PLANNING AND DESIGNING URBAN OPEN SPACES FOR LOW INCOME NEIGHBOURHOODS IN CHILE

Case Study, Alto Hospicio Chile

by

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Abstract

With the global increase in the density of urban population, policy makers and planners have been paying significantly more attention to measures designed to promote sustainable development and to improve the quality of life in the urban environment. Chile’s marked demographic explosion and its rapid urbanisation increased the housing demand; as a result, this overcrowding created land invasions and informal settlements. From the 1980s to 2006, the Chilean government implemented a policy that reduced the total housing deficit by half, unfortunately, this policy favoured quantity over quality and resulted in extended social housing complexes as opposed to designing complete neighbourhoods. In addition, unplanned and informal settlements arose in many regions of the country and were relocated to the periphery of existing cities. This excluded residents from their entire social and economic system. Due to a lack of spatial and social connections, especially urban open space, these communities have morphed into pockets of inequity, delinquency and spatial segregation. Using a case study approach to address the research questions, this study evaluates how urban open space currently functions in Alto Hospicio and aims to contribute with a design framework that may guide and inform government, municipal authorities, planners, and designers in the implementation of more adequate urban open spaces in the under-utilized landscape of Chile’s low-income communities.
Preface

Approved by UBC Behavioural Research Ethics Board

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Table of Contents

Abstract ........................................................................................................................................................................... ii
Preface ............................................................................................................................................................................ iii
Table of Contents ....................................................................................................................................................... iv
List of Tables .............................................................................................................................................................. vi
List of Figures .............................................................................................................................................................. vii
Acknowledgements ................................................................................................................................................... x

CHAPTER 1: Introducing the Problem ..................................................................................................................... 1
1.1 Problem Statement ....................................................................................................................................... 4
1.2 Alto Hospicio ................................................................................................................................................... 7
  1.2.1 Physical Context .................................................................................................................................... 7
  1.2.2 History ....................................................................................................................................................... 9
  1.2.3 Demographics .................................................................................................................................... 12
  1.2.4 Socioeconomic Profile and Main Economic Activities ....................................................................... 13
1.3 Significance and Scope of the Investigation ................................................................................................. 16
1.4 Research Questions ................................................................................................................................... 18
1.5 Goal and Objectives ................................................................................................................................... 18
1.6 Methodology ................................................................................................................................................ 19

CHAPTER 2: Functions and Benefits of Urban Open Space (UOS) ........................................................................... 21
2.1 Defining Urban Open Spaces (UOS) ........................................................................................................... 22
  2.1.1 Contextualising UOS for Chile ...................................................................................................... 24
2.2 Benefits and Functions of Urban Open Spaces ......................................................................................... 26
  2.2.1 Health and Social Benefits .............................................................................................................. 26
  2.2.2 Environmental Benefits ................................................................................................................... 29
  2.2.3 Economic Benefits ............................................................................................................................. 30
2.3 The Function and Role of Urban Open Space ............................................................................................ 33

CHAPTER 3: Key Aspects to Consider in Planning and Designing UOS for Low-Income Neighbourhoods in Chile ................................................................................................................................... 36
3.1 Ideas that Shape UOS in Low Income Neighbourhoods ........................................................................... 37
  3.1.1 Social Sustainability .......................................................................................................................... 38
  3.1.2 Equity ..................................................................................................................................................... 43
3.2 Provision of Urban Open Space ................................................................................................................... 46
  3.2.1 Approaches to Urban Open Space Planning ................................................................................. 47
  3.2.2 Needs Assessment ............................................................................................................................. 50
  3.2.3 Needs Assessment Process ............................................................................................................. 53
3.3 Spatial Organization .................................................................................................................................. 56
3.3.1 Spatial Logic: Location and Distribution ................................................................. 56

3.4 Program and Design Qualities .................................................................................... 61

3.4.1.1 Comfort, Relaxation, Passive and Active Engagement ........................................ 64
3.4.1.2 Activities ............................................................................................................... 68
3.4.1.3 Program .............................................................................................................. 69
3.4.1.3 Appropriated Facilities and Amenities for Low Income Communities ............ 72
3.4.2.1 Safety .................................................................................................................. 74
3.4.2.2 Comfort .............................................................................................................. 74
3.4.2.3 Flexibility and Adaptability ................................................................................ 75

CHAPTER 4: Las Americas Park, Case Study .................................................................. 78

4.1 Methodology ............................................................................................................... 78
4.2 Background .................................................................................................................. 80
4.3 Physical Context ......................................................................................................... 82
4.4 Observational Study .................................................................................................... 84
4.4.1 Use, Program and Physical Design ......................................................................... 84
4.5 Interview Results ........................................................................................................... 91

CHAPTER 5: Proposed Planning and Design Framework .................................................. 95

5.1 Proposed Framework ................................................................................................ 96
5.2 Applying the Framework to Alto Hospicio, Chile ....................................................... 101
5.3 Final Evaluation ......................................................................................................... 125

CHAPTER 6: Conclusions ................................................................................................. 131

6.1 Areas of further research ............................................................................................ 133

References ......................................................................................................................... 136

Appendix A: Behaviour Data Collection ...................................................................... 146
Appendix B: Las Americas Park Use Analysis ................................................................. 147
Appendix C: UOS Performance Evaluation Card ......................................................... 153
Appendix D: Letter of Contact Community Leaders ................................................... 162
Appendix E: Interview for Community Members .......................................................... 163
Appendix F: Interview for Community Leaders .............................................................. 165
Appendix G: Consent Form .............................................................................................. 167
Appendix H: Introducing Precedents ............................................................................. 170
List of Tables

Table 1: Adapted from NRPA Parkland Classification Standards and from Guidelines for Developing Public Recreation Facility Standard Canada .......................................................... 48
Table 2: Adapted from Standard from Madrid, Spain (Hernandez, 1996) ........................................ 48
Table 3: Art. 2.2.5 General Urban Development and Construction code (OGUC, 2012) .............. 49
Table 4: Summary Guidelines and Standards for the Planning of City of Cape Town Social Facilities and Recreational Spaces (CSIR 2010) ........................................................................ 50
Table 5: Data Districts in Alto Hospicio, Chile ................................................................................ 109
Table 6: Data Integrated Plan Alto Hospicio, Chile ........................................................................ 111
Table 7: Proposed Standard per 1000/ Inhabitants ........................................................................ 126
Table 8: Proposed Desirable Area .................................................................................................... 126
Table 9: Proposed Service Area ....................................................................................................... 128
List of Figures

Figure 1: Urban Growth, adapted from Department of Economic and social affair, population division, 2007. UN .......................................................................................................................................................1

Figure 2: Map of Chile................................................................................................................................................7

Figure 3: Tarapaca Region, North of Chile (Source: adapted from Wikimedia Commons By B1mbo (Own work) CC-BY-SA-2.5 (http://creativecommons.org/licenses/by-sa/2.5)) 7

Figure 4: Geographic Context between Iquique and Alto Hospicio. (Diagram by the Author. Base map: Google Maps 2012 (©Google Maps 2012)) .................................................................................. 8

Figure 5: Timeline events in Alto Hospicio, Chile. (Diagram by the author) .......................................... 9

Figure 6: Integrated Plan for Alto Hospicio, (Source: Urban Development of Ministry of Housing. Used by permission of Pablo Fuentes the author) ................................................................................... 11

Figure 7: Population in Tarapaca Region (Graphic by the author Source: INE 2002, ) .......................... 12

Figure 8: Farmer Flea market in reclaimed space, Alto Hospicio, Chile. © (Millahuala, 2011) ........ 15

Figure 9: Summary chart of the types of urban open spaces that exist in Chile ..................................... 25

