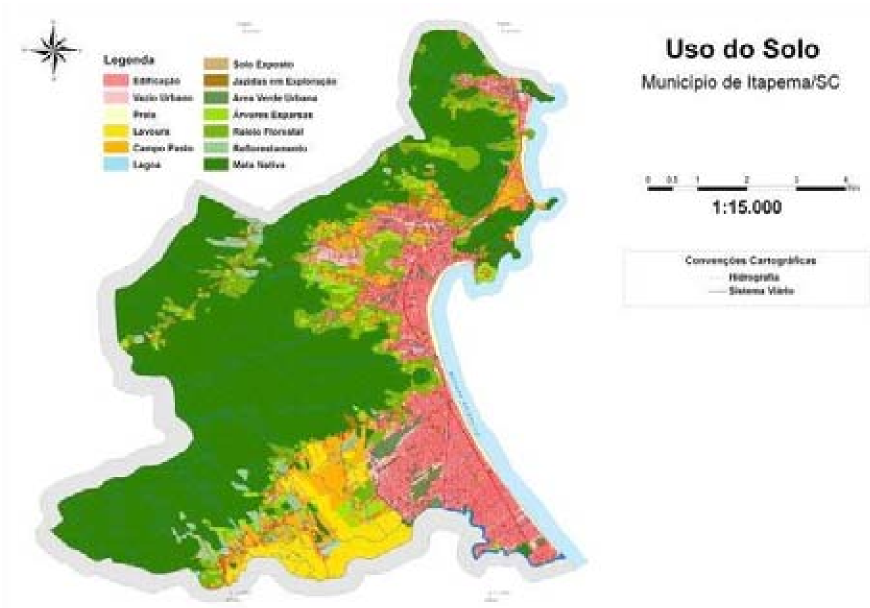


FIGURE 3
Map showing Land Use in Itapema. Location: 27°02'54" S 48°41'22" W Source: Technical Cooperation Team UFSC/ FAPEU 2010 – Itapema Master Plan Review Project

Urban Growth

A relationship can be established between migratory processes and the pursuit of quality of life or even (re)insertion in the labor market. Besides the phenomenon of "coastalization", tourism is another factor that has influenced the urban growth of the municipality, making it a population attraction hub. At the same time, the construction market, in order to meet the demand of the real estate market, attracts a migratory contingent in search of work. This creates intense seasonal movement. These characteristics of the municipality have a direct influence on its socioeconomic profile, rendering it difficult to regulate urban growth. A study of the residential and seasonal population brings to light the nature and demographic problems of urbanization, urban functionality, social efficiency and quality of life, which are very important for the purpose of planning land reorganization activities.

The IBGE 2000 Census registered a population of 25,869 inhabitants. The estimate recorded for 2009 was 36,627 inhabitants, reflecting an annual growth rate of 0.6%. In 2000, the urban population, which was 95.8%, rose to 95.98% in 2007, representing a growth rate of 0.1% in seven years. During this same period, the rural population dropped from 4.2% to 4.02%. Two reasons account for this phenomenon: the first is urban expansion which stretches to the outskirts of the city and incorporates parts of some rural centers and the second is the consolidation of the two main economic activities – tourism and construction. This spatial distribution of the population is not homogeneous. There is a growth of the urban area and population towards the outskirts (the west side of the BR-

101 highway), with characteristics of predominantly horizontal land use (such as the Morretes and Leopoldo Zarlling Neighborhoods). The vertical growth of the coastline, which extends 14.28 km (east side of the BR-101 highway), gives rise to population density and a consequent saturation of urban infrastructure capacity (Meia Praia Neighborhood and Downtown) (Figure 4).

The population growth and expansion of the urban periphery to the west side of the BR-101 started with the implementation of subdivisions before the approval of Law 6766/1979. The analysis of the urban expansion of the population was based on the aerial photogrammetric flight from 1978. This does not permit casting the blame on the person responsible for drawing up the subdivisions, and at present it is the municipality which assumes the entire responsibility for the cost of implementing this infrastructure and the problems arising from the lack thereof.