Figure 10: The Sustainable Southern Cone conceptual framework (2002) (Diagram by the author) ........................................................................................................................................................................... 39

Figure 11: Equity Models after Lucy (1981) and Crompton and Wicks(1988) adapted from Sara Nicholls (2011) ......................................................................................................................................................... 44

Figure 12: Triangulation Needs Assessment Model (Barth 2008) (by the author) ................................. 52

Figure 13: Techniques of the Triangulation Needs Assessment Model (Barth 2008) (by the author) ........................................................................................................................................................... 53

Figure 14: Adapted from Needs Assessment Process Diagram (Barth 2008) ........................................ 54

Figure 15: Categories of needs (by the author) .......................................................................................... 64

Figure 16: Examples of form of passive engagement. By *christopher*from San Francisco, USA (cuba libre Uploaded by russavia) CC-BY-2.0 (http://creativecommons.org/licenses/by/2.0)], via Wikimedia Commons ................................................................................................................. 66

Figure 17: Examples of form of active engagement: Forecourt fountain and Director Park Portland Oregon (by author 2012) ................................................................................................................................................................................................................................................. 66


Figure 19: Facilities that promote upgrade of skills, such as workshop, community garden and market ........................................................................................................................................................................... 68

Figure 20: Graphic representation of the quality of the environment v/s activities (Adapted from Gehl, 2010) ........................................................................................................................................................................................................................................ 69

Figure 21: Objectives, Categories and Principles from Literature Review, Precedents and Case Study ................................................................................................................................................................. 77

Figure 22: Master Plan of Public Spaces for Alto Hospicio and proposed parks (Source: Urban Development Department of Ministry of Housing. Used by permission of Pablo Fuentes the author) ........................................................................................................... 80
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CHAPTER 1: Introducing the Problem

The World population in urban areas is projected to grow from 3.3 billion people in 2007 to 6.4 billion by 2050. Most population growth projected in urban areas will be concentrated in cities and towns of less developed regions (UN Population Division, 2007). To date, the increased urban population in South America is a product of internal migration from rural areas to cities. These new urban dwellers bring with them different expectations of the urban environment, such as: urban open space, better living conditions, ease of mobility, and diverse cultural practices. This internal migration has influenced the formation of the contemporary South American metropolis during the mid-20th century. As a result of government relocation policies, formalized social housing projects have displaced the poor to the periphery of cities where they are excluded from the social system (Hernandez, 2011).

Figure 1: Urban Growth, adapted from Department of Economic and social affair, population division. (UN, 2007)
When communities are separated from the social system, the quality of their urban environment affects the daily life of individuals and communities. Housing, education, health, crime, employment and leisure are all impacted. Urban open spaces are one aspect of the city environment that is vital in daily life for people living in urban areas (Woolley, 2003), they play a vital role in creating healthier and more livable communities (Worpole, 2003) by providing positive environmental, social and economic benefits. In tandem with the overwhelming evidence of the benefits and opportunities of accessible urban open spaces, there is a growing body of research that has demonstrated that the provision of green open spaces is worse in low-income areas than in affluent areas.

Research from North America and the United Kingdom points to the growing division in the allotment of urban open spaces in low-income neighbourhoods populated by minorities. These neighbourhoods are especially short of green open spaces, and the existing spaces are poor quality (UK. CABE Space 2010, Trust for Public Land, 2006). Latin America is currently the most urbanized region in the developing world and it is also characterized by extremely high levels of urban inequality (UN-HABITAT, 2008). Unfortunately if resources and infrastructure are inequitably distributed, many facets of daily life are negative impacted (Wright Wendel et.al 2012).

For many governments around the world, there has been much emphasis on the planning, design and management of urban open spaces. For example in the United Kingdom, the revitalization of urban open spaces is a key concern to central government, which has introduced the Commission for Architecture and the Built Environment (CABE) (Dines and Cattell, 2006). CABE has been instrumental in helping public, private and voluntary organizations to understand the benefits of well-planned, designed, managed and maintained urban open spaces. In the United States, non-profit agencies such as Trust for Public Land and the Projects for Public Spaces are national scale efforts with aims to promote urban open space.
In developing countries, efforts are often concentrated on addressing more immediate needs such as access to sanitation, clean potable water, sewage services, and housing. Urban open spaces are often considered to be non-essential, as there is much competition for public funds. However, in areas with high population density and few economic resources, the availability of appropriate outdoor space has made living conditions more bearable (Gehl 2010). The urban open spaces are key to low-income neighbourhoods not only because they improve the quality of their local environment, but because they provide places for recreation that promote physical activity and, in turn, improved health conditions. All too often poor neighbourhoods do not have the benefit of local community amenities because those spaces are often far away, or are of poor quality, and are seldom used due to a lack of public safety. From an equity point of view, there is an urgent need to address this imbalance.

Motivations of the study

There are two main reasons that motivate this research. The first is the lack of quantity and the poor quality of the existing urban open spaces in low income neighbourhoods in Chile. The second is the lack of guidance that would promote an adequate process for implementing functioning and sustainable urban open spaces that provide benefits to low income communities.

First, the area held in reserve for community space is never developed by either the municipality or developer; although it is established in Chilean law that is mandatory, enforcement is weak. Second, the urban open spaces are left at the geographical edge of neighbourhoods and are therefore inaccessible to the majority of the population. This decision is made by the developer and while it meets the legal requirement, it does nothing for the community. Third, after the spaces are reserved for community use, the design, implementation and maintenance is beyond the means of the municipality or community to maintain it. Inadequate design process, lack of funding and lack of sense of ownership is present. Finally, the repetition of a standard model of urban open spaces throughout Chile,
without differentiation of culture, climate or geography, creates programs and facilities inadequate to user needs.

Regarding my second motivation in Chile, there is no policy that defines, regulates or provides basic guidelines to improve the existing conditions of urban outdoor spaces; so in consequence, the existing process to select the implementation of urban outdoor spaces is based on political decisions without using a more impartial method. The community participation process is overlooked until all other decisions have already been made, making that participation meaningless. Finally, the whole process is driven by a simple calculation of green areas per inhabitant without concern for user needs or any other important factors.

1.1 Problem Statement

In Chile, located along the southwest coast of South America, 87% of the population is concentrated in urban areas known as Regional Capitals (INE, 2005). The expansion of these urban centers has placed a higher demand on urban infrastructure that has achieved a high level of universal satisfaction of basic urban needs reaching outstanding urban standards in respect to other countries in Latin America and the Caribbean. However, new demands from communities tend to strongly concentrate on local qualitative features such as equity in access and quality of urban open spaces (MINVU, Neighbourhood program recovery, 2008).

Between 1980 and 2006 in Chile nearly two million units of social housing were built. In 15 years, the country reduced the total housing deficit by half. This Chilean housing policy became a benchmark for other developing countries (Salas, 2002). From the political point of view Chile met the goal of reducing the housing deficit but favoured quantity over quality. But unfortunately this policy promoted extended social housing complexes instead of complete neighbourhoods without implementing most of the designated urban open spaces. These vacant or under-utilized sites became unsafe and vandalized, creating a target for delinquency.
The city of Alto Hospicio, outside of Iquique in Chile, is one such example of a city that was created as the result of the aforementioned housing policy in addition to government relocation policies that aimed to regularize informal settlements in the 1990s. Located 1,860 km north from Santiago, Alto Hospicio is the peripheral settlement associated with Iquique, and is located on the Pacific coast, west of the Atacama Desert; wedged between cliff and shore. Iquique is the capital of the Tarapacá Region and is the main urban and economic centre of this province. Together, these two cities formed a regional system; over 90% of the population live within the conjoined borders of these two cities and the demand for housing is still one of the priorities of the government. For a long time the improvement of urban open spaces was of low priority in the political agendas of several governments, despite being an essential component of healthy and sustainable urban environments.

In 2002, this region had one of the fastest growing urban areas in Chile, experiencing a much higher rate of population increase (44.4%) compared to the rest of the country (13.2%) during 1992-2002. In Alto Hospicio affordable land was available for the urban expansion of Iquique. People from the rural areas surrounding the region and from other areas of Chile moved to Alto Hospicio, in the belief that there would be work for them in the freeport of Iquique and in mining companies.

This city subsequently transitioned into one of the poorest settlements in the country and is stigmatized as one of the most difficult places to live with a strong concentration of inequality and spatial segregation. Due to this situation, the government in cooperation with the Ministry of Housing and Town Planning started an integrated plan for Alto Hospicio with the purpose of regulating the precarious situation of the housing and poverty of the inhabitants. By all accounts, the current situation in Alto Hospicio is a direct result of the application of social housing programs, executed through individual projects within the urban area - without generating either space relation or connection between each.
The dependency on Iquique as the economic base, the strong concentration of poverty, and the lack of public places that facilitate social integration represent an opportunity to re-envision how urban open spaces could be planned, allocated, designed and implemented in a way that also creates social sustainability. The conditions that are now prevalent in this region make it an ideal case study for assessing if existing urban open spaces meet the needs of a low-income community and for the development of a framework for planning and designing urban open spaces for marginalized communities.
1.2 Alto Hospicio

1.2.1 Physical Context

The Tarapacá Region in the north of Chile is an area of 42,225 Km² representing 5.58 % of the Chilean countryside. There are 238,950 inhabitants that make up 1.58 % of the national population with a population density of 5.66 inhabitants / km² (INE 2002 census). The region is divided into two provinces: Iquique and Tamarugal, and seven municipalities: Iquique, Alto Hospicio, Pozo Almonte, Pica, Huara, Colchane and Camiña (See Figure 3.) In the province of Iquique combined with the municipality of Alto Hospicio, there is a shared population of 216,419. (GESCAM, 2005).

Figure 2: Map of Chile

Figure 3: Tarapaca Region, North of Chile (Source: adapted from Wikimedia Commons By B1mbo (Own work) CC-BY-SA-2.5 (http://creativecommons.org/licenses/by-sa/2.5))
Alto Hospicio is located approximately 7 kilometers southeast of the regional capital and is located on the upper platform of the Cordillera de la Costa. It is bordered to the north by the municipalities of Huara, west and south with Iquique and east by Pozo Almonte (GESCAM, 2005). Alto Hospicio is configured as a strip from north to south approximately 11 km long and between 2 km and 4.5 km in width. The total area of Alto Hospicio measures 574.6 square kilometers and it has a population of 50,215.

According to the climatic classification of Köppen (Peel, 2007) Alto Hospicio is primarily a desert climate with abundant cloudiness in its southwest area. This corresponds to the zone above the coastal cliff line with a higher moisture content. This creates extreme variations in temperatures between day and night (GESCAM, 2005). True to the characteristics of a desert climate, rainfall is very low and the existence of flora and fauna is scarce.
1.2.2 History

Historically, the city of Alto Hospicio has been tied to the neighbouring city of Iquique and the municipality of the same name until 2004 when it was incorporated as a new municipality. In spite of its recent creation, it has long been associated with the mining of silver, copper and nitrate. During the nitrate extraction cycle a century ago, Alto Hospicio was a transit area and refueling stop for railway networks to Iquique. This situation continued until the market for the natural nitrate industry collapsed in the 1930s (GESCAM, 2005).

In 1926 a military base, Los Condores, was established in the north of Alto Hospicio, and remained in operation until the 1970s. Emigration to this region was significant in the 1950s when the Aymara, an ethnic group that live in the central Andes Mountains in Latin America, established themselves in the region as agricultural providers to the population of Iquique (GESCAM, 2005).

In the 1980s an explosives plant in the northeast of Alto Hospicio was established and in addition the Tarapaca region was developing successful economic activities such as a fishing industry, a free trade zone and mining. These activities were a strong attraction for new immigrant workers from other regions of Chile, but created strong pressure to create an adequate housing supply. Between 1978 and 1982, 23,000 inhabitants came to live in Iquique (Guerrero, 1995), and between 1990 and 2002 Alto Hospicio experienced a spike in population from 5,000 to 50,000 inhabitants with a growth rate of 800%.

Figure 5: Timeline events in Alto Hospicio, Chile. (Diagram by the author)
During the late 1980s, high population growth in Alto Hospicio had a parallel relationship with economic processes and social movements in Iquique. Migration within and outside the region created a deficit of 11,631 homes. There were 5,526 families living with other families or renting small units and resulted in overcrowding. In the absence of quick solutions from the local government, these inhabitants took the initiative to create illegal informal settlements in Iquique in an effort to bring about regulated change.

The result of these informal settlements was a forced resettlement to Alto Hospicio in the late of 1990s (Guerrero, 1995). In 2001, the Ministry of Housing and Urbanism (MINVU) began the process of regulating the precarious situation of illegal settlements with the Integrated Plan for Alto Hospicio.

The Integrated Plan was started by the government in cooperation with the Ministry of Housing and Urbanism led by a committee that was prepared for this special and unique situation in Chile. The plan was born with the purpose of regulating the precarious situation of the housing and poverty of the inhabitants who settled in informal ways in the municipality. The main goal was to attend to the problems of over 5,000 families that were living in irregular settlements in the areas of La Pampa, La Negra and El Boro. The plan aimed to create housing, install infrastructure and promote the development of skills and abilities of the population to overcome the marginal situation. The plan included a technical focus in charge of the implementation of infrastructure and a social focus that aimed to enhance community development (Banderas et al, 2005).
In summary, the Tarapaca region is one of the most prosperous regions of the country in terms of growth and development, primarily boosted by the free trade zone and the installation of large mining consortia, but it is also the focus of major problems and social disparity. Because of the migrations in 1987 in Alto Hospicio, there is a concentration of poverty and spatial segregation, restricting the access to goods and services of the inhabitants of the sector. In addition, problems with the environment, personal safety, delinquency, and drug addiction have stigmatized this urban centre as one of the most difficult places in the country to live in. It has transformed gradually into the recipient of all the social housing that has been constructed and echoes the socioeconomic segregation seen in large cities. Despite this difficult start, Alto Hospicio today has become the second largest urban center in the region.
1.2.3 Demographics

According to the 2002 Chilean Census, Alto Hospicio had 50,215 inhabitants representing 21% of the regional population. Within the context of the Province of Iquique, Alto Hospicio is the second most densely populated with 86.7 inhabitants/km² with 99.9% of its population living in urban areas (INE 2002). In 2012, a new census was conducted in the country, though the official results are unpublished. A report with preliminary results estimated the population of Alto Hospicio today to be 94,254 inhabitants. This is significant because it reflects a near doubling of population in ten years. This information will be useful when the existing ratio per person of urban open spaces at the city scale is calculated.

The population is composed of people whose age is equal or less than forty-four years old, which all together accounts for 85.5% of the population recorded in the census. The population from 0-14 years represents 36.4%, although there is a reducing trend in the segment of 0-4 years as an indicator of a decline in birth rate. The segment between 15-30 years show a population decline that can be interpreted as a migration of people entering the labor market or to study at the university level (GESCAM, 2005).

![Figure 7: Population in Tarapaca Region (Graphic by the author Source: INE 2002,)](image-url)
The demographic data of Alto Hospicio revealed that a higher percent of the population are children between 4 and 14 years old, and the implementation of adequate urban open spaces in existing under-utilized spaces is critical to address their needs. Young people need to have access to urban open spaces that support their development as members of society instead of being perceived as the problem and responsible for vandalism and crime (Travlou 2007). Play is very important for childhood development and urban open spaces provide the space for a variety of play opportunities (Woolley, 2003).