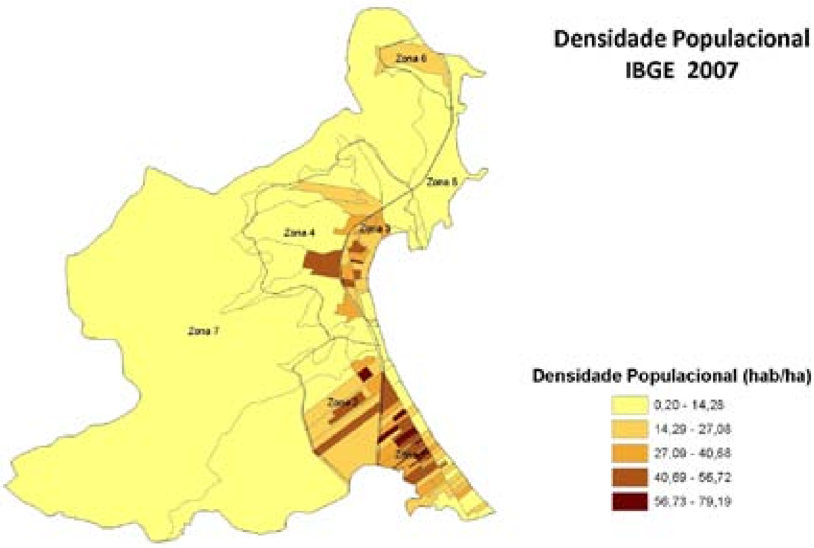


FIGURE 4
Population Density Map. Note the high density of the Downtown and Meia Praia Neighborhoods. Location: 27°02'54" S 48°41'22" W. Source: IBGE 2007 data - Technical Cooperation Team UFSC/FAPEU 2010 – Itapema Master Plan Review Project

Land Structure

Land structure is understood as the way in which inhabitants organize and divide land into properties. It is the image formed by the juxtaposition of the individual properties, providing a panoramic view of the city or area in question (TOPALOV, 1978). It is characterized by how the land is broken down and subdivided into properties, according to the characteristics of the historical process and the land laws established by the state.

Historically, urban land subdivision in Itapema occurred spontaneously along the so-called "general roads", and afterwards with the opening of roads perpendicular to their course. This design is known as "herringbone". Towards the hills, they extend perpendicular to the contour lines. These tracts of land formed by this original layout were subdivided over time as the population expanded and occupied the land. These characteristics can be seen in neighborhoods such as Ilhota and Alto São Bento, located in the northern part of the municipality (Figure 5).

Unlike what happened during the colonization process, there has been an increased subdividing of land, over the last few decades, with geometric layouts with closed, orthogonal urban grid features, better suited to a flat topography, without major landforms. This layout generates a typology of geometric lots with frontage facing a public access and boundaries with other lots. These characteristics can be noted in neighborhoods such as Meia Praia and Morretes (Figure 6). This orthogonal road grid is divided by the BR-101 highway. This inevitably creates a break in the land structure and road system of the municipality, totally contrary to the original characteristics of the layout (Figure 6). This discontinuity has generated a series of other physical and social impacts that affect the municipality. It has seriously disrupted the road network and broken the continuity of Av. Nereu Ramos, the first "general road" and the city's main avenue, which currently connects the Downtown and Meia Praia Neighborhoods.

In studying Figure 5, it can be seen that this is an area with rugged terrain, which does not conform to a geometric layout. In this location, larger investments are lacking on the part of the government to achieve a more rational land occupation. These areas are occupied by people with lower purchasing power when in fact the zoning laws should have anticipated a low occupancy rate, with the land occupied by a social class with higher purchasing power – the reason being that this social class would have had the necessary resources to invest in infrastructure and compensatory environmental measures.

FIGURE 5

North portion of the territory of Itapema. Note the land structure forming tracts of lands perpendicular to the contour lines, divided in two by the BR-101. Satellite image (Quick Bird) from 2008. Municipality of Itapema (Santa Catarina). Source: Itapema City Hall.

FIGURE 6

South portion of the territory of Itapema. Note the land structure tailored to the flat terrain, divided in two by the BR-101. Satellite image (Quick Bird) from 2008. Municipality of Itapema (Santa Catarina). Source: Itapema City Hall.

The Impact of the BR-101 on the City

On a regional level, the BR-101 highway interconnects the different coastal cities, disrupting the local road networks wherever it passes. The doubling of its lanes, in the north to center-north region of the coast of Santa Catarina, and the opening of the Borro do Boi tunnel, between the municipalities of Itapema and Balneário Camboriú, in 2001, permitted sharp population growth in the municipality.

Regionally and locally, the BR-101 is the municipality's main roadway and is used as an access road to the various neighborhoods located in the western section of the city. Its size and importance at the regional level has had different impacts on the municipality. In addition to marked population growth, as mentioned above, the BR-101 created a deep break in the road system. The physical barrier generated by the highway has divided the city into two very distinct parts – a physical and social division of the city that is clearly reflected in real estate values and the infrastructure that has been implemented (Figures 7 to 12).

FIGURES 7 and 8

View from the pedestrian walkway over the BR-101, which divides the city into the East (right) and West (left) sides. In Figure 8 there is a level crossing which bypasses the discontinuity of the road system caused by the BR-101. Source: Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

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FIGURAS 9 e 10
Street from the Morretes Neighborhood and Avenida Beira Mar. Note the difference in housing between the west and east sides, respectively. Source: Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

FIGURAS 11 e 12
Av. Nereu Ramos, Meia Praia Neighborhood, and a street in the Leopoldo Zarlling Neighborhood. Note the high and low housing density and provision of infrastructure between the east and west sides, respectively. Source: Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

Urban Infrastructure

Thematic maps will be presented below corresponding to the urban infrastructure of the municipality of Itapema. These were generated through the spatialization of the data from IBGE/2000 in digital cartographic databases, produced by aerial photogrammetric restitution on a scale of 1:2000. ArcGIS 9.2 software was used for processing the data. An analysis of this data should be done in conjunction with the density map (Figure 4) and land use map (Figure 3) and enables one to perceive the contrast between the rich and poor areas.

Basic Sanitation

Companhia Águas de Itapema is responsible for the supply of drinking water and basic sanitation, but is unable to satisfactorily meet household demand. The dumping of domestic sewage is the activity that most pollutes in the municipality. Approximately 8,900 m3/day of sewage is produced, whereas treated sewage amounts to 5,200 m3/day (Source: Águas de Itapema).

The darkest shade on the map corresponds to the census areas with the lowest percentage of households served by the sewage or storm drain systems, in other words, with the greatest lack of service. And, in progressively lighter shades, until the lightest shade, which represents the census areas with the highest percentage of households served by the sewage or storm drain systems, in other words, with the least lack of service (Figure 13). A photo of the Morretes neighborhood confirms the lack of a sewage system (Figure 14).

FIGURA 13
Map of households served by the sewage or storm drain systems. Location: 27°02'54" S 48°41'22" W. Source: IBGE 2000 data. Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

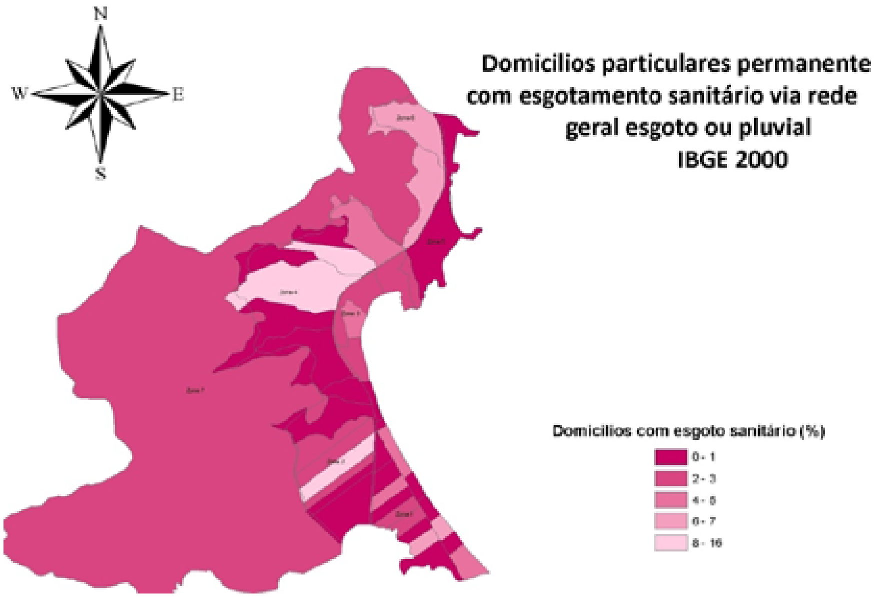

FIGURA 14
Rio da Fita empties into the sea. Low-income housing in the background. Source: Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

Garbage Collection

The darkest shade on the map corresponds to the census areas with the lowest percentage of households which receive garbage collection services, in other words, with the greatest lack of service. And, in progressively lighter shades, until the lightest shade, which represents the census areas with the highest percentage of households that receive garbage collection services, in other words, with the least lack of service (Figure 15). A photo taken of a street that borders Rio da Fita, in the Leopoldo Zarlling neighborhood, confirms the lack of garbage collection (Figure 16).