In terms of gender composition, the population appears homogeneous and the sex ratio number of males per hundred females is close at 101.26 males exists per 100 females. However, the analysis by age is not uniform; men between 50 and 54 years old outnumber their female counterparts by 17%. In the case of women in the range of 80 or older, they outnumber their male counterparts by 55%. The 10.59% of the population reported belong to an ethnic group, mainly Aymara (8%), and the other significant ethnic group is Mapuche which represents 1.9%. The remainders of the ethnic groups do not exceed 0.5% of the total population.

1.2.4 Socioeconomic Profile and Main Economic Activities

A poverty study made by a consultant in order to elaborate a community plan, has used various approaches to identify the people who live in deficiency in Alto Hospicio (GESCAM, 2005). The method used was essentially grouped around two main topics or categories: Unsatisfied Basic Needs (NBI) and Poverty Line (LP), and the third the Integrated Method of Measuring Poverty (MIP), was a result of integrating the first two.

Unsatisfied Basic Needs (NBI) argues that a social life requires satisfying a set of requirements considered essential for the proper development of human life in society. If basic needs are not met, it is considered that the person living in these conditions is in a state of poverty.
Poverty Line (LP) emphasizes the monthly income. This methodology considers that there is a minimum income level with which it is possible to buy the goods necessary for the proper development of life in society.

Integrated Method of Measuring Poverty (MIP) assumes that the two previous methods only partially consider income and necessities without incorporating the social aspects; therefore the problem has to be addressed by integrating both approaches.

The application and combination of the methods generate three types of categories of the poor: Those who are poor only by unsatisfied basic needs (recent poor), those who are poor only because they are below the poverty line (inertial), and those who are poor by both methods (critics).

Under the application of the integrated method, 39% of the total population (19,578 inhabitants) in Alto Hospicio is living in poverty. Of these, 4.6% are poor critics (2,329 people), 9.9% recent poor (4,959 people) and 24.5% are inertial (12,290 people). This last number indicates that a large percentage of poor have shortcomings due to the lack of monthly income, and the precarious situation of their housing is determined by analyzing building materials, water supply, sewers, electricity, or the number of people living per room (GESCAM, 2005). The 9.9% of the population (4,959 people) are vulnerable because they do not have enough money to meet the cost of living necessary for life in the region. An important point to mention here is that the illiteracy rate is higher than the regional rate, and only 7.5% of the population has secondary education. It is difficult for the population to find employment that is well paid without the basic requirements of education.
The 35% of the population (17,777) employed in Alto Hospicio primarily work in retail, services, repair shops and transport, which follows the trends of the country and the region. This is followed by jobs in construction and manufacturing industries where the relative levels of employment are higher at the national and regional level. The presence of employees in the qualified skills or professional sector is very low. Most of the employed population works in Iquique, indicating a strong relationship of interdependence with that city.

Important activities located in Alto Hospicio, are construction (16.09%, 2,860 people) and industry (8.41%, 1,495 people), representing 24.5% of people who are employed in the city.

The main economic activity in Alto Hospicio is retail. There is a high proportion of small stalls under the classification of Baratillo and Bazar (30.3%). This activity is related to the household as a way to earn income to meet basic needs or to supplement the income of the household head. Another important activity in the town is one that has to do with supply services (29%) mainly related to grocery stores (GESCAM, 2005). Lately, farmer and flea markets have become important economic activities that are highly supported by the community as a place of social organization, exchange of ideas, products, and projects. These activities are primarily located in reclaimed or left over urban open spaces generating multiple streams of vitality - typical of a city whose social significance lies in a constant state of survival and adaptation.

Figure 8: Farmer Flea market in reclaimed space, Alto Hospicio, Chile. © (Millahuala, 2011)
Alto Hospicio, due to its fast growth, is a predominant suburban low density car-based, sprawl city. As mentioned previously, urban open spaces are not considered an important part of the fabric of Alto Hospicio and are regarded as an unaffordable to provide and maintain. As a result, vast areas of the city are developed without this essential resource. Children play outside their houses in the dust, teenagers play football in ravines or empty underutilized lots and adults don’t have a place to meet with each other. There is an urgent need to assess the quality of the environment of this community and to find ways to address improvements in their current conditions.

1.3 Significance and Scope of the Investigation

This research is necessary because the majority of the studies related to the planning and design of open spaces are sited in North America or Europe, and are not always applicable to a Latin American context. Within a historical Latin American context, open spaces – where the heart of the community was situated through the plaza, was originally organized according to a pre-established plan conceived by the Law of Indies (an instrument that established ultimate authority and administrative power over the territory and its resources.) The city plan was a grid extended from a central plaza where the three powers of authorities were located: the local outpost of the Spanish government, the church, and the governor’s residence. As a foundational act, the plaza was both symbolic and performative: it marked the starting point of the city (Berrizbeitia and Hecht Marchant, 2011). Also around the plaza was the bank, the marketplace and in some towns a sport field. Most social activities occur around that urban open space and the central plaza is where community members congregate after work or church.

Poorer communities in Latin America are not in alignment with the culture of cafés or places of entertainment and shopping. The concept of disposable income does not exist. The scale of sheer economics has to be considered within a Latin American context. Instead, low-income communities need supportive spaces where they can develop strong social ties with their peers to provide support and to develop social networks, a valuable asset which
increases sense of identity, and sense of ownership and to possibly generate some income. This field of study is relevant because improving urban open spaces represents an opportunity for low-income residents to transform their local neighbourhoods in order to improve their quality of life. The lack of studies from a global South point of view has motivated this research, seeking a further understanding related to the planning, design, and usage of urban open spaces in the Latin American context.

The intent of this research is to advance the discussion in Chile of the importance of urban open spaces in low-income neighbourhoods. People experience and are exposed to open space differently according to their social, cultural and economic background (CABE 2008). Economic and social inequalities are the backdrop to the experience of their daily lives, their homes and their neighbourhoods. Community members must work collaboratively to resolve their inequalities and gain from interventions that promote equitable environments.

In addition to the research conducted for this thesis, the final product will be a framework that could guide municipal authorities in planning and design, in conjunction with the community, more adequate urban open spaces that could provide an appropriate spatial response and bring dignity to the places that low-income communities inhabit.
1.4 Research Questions

The primary research questions that will be addressed in this study are:

What are the key issues to consider in the planning and design of urban open spaces that encourage use by low-income residents?

This leads to a secondary set of research questions:

How do we know how much is enough quantity of open urban spaces and the right quality?

Where should urban open spaces be located?

What is the right type and program?

1.5 Goal and Objectives

The main goal of this thesis is to propose a framework to plan and design urban open spaces in low income neighbourhoods in Chile.

The objectives of this thesis are to:

- Identify and define within the Chilean context the types and categories of urban open spaces targeted to low-income neighbourhoods in Chile.

- Identify the benefits that urban open spaces provide for low-income communities.

- Identify key issues that contribute to planning and designing urban open spaces for low-income neighbourhoods in Chile.

- Propose a set of principles and application strategies that enhance the creation of urban open spaces for low-income communities.
1.6 Methodology

This thesis methodology is based on a multiple method approach: literature review, precedents, case study, interviews with community members and community leaders and an observational study.

The literature review was conducted with the intent to clarify the definition of urban open space and review types of existing urban open spaces with the intention of placing them in the Chilean context. In addition examine the benefits and contributions that urban open spaces provide to low-income communities, when they are revitalized and implemented. The research gathered during the literature review helps to provide a conceptual framework to evaluate how urban open spaces function in low-income communities in Alto Hospicio, Chile.

Then the study looks at some existing international precedents to learn from other experiences and have some references for future processes.

Using a case study approach, this research aims to contribute to the general body of research by developing a planning and design framework that could guide government staff (municipal authorities, planners and designers) to revitalize existing urban open spaces in low-income communities in Chile. This research will evaluate how urban open spaces in low income Chilean communities function, and test how the proposed framework could be applied to improve the current conditions for the most needful segment of the population.

Three types of data were collected in this research with some of the methods mentioned above:

Random interviews of community members were done by the researcher visiting Las Americas Park for three hours two times a day gathering information from users. Then community leaders were contacted by email ahead of time and appointments where set up. Two of them were interviewed and they where asked a specific list of questions. The results will be explained later in the Case Study chapter.
In addition an observational study was done in Las Americas Park. Observations on how the selected park was used by the community is incorporated into a standard form to record the date, time of arrival and departure, and weather conditions. An analysis was conducted including existing physical conditions and usage. A series of maps were developed to describe the physical characteristics of the urban open space such as vegetation, site furnishings, programming and amenities. A specific method that was used to gather and evaluate data is referred to as “observing physical traces” (Zeisel 2006). This method helps to detect predominant movement around the neighbourhood. Observing physical traces means systematically looking at physical surroundings to find reflections of previous uses.

Finally some field notes were taken on-site including general photographs of user activities and interactions with other users and the physical characteristics and conditions of the park or plaza being studied. The period of observation was at different times of the day (morning, evening, afternoon) and included weekdays and weekends.
CHAPTER 2: Functions and Benefits of Urban Open Space (UOS)

In recent decades the topic of open spaces has attracted researchers from different backgrounds such as social sciences, design, and environmental planning (Altman and Stokols, 1992) producing a substantial body of research with a myriad of different approaches. A number of books are dedicated to the principles and guidelines that create efficient open spaces (Copper and Francis, 1998; Burton and Lynne, 2006; Crankshaw, 2009; Corbett 2004). A vast body of research exists that is related to the importance of ecological functions that open spaces play in environmental integrity and human health (Erickson, 2006; Hough, 1995; Girling and Kellet, 2005; ASLA, 2005). In addition, there is research that prioritizes human needs and the interaction with others, (Carr and Francis, 1992; Burgess and Harrison, 1988; Ward Thompson, 2002; Gehl, 1987-2010; Irazabal, 2008; Orum and Zachary, 2010). Yet there is little work that touches upon the management of open spaces (Carmona and Magalhaes, 2008; Corbett, 2004) and the growing interest of the role that open space plays in urban life (Ward Thompson 2002; Al-Hagla 2008). Less studied is how open spaces should be planned and designed in low income neighbourhoods to make informed decisions of what a community needs – spatially and socially – and to play a supportive role in more disadvantaged communities.

This chapter of the thesis is focused on clarifying the definition of urban open space and will review various types of existing urban open spaces with the intention of placing them in the Chilean context, and then identifying the types of urban open spaces that are found in Chile. Also, this chapter will examine research related to benefits across the social, environmental and economic dimension and the functions that UOS provide to people and communities. This will demonstrate why the implementation or revitalization of UOS is necessary for the physical and mental wellbeing of low income communities.
2.1 Defining Urban Open Spaces (UOS)

What is urban open space? The literature that defines UOS is often ambiguous and confusing; many researchers have used a range of definitions with the intention of helping readers understand what UOS means in a specific location or for different research purposes, yet this is ultimately confusing (Erickson, 2006). By UOS, most people understand this to mean undeveloped land, or land without buildings. This implies absence - places that are left open or vacant in the spatial fabric of a city (Girling and Kellet, 2005). Urban open space can be a vast swath of green space in an urban area or a small patch in the centre of the city (Erickson, 2006). There are widespread assumptions that urban open space is normally vegetated (Campbell 2001) and more often the term is used loosely and interchangeably with green space (Dunnett, Swanwick and Woolley, 2002). Research in Scotland by Kit Campbell Associates (2001), has defined urban open space as “any undeveloped land within the boundary or designated envelope of a village, town or city which provides, or has the potential to provide environmental, social and/or economic benefits to communities, whether direct or indirect”, within an urban area. Furthermore, UOS is defined as that part of the urban area which contributes to its amenity - either visually by contributing positively to the urban landscape, or by virtue of public access, combining green spaces and civic spaces (Dunnett et al 2002).

The literature that defines green space is extensive. These areas are embedded in a larger system of public spaces that several authors have redefined. Green spaces include everything in cities with vegetation - either natural or planted. They are also defined as “land that consists predominantly of unsealed, permeable, ‘soft’ surfaces such as soil, grass, shrubs and trees. The emphasis is on the ‘predominant’ character because of course, green spaces may include buildings and hard surfaced areas” (Dunnett et al 2002).

“Civic spaces” sometimes referred to “grey spaces” are a subset of urban open space, consisting of urban squares, market places and other paved or hard landscaped areas with a civic function (Campbell, 2001; Al-Hagla, 2008).
Many definitions of urban open spaces often focus on recreation, but several authors have expanded the definition beyond parks and recreation to embrace and prioritize alternative forms of urban open space. For example, the research of Catharine Ward Thompson, at the Open Space Research Centre in Edinburgh, proposes that urban open space should support a more flexible approach to “loose-fit” places—often referred to as undesigned and unregulated spaces. The term “loose-fit” is based on the work of Dovey, Rivlin and others (2000) that defined loose-fit environments as spaces that allow for a variety of functions. Usually they are left over, abandoned spaces that are discovered by the marginalised user and allow for activities that are more culturally inclusive than what was originally intended. These “found spaces often serve people’s needs in ways that designed spaces do not,” (Ward Thompson, 2002). They perhaps can serve as private spaces and offer a place for the marginalised in our society that are not allowed in other managed open spaces.

In the same manner, Quayle and Driessen van der Lieck (1997) describe a concept of “hybrid landscapes” defining them as community landscapes that are generated by combining processes and forms of both public and private landscapes such as community gardens and greenways. This term combines two place making processes: the ways that traditional public parks and streets are designed and maintained, and the acts of small-scale appropriation and embellishment that lead to the diversity and richness of front yards and backyards in residential neighbourhoods. They state that these spaces facilitate environmental communication between the community and individuals, and strengthen the community (Quayle and Driessen van der Lieck, 1997).

These two definitions—loose fit places and hybrid landscapes, relate urban open space to ideas of democracy and social equity (Erickson, 2006). Ward Thompson (2002) reinforces the idea that “what remains true for public urban open space and for urban parks in particular, is that they are the places where democracy is worked out, quite literally, on the ground, and therefore, the way such spaces are designed, managed and used demonstrates the realities of political rhetoric.”
2.1.1 Contextualising UOS for Chile

From a legal standpoint, Chilean law, dictated by the Urban Planning and Construction (LGUC) regulations, does not provide definitions for the concepts of urban open space, urban green space or civic space in general. It refers to them as “national public goods”, which alludes to situations of ownership; LGUC defines the condition of property merely as public or private (PULSO; 2009). Within this broad scope, there are other categories such as the "land of public utility" as defined in Article 59 of the LGUC as “streets, squares, parks or other areas of public transit.” The first definition of urban green space for use as a type of public space appeared in the General Urban Development and Construction (OGUC) which is the instrument that regulates the application of the act (LGUC) of urban planning, urbanization and the technical standards of design and construction in Chile.

In Chile the road system, squares, parks, and public green spaces, are defined as public space and the use is defined for the national public good. Urban green spaces are those lands devoted mainly to recreation or pedestrian traffic - generally planted with vegetation and other complementary elements, which could be public or private, depending on their ownership.