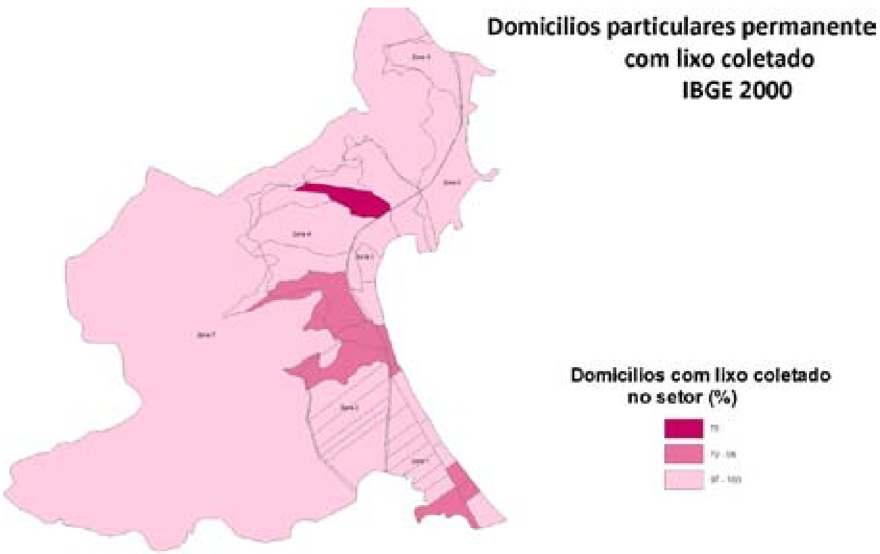

FIGURE 15
Map of households that receive garbage collection services. Location: 27°02'54" S 48°41'22" W. Source: IBGE 2000 data. Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

FIGURE 16
Leopoldo Zarlling neighborhood - precarious housing, with no garbage collection or basic infrastructure. Source: Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

Water Supply

The darkest shade on the map corresponds to the census areas with the lowest percentage of households connected to the water supply network. And, in progressively lighter shades, until the lightest shade, which represents the census areas with the highest percentage of households that are connected (Figure 17).

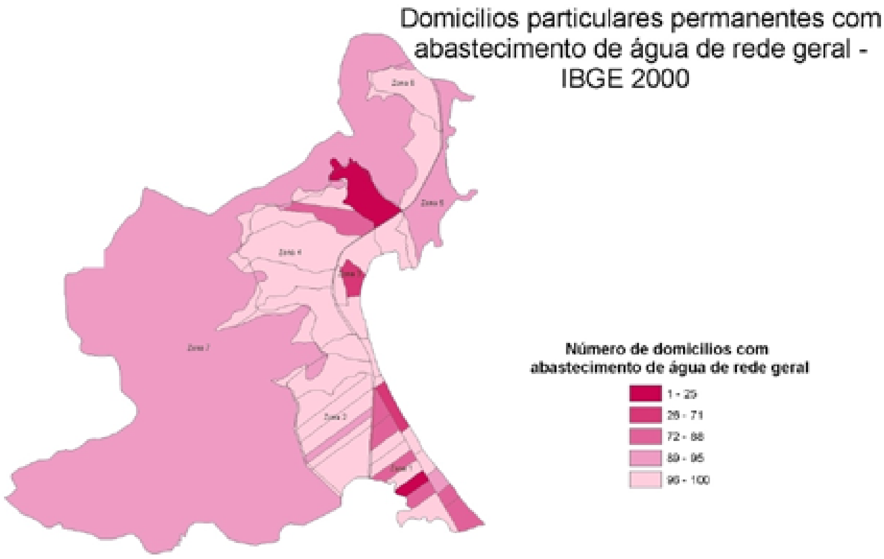

FIGURA 17
Map of households serviced by the water supply network. Location: 27°02'54" S 48°41'22" W Source: IBGE 2000. Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

Electricity

With regard to electricity and street lighting, the connections are done by Centrais Elétricas de Santa Catarina SA (CELESC), at the request of the interested party.