The provision of green spaces in Chile is mandatory when civic master planning or subdivision plans are approved. According to Chilean law, a developer must allocate a percentage of land for green space (parks or plazas), road systems (streets) and public facilities for social gathering. There is unfortunately no specified timeline or enforcement for development. Consequently many examples of undeveloped urban green space serve as dumping sites, or remain as abandoned lots.

One could categorize urban open space according to a number of criteria: size, use, relationship to street, style, function, architectural form and location (Cooper and Francis 1998). The term expands even further to reflect a greater diversity of types, shapes and functions that could include a private yard, a playing field, a garden, and the square at the
town centre or the river corridor that runs through the city (Girling and Kellet, 2005). More specifically this research is concerned with the use of these spaces by low income communities. Any ensuing definition and classification proposed here will be based on a mix of use and function, and will differentiate between vegetated or green spaces, non-vegetated or civic spaces, left over spaces (LOS) that could be reserved for community appropriation.

Because there is no clear definition for the concept of urban open space in Chile, the following definition adapted from Kit Cambell Associates is proposed: *urban open spaces are defined as any undeveloped land granted or allocated to the community regardless of the surface type (green or hard), which provides, or has the potential to provide, benefits to the community, and excludes the private internal space that serves housing developments.*

In addition a classification of urban open spaces is proposed including green, civic and LOS known also as left over spaces, loose fit spaces or found spaces and will be based on the different types of urban open spaces existing at the city and neighbourhood scale in Chile. This definition and accompanying classification is extremely useful because it facilitates the identification of criteria for intervention in a particular public space.

![Figure 9: Summary chart of the types of urban open spaces that exist in Chile](image)
2.2 Benefits and Functions of Urban Open Spaces

A growing body of research provides evidence supporting the range of benefits across social, environmental and economic spheres that urban open spaces provide to people, wildlife and communities - benefits achieved only when communities have access to them. Unfortunately there is also growing evidence across North and South American cities, that underprivileged populations have less access to UOS, and the existing ones are of poor quality (UK. CABE Space 2010, Trust for Public Land, 2006). This section aims to explain why urban open spaces (UOS) are one aspect of the urban environment that is of great importance to daily life for people living in urban areas (Woolley, 2003) and illustrate the vital role in creating healthier and more livable communities (Worpole, 2003).

2.2.1 Health and Social Benefits

For many years urban open spaces have been considered to have benefits for physical and mental health (Woolley, 2003; Sherer, 2006,CABE Space, 2010). A report launched in 1996 by the US surgeon general found that people who engaged in regular physical activity benefited from reduced risk of premature death, and that there was a strong correlation to people having access to any form of urban open space (Yañez and Muzzy, 2005). Strong evidence demonstrates that when people have access to parks and urban open spaces they exercise more (Harnik and Welle, 2009). Regular physical activity has been shown to benefit general health and reduce the risk of several diseases, as well as relieving symptoms of depression and anxiety, and enhancing psychological well-being (Sherer, 2006) - people feel more satisfied with their lives when they have sufficient access to nature in the urban environment (Woolley, 2003).

It has been noted that communities with lower incomes, higher poverty rates, and high proportions of racial ethnic minorities have the fewest community-level physical activity–related opportunities that are crucial to good health (Sherer, 2006). The lack of urban open
spaces in marginalized areas reduces opportunities for exercise, play or any other physical activity (Yañez and Muzzi, 2005).

The benefits that urban open spaces support are not limited to those of a physical nature - mental health and wellbeing are equally important. Urban open spaces that have vegetated surfaces, such as parks, may reduce stress in the user (Ulrich, 1981; Hartig, 1991), rejuvenate the city dweller, and provide peace and tranquility (Kaplan, 1983). A study made by Ulrich in 1984 found that hospital patients who had their rooms facing green open spaces recovered more quickly than the ones whose views focused on adjacent buildings. Later studies found an important relation between the use of the parks and perceived state of health; those who use parks report better health than those who do not (Godbey, 1992). Natural elements such as water and vegetation induced relaxation and lesser levels of stress compared to areas with more hard surfaces in urban environments (Schroeder, 1991). The ability of these elements to function as “natural tranquillizers” may provide important mental benefits to reduce the stress that urban environments give daily (Berg, 1998).

Always difficult to quantify, the social benefits that urban open spaces provide to existing communities can be many and varied - including benefiting children, reducing crime and anti-social behavior, promoting neighbourliness and social cohesion, providing a venue for social interaction, and supporting social life in communities.

Opportunities for children’s play have proved to be an essential element in their future through helping them to expand their knowledge of the physical world, improving their ability to communicate with peers and their understanding of themselves and others (Pulkkinen, 2012). Play is shown to be important for social development including the development of collaboration and negotiation skills, confrontation and resolution of emotional crises, management of conflict and development of moral understanding (Taylor, 1998). Another benefit of play is that it helps to develop muscle strength and coordination, language and cognitive abilities (Gies, 2006).
Access to urban open spaces such as parks and recreational facilities has been strongly linked to reductions in crime and in particular to reduced juvenile delinquency (Sherer, 2006). Green urban open spaces are associated with safer neighbourhoods; vegetation increases park usage and “eyes on the streets” (Jacobs, 1961). The mere presence of people in parks deters criminals and vandalism (Kuo and Sullivan, 1998). Neighbourhoods with high usage of parks and other recreational areas have lower crime rates than those neighbourhoods with minimal usage (Sampson and Raudenbush, 2001).

For example, after organizing evening events in public parks for youth at risk in dangerous neighbourhoods in Los Angeles, violent crime decreased by 17 % compared to previous years, and homicides dropped by 86% (Willon, 2008). Community cohesion benefited with neighbours banding together to save or improve their neighbourhood. This “know your neighbour” social capital helps ward off antisocial problems that would otherwise cost the city more in police, prisons, counseling and rehabilitation (Harnik and Welle, 2009).

Urban open spaces and parks also provide important social and community development benefits (Sherer, 2006) by providing physical settings where different cultures, ages and social classes form stronger ties to the community (Bedimo-Rung, Mowen and Cohen, 2005). That assertion is reinforced by a study made by the University of Chicago and the University of Illinois where researchers found that “for public housing residents, level of vegetation in common spaces predicted the formation of neighbourhood social ties” (Sherer, 2006). Social ties are generally also associated with benefits in terms of mental health and wellbeing providing support, conferring esteem, a sense of belonging and identity or facilitating social integration (Blaxter, 1990; Brown and Harris, 1978). Strong social ties can provide access to social capital involving co-operative social networks, reciprocal aid, trust, participation and perceptions of safety (Kawachi 1997; Hawe and Shiell, 2000). There is strong evidence that the poor have fewer resources than the more advantaged; social capital therefore, may be an especially valuable asset in protecting their health. “Health enhancing mechanisms may operate in a direct sense or act to buffer adversities” (Catell, Dines, Gesler and Curtis, 2008).
Additional research has demonstrated that contact with friends is more important for the mental health of people living in deprived areas than for those who are better off (Stafford 2008). Health researchers are highlighting the significance of the neighbourhood or community context to the generation of social capital (Catell et al, 2008).

The presence of green urban open spaces has a strong correlation to an increase in social interaction and sense of community. In Chicago, a study found that people who spent more time in vegetated UOS were more likely to engage in face to face interaction with other members of the community (Kweon, 1998). Civic spaces such as markets and streets also represent sites of sociability and face to face interaction. A study made by Catell and Dines (2008) in East London reported that simple gestures such as nods and smiles could establish future and closer contact. Routine regular social encounters normally helped to maintain loose ties between neighbours and familiar strangers providing the first step of friendship (Catell et al 2008).

Opportunities for community engagement, recreation and physical activity are important for everyone. Urban open spaces provide a context for social interaction and serve as reminders of childhood and memories of community life (Burgess, 1998). They make inner-city neighbourhoods more livable, they offer recreational opportunities for at-risk youth and low-income families, and they provide places where people can feel a sense of community” (Sherer, 2006).

### 2.2.2 Environmental Benefits

The environmental benefits of urban open spaces extend to climate and environmental amelioration such as cleaning and returning water to the ground, mitigating the urban heat island (Girling & Kellet , 2005), and improving the potential for co-existence with wildlife through enhanced habitats for different species in the city (Woolley, 2003). They can also encourage the use of sustainable modes of transportation (Gehl and Gemzoe , 2000).
Impervious surfaces in urban areas prevent water from filtering into the ground, creating problems with water runoff. Trees and vegetated surfaces intercept and filter water decreasing the amount of water in our sewer systems (Sherer, 2006).

Components within the urban open space, especially trees, accumulate and extract pollutants from the atmosphere and decrease the levels of carbon dioxide in the atmosphere, cool urban temperatures, provide shelter from precipitation and in the summer, absorb and reflect solar radiation, providing shade. Furthermore, additional research supports the concept that trees have the capacity to reduce the impact of noise and wind, and reduce energy consumption in buildings (Woolley 2003).

In addition plants and trees are absolutely fundamental for wildlife, for people and for the ecological health of our cities (Hough, 1995). Wildlife in the city is important because it provides opportunities for people to experience nature close up in the urban environment.

### 2.2.3 Economic Benefits

Numerous studies have shown that parks and urban open spaces are fundamental to the environmental and social livability of cities and their neighbourhoods, and are also key to economic development (Garvin, 2000; Crompton, 2001). In a study done by the Trust and Public Land (TPL), Peter Harnik and Ben Welle state that although not every aspect of the urban open spaces can be assigned a definite dollar value - there are quantifiable benefits such as the increase in property value, savings in health care costs, (due to the beneficial aspects of doing physical activities), community cohesion, clean water and clear air that can be clearly identified.

A survey conducted by the National Association of Realtors (NAR) in the United States, found that 57% of homebuyers were likely to select neighbourhoods close to any form of open spaces. In addition 50% of respondents expressed a willingness to pay 10% more for properties located near a park or other form of urban open space (NAR 2001). Two factors influenced the purchasing decision - the distance from the house to the urban green space.
and the quality of it. More people desired to live near an urban open space with good recreational facilities that were well maintained. Less attractive and dangerous urban open spaces that are poorly maintained were considered less valuable and reduced property values by as much as 5% (Harnik and Welle, 2009).

There is a clear correlation between health benefits, and the effect of physical inactivity. Lack of exercise or physical activity has serious consequences to the health of the greater community creating obesity and other serious illnesses. This has economic implications as well. Harnik and Welle proposed that the adoption of a moderate to vigorous exercise regimen (three times a week) for an adult user less than 65 years old could reduce medical costs by an average of $250 a year. For an adult users of 65 years or older, this could increase to $500 a year. As an example, TPL conducted a study in 2007 and calculated the number of users in Sacramento Parks in California. The savings ($250 or $500) was multiplied by the user population with a cumulative estimated savings of $19,871,863 (Harnik and Welle, 2009).

The more human relationships a neighbourhood has, the safer, stronger and more successful it is. This neighbourhood network, named by Jane Jacobs as “social capital”, is strengthened by urban open spaces especially because they provide settings for people of all ages to interact. Notable acts of improving outdoor environments can build extraordinary levels of social capital in neighbourhoods that lack urban open spaces or those lacking of quality (Harnik and Welle, 2009). It is difficult to measure the economic value of social capital, but in their study “Measuring the Economic Value of Parks”, TPL assigned a value to the amount of time that volunteers or residents dedicated to community causes such as picking up trash and teaching about the environment. Using their community cohesion methodology, they assigned the financial contribution made by all these groups (friends of parks) the amount of $8,600,000 during 2007 (Harnik and Welle, 2009).
Stormwater runoff is an important problem especially in urban areas. Rain water flows on impervious surfaces and combines pollutants that can cause serious environmental problems. Vegetated surfaces reduce stormwater management’s costs by capturing precipitation and decreasing the runoff. Groundwater infiltration is considered an economic benefit since municipalities would otherwise need highly engineered and expensive systems to collect excess water runoff that can more easily be captured by vegetated areas and trees.

Air pollution is a costly and serious problem in urban areas creating numerous respiratory infections to humans and causing damage to other natural systems. This has broad consequences for health care costs and productivity. Vegetation plays an important role removing pollutants from the atmosphere - plant material filters gases that are otherwise harmful to human health.

Unfortunately people that live in low income neighbourhoods or deprived areas don’t have access to the mention benefits for several reasons: the lack of implemented urban open spaces, and the existing ones are of poor quality at that go unused because of a perception of a lack of safety. In these cases instead of benefits, negative perceptions of these communities arise when UOS are neglected, poorly maintained or unsafe. These characteristics often lead to the decline of neighbourhood and all the negative social risks that go with that such as problems of crime, poor health, environmental degradation and loss of economic potential.

There are many benefits across social, environmental and economic spheres mentioned above that urban open space provide to people in our urbanized centres. Much evidence demonstrates the important contribution that UOS have in improving physical and mental health, well being and quality of life of users and communities in our urban areas. But what are the functions and roles that UOS in neighbourhoods have to take to achieve social sustainability goals and create more equitable conditions for the most deprived community members. This will be addressed in the next section of the chapter.
2.3 The Function and Role of Urban Open Space

Historically, urban open spaces were often the heart of a city and played a central role in fostering social cohesion integrating people from all parts of the city. The town square or piazza was the outdoor living and meeting place - a site for markets, celebrations and executions, and the place where one went to hear the news, buy food, collect water, talk politics, or watch the world (Cooper and Francis, 1990). In the nineteen century the green open spaces - specifically the park - was created in Europe and North America with a view to improve the health and quality of life of working classes living in crowded conditions (McMaster, 1990). Originally perceived as the lungs of polluted cities, and places for physical recreation, urban green open spaces were designed so that social classes “would enjoy together the same music; breathe the same atmosphere of art, enjoy the same scenery, and grow into social freedom by the very influences of easy intercourse, space and beauty that surrounded them” (Tate, 2001). The “park was seen as a democratic place where democracy meant conformity and means to create a unified nation” (Ward Thompson, 2002).

That original role clearly expanded in time, and now urban open spaces continue to play an important role in our society providing a recreational role (Council of Europe, 1986), contributing to regeneration in deprived areas (Cattell et. al 2008) improving economic performance (Dunnet et. al, 2002) and play a vital role in preventing illness by providing places that encourage physical activities and promote mental well-being (Sherer, 2006). In addition, UOS enhance and support the ecology and biodiversity of the built environment and foster local pride and community cohesion (Dunnet et. al, 2002).

Some urban open spaces such as parks are still places where people participate in sports and serve as recreational settings for relaxation and entertainment (Cooper 1990; Tate, 2001). They offer places in the city where the user can find calm, or places to be active and sociable and provide a chance to find personal respite from the pressures of city life (Dunnet et. al, 2002).
Normally the goals of the regeneration plan of a deprived area are broader. They try to address social and economic decay, problems of unemployment, social exclusion, crime and segregation suffered by the community. The improvement of urban open spaces are considered one of the instruments used in conjunction with other larger projects but the provision of quality UOS in cities shows that they play a vital part in the revitalization of marginalized neighbourhoods that are key to a sustainable future (Hough 1995).