According to IBGE Census data, since the year 2000, no households have been registered as not receiving electricity, unlike the neighboring municipalities of Itajaí, Camboriú and Balneário Camboriú where the demand is on average 25% (Figure 18).

URBAN HOUSEHOLDS NOT PROVIDED WITH INFRASTRUCTURE SERVICES (1) - 2000										
Municipality	Iluminação elétrica		Water supply		Sewage system		Water supply and sewage system (2)		Garbage collection	
	total	%	total	%	total	%	total	%	total	%
Balneário Camboriú	60	0,26	1.326	5,68	916	3,92	419	1,79	129	0,55
continues										
Camboriú	26	0,25	2.156	20,92	2.001	19,42	601	5,83	232	2,25
Itajaí	84	0,21	1.411	3,54	3.123	7,84	488	1,23	438	1,10
Itapema	0	0,00	565	7,81	523	7,23	156	2,16	122	1,69

Sources: IBGE - FJP - 2005. Available at: www.fjp.gov.br.

Road System

In that it is a summer tourism destination, Itapema's road system is not equipped to handle the transient population during the summer months. Itapema has a fixed population of 36,629 inhabitants and a vehicle fleet of 19,245, of which 11,193 are automobiles. During the summer vacation season, this population swells to over 300,000 inhabitants, with a considerable increase in the municipality's vehicle fleet, thus overloading the road system.

Itapema coastline during the summer and winter periods, respectively. Source: www.google.com.br, accessed on Nov 15, 2011, and Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

The quality of the roads in Itapema is also very disproportional. In the Downtown and Meia Praia neighborhoods, both located on the east side of the BR-101, there is better trafficability, paved roads and sidewalks (Figure 19 and 20), contrary to the situation on the west side of the BR-101 (Figure 21 and 22).

FIGURAS 19 e 20
Avenida Beira Mar, in downtown Itapema and Avenida Nereu Ramos, in the Meia Praia neighborhood, respectively. Source: Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

FIGURAS 21 e 22
Ilhota and Morretes Neighborhoods, respectively. Unpaved roads with no sidewalks. Source: Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

Analysis

The methodology applied in the Master Plan review process proved to be effective since, through using thematic maps, it was possible to spatially distribute the municipality's infrastructure data and identify infrastructure as a determining factor for the urban development of the city. Following that, the reading to be performed was analytical in nature. The neighborhoods selected for the analysis were: Ilhota, Morretes and Meia Praia. This was due to the important representation of different characteristics of the neighborhoods and their participation in the economic activities of the municipality. Following is a description of each one.

Ilhota Neighborhood

To the north, the Ilhota neighborhood (Figure 4) comprises Praia Mata Camboriú and the area reserved for Hotel Plaza Itapema. It is currently one of the most conflictive areas of the municipality due to the irregular subdivisions. The neighborhood has residential characteristics combined with local business, and is predominantly residential. It has a fixed population of around 1,792 inhabitants, with an approximate density of 474 inhabitants/km². This reality changes during the summer in light of the tourism that occurs in the neighborhood. In an effort to reconcile the different uses and enhance tourism, the master plan review process identified the demand and interest of the city's residents to adapt the area, transforming it into a Gastronomic Center.

Although the neighborhood does have a good level of basic sanitation in comparison with other neighborhoods, the figures are still unsatisfactory. As a result, the bathing conditions of Praia Mata do Camboriú have been jeopardized. Spatialized data in relation to garbage collection, water supply and road infrastructure reveal a serious lack of these services, which do not meet current demand and, thus, would be unable to meet projected zoning use changes to transform the area into a touristic point of reference in the city. For this to happen, structural reforms and massive investments in the neighborhood would be necessary, reviewing the accesses, connectivity and health conditions through improvements in supplying basic sanitation services.

Morretes Neighborhood

The Morretes neighborhood is 3.63 km² in size. The area closest to the BR-101 is both residential and commercial in use, and the part further west is almost exclusively residential. The neighborhood has low density and notably poor infrastructure. There is small, medium and large-scale local commerce. The medium and large-size businesses cater to construction, such as woodwork shops, aluminum industries, etc. During the Master Plan review process, it was noted that the municipality has interests in the neighborhood with respect to the Industrial Park of the Municipality, the City Jail (now under construction) and the Sewage Treatment Station (now under construction). Clearly, facilities of this nature (large scale) will require accompanying infrastructure in order to avoid conflicts of use. The construction of the Industrial Park will require high-voltage power grids, sewage treatment for industrial effluents and a road system with appropriate lanes so as not to endanger the health and lives of local residents. The City Jail will need to have a complementary public security system, in addition to a basic sanitation system in order to meet the demand.

Ilhota and Morretes Neighborhoods, respectively. Unpaved roads with no sidewalks. Source: Technical Cooperation Team FAPEU/ UFSC – Itapema Master Plan Review Project – 2010

Morretes Neighborhood. Streets without a drainage system, pavement and sidewalks. Source: Technical Cooperation Team FAPEU/ UFSC – Itapema Master Plan Review Project – 2010

Meia Praia Neighborhood

Located in the southeast sector of the city, bounded by the coastline (Atlantic Ocean) to the East and the BR-101 to the West, it is 3.27 km² in size, with a 4-km long stretch of beach. It has become the central point of attraction for summer vacationers and accounts for 27.20% of the urban population, with a density of 3,051 inhabitants/km² (data from Itapema City Hall). The resident population has a high purchasing power compared with those on the west side of the BR-101. It is the neighborhood with the best infrastructure in the city and represents important commercial, financial and leisure dynamics, as reflected in the greater availability of services in the tertiary sector.

From the urban standpoint, the mixed-use (commercial and residential) and tourism infrastructure, such as bars, restaurants, hotels, inns and shops led to the neighborhood being classified in the Master Plan review as a hub that generates movement of people. There is a cyclical movement of people commuting daily from the other neighborhoods of the municipality to work in the shops. This significant cyclical movement requires connectivity in the road system, which is interrupted by the BR-101. This highway also limits the possibility of the neighborhood expanding, a condition that has exerted pressure on vertical growth in terms of its buildings.

Although it is the neighborhood with the best sanitation services, it did not display satisfactory results with respect to the sewage system. This is due to the imbalance between the supply of services and the high density of the neighborhood (Figure 4). The repercussions of this are the constantly unsatisfactory bathing conditions, as presented by the Environment Foundation (FATMA).

Meia Praia Neighborhood. Note the appropriate urban design, wide sidewalks, bike paths and paved streets. Source: Technical Cooperation Team FAPEU/UFSC – Itapema Master Plan Review Project – 2010

Expected impact of the proposed plan

The Itapema Participatory Master Plan was developed as a university research activity and, as such, represented an opportunity for interaction between the University and City Hall.

It was two-way experience, in that the team and the local population exchanged knowledge about the city and its urban issues. In terms of the impact generated by the research project, it included: i) the dissemination and socialization of the knowledge within the academic realm which, with the MTC, builds a land planning and management methodology; (ii) the provision of services and assistance to the municipality from the standpoint of equipping it to carry on the process of democratic management.

The interactions between the University and the municipality engendered a positive impact with discussions on (i) the meaning of popular participation in urban management; (ii) techniques and methods for land planning and social participation; (iii) the role and limits of planning in local government and (iv) the determining factors for local urban development.

The master plan sets forth the objectives, activities, responsibilities and deadlines to be met. As its name suggests, it establishes the guidelines for the urban development of the city. Solving the infrastructure problems is a necessary condition for urban development and, consequently, for improving the well-being and quality of life of the local population. This study endeavored to lay the foundation for the territorial development of the municipality. Although the aforementioned plan has not yet been approved, the fact that there is a benchmark marking a new approach to urban development as expressed in the City Statute, it is hoped that the systematized information will effectively serve as guidelines for this urban policy, aimed at (i) the establishment of a rational and constructive occupation of urban land, (ii) the monitoring of urban components and (iii) determining the ideal time for interventions and prioritizing investments.

The greatest contribution of this proposed plan was public transparency. It was possible to put together an informative and participatory master plan through public hearings. On the basis of the technical reading and thematic meetings a strong partnership was built with the community. It was also possible to identify and present the areas that are vulnerable and susceptible to floods, landslides and weaknesses in title deeds of properties – questions such as these discussed with a focus on the need for infrastructure and harmonious and sustainable development.

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