Urban open spaces also play a vital role in promoting healthy living and preventing numerous illnesses by providing places for walking and for doing physical activities, to improve physical health. They can also reduce stress and promote well-being contributing to improve our mental health and improve quality of life of users and communities.

Through vegetated areas urban open spaces provide environmental services and they help counter the pollution which can make cities unbearable and unsustainable. Vegetated areas serve as lungs in the city stabilizing the negative effects of the urban climate and provide a basis for users and habitat for animals. They help to increase biodiversity through the provision of wildlife corridors for different animal species and birds.

In addition to all the important roles mentioned above, the most strategic one that UOS plays is related to the improvement of the current situation of low income neighbourhoods through the fostering of social inclusion and community cohesion. Good quality UOS provide opportunities for community activities for many different people. They are arenas for democratic practice to accept diversity, needs and expression (Ward Thompson, 2002).

Urban open spaces can help to build community cohesion by getting neighbours to engage with each other in different activities and shared spaces, especially in segregated areas. They also provide important venues for social activities and celebrations. Also increasingly UOS are being used as outdoor classrooms for school subjects and reinforce the relationship between residents and the natural environment (Council of Europe, 1986). They can provide learning opportunities in environmental related areas and opportunities for community activities.
Opportunities for community engagement, recreation and physical activity are important for everyone. Urban open spaces provide the perfect context for social interaction and serve as reminders of childhood and memories of community life (Burgess, 1998) In dense cities recreational and social spaces are essential components of healthy and sustainable urban environments (Ryan, 2006)

Urban open spaces have many roles - supporting sustainable and healthy neighbourhoods, different functions, meanings and values for those who inhabit them. People experience their environment differently according to their social, cultural and economic background so it is urgent to have a different approach when we as designers envision outdoor spaces for marginalized populations. In Chile for a long time we have been providing the same type of open spaces including similar programs and amenities without acknowledging context, geography or social demographics. This needs to be revised to suit the demands of marginalized neighbourhoods.

An effective open space is one that has a strong connection between its physical structure and how it is used socially. If we plan and design open spaces for low-income neighbourhoods we must be aware of what the community really needs – spatially and culturally (socially).
CHAPTER 3: Key Aspects to Consider in Planning and Designing UOS for Low-Income Neighbourhoods in Chile

Given the known benefits that UOS bring to our communities, cities and the environment, a considerable body of literature covering topics such as the design, planning, use, management, values and meaning has been produced over the past three decades. At first glance the topic appears simple, but has so many encrypted layers and phases from implementation to completion (planning, design, implementation, management and maintenance), that it is impossible to tackle all its components in one research. Therefore, this research will only focus on the planning and design phases, without discussing the importance of the other components such as implementation, management and maintenance.

Moreover, the provision of UOS gains popular support from scholars, non-profit organizations and communities. Issues relating to the supply of UOS are becoming a part of the sustainability agenda of many governments around the world. But with the fast growth of our cities and the increase of urban population, what are the key aspects to consider in planning and designing UOS specifically for low-income neighbourhoods.

This chapter focuses on what we should consider when planning and designing UOS especially for disadvantaged communities. It will also covers research related to existing planning and design practices and some ideas that could be applied to the Chilean context. In addition, this chapter covers what are the key elements to consider in planning and design for low-income residents. This review is instructional and provides basic guidance for the design framework.
3.1 Ideas that Shape UOS in Low Income Neighbourhoods

In order to realize the objectives of this thesis, it will be very important to identify what are the key issues to consider in planning and design for low-income residents in order to encourage the use of UOS. In addition, what will be the best investments in terms of spending public funds and while ensuring the collective good.

Disadvantaged communities often deal with major life constraints such as lack of income, poor housing conditions, and the pressure to find a job to maintain their families. Urban open spaces like parks are especially important because they have few affordable options for recreation. Therefore, they place a high value on recreation areas (Kuchelmeister, 1998). Also, low-income communities normally lack big lots or backyards, and UOS can offer a place away from home to relax and recreate, which is essential for their physical and mental wellbeing. A study in Chicago poor inner-city neighbourhoods found that people who had some nearby vegetation were significantly more effective in managing their major life issues than their fellows living in environments without vegetation (Kuo 2001). In addition, poorer families have lower mobility through age, economic status, or lack of private transport and have more extended families. So for them, UOS are much more important because they serve as an extension of their house—often lack a yard—and find a space for play or sport activities with other peers (Loukaitou-Sideris, 2002).

As shown in the previous chapter, in spite of numerous studies that have demonstrated a wide range of benefits that UOS provide to communities and the environment, a growing body of research shows that disadvantaged populations often lack urban open spaces or have poorly maintained and vandalized areas with graffiti and litter (Sherer, 2006; CABE, 2010). The consequences of deteriorated UOS in their neighbourhoods lead to a sense of insecurity reducing physical activities and social interaction. So, instead of receiving benefits, they are beginning to develop physical and mental health problems, like obesity, depression and insecurity (Powell, 2004; Giles-Corti, 2003). A study made in Metropolitan Melbourne, Australia found that people from lower socio-economic neighbourhoods may be less active
partly because they have fewer opportunities for recreational physical activities and they also live in socioeconomically disadvantaged neighbourhoods (Crawford 2008).

In depressed environments repairing and providing UOS can play an important role in creating a climate of confidence in the neighbourhood and improve the physical and mental health of the inhabitants. Disadvantaged or low income communities are most in need of access to urban open spaces and the opportunity for sociability in safe outdoor settings.

Given the methods of planning, many studies show that UOS are often unevenly distributed within cities. The result is that low income minority or other more disadvantaged populations are not receiving the important benefits provided by these spaces and this raises concerns about social sustainability and equity. A recent study on the distribution of green open spaces revealed a large gap in the metropolitan area of Santiago, Chile. It indicates that nine of the thirty-four municipalities in the wealthiest areas house 20% of the population, but account for 50% of green open spaces. In contrast, the remaining twenty-five municipalities that have 80% of the population share the other half of the green open spaces (Poduje, 2010).

### 3.1.1 Social Sustainability

The word sustainability is an overused term used in a broad sense by many countries and governments but no matter how many definitions exist, the concept of sustainability still remains a challenge for the planning community. The most common definition was popularized in the late 80's by the Brundtland Commission in the report titled Our Common Future: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED: Brundtland report 1987).

Despite the focus of this definition being on people and equity for current and future generations, the definition of sustainability is often considered as a purely environmental goal leaving out the economic and social agenda (Barton, Grant & Guise, 2003). Furthermore, the concept varies depending on the distinct geographical context and culture; in fact, what the
global south understands of the concept completely differs from the global north, each making their own interpretation and adaptation of the concept.

The proposal to adapt the term sustainability to the reality of the southern hemisphere was born in 1998 from a group of non-governmental organizations (NGOs) in Brazil, Chile and Uruguay that made up the Sustainable Southern Cone program in Latin America (Chile Sustentable, 1998). Since then, the work has focused on a discussion of the sustainability framework from the perspective of developing countries and simultaneously, in developing national proposals for sustainable development in each country.

The Sustainable Southern Cone developed a common conceptual framework which strongly emphasizes the social and political dimensions of sustainability and proposes the concept of a dignity line, a concept which allows the south to formulate the conditions of equity and distribution as a common challenge of convergence between societies of North and South (see fig. 10). The Sustainable Chile Program and the other member countries of Sustainable Southern Cone have agreed to prioritize three dimensions of sustainability from their perspective (Larrain, 2002).

![Figure 10: The Sustainable Southern Cone conceptual framework (2002) (Diagram by the author)](image)
The first dimension is the environmental point of view. This discourse has not changed much since the original definition which was the need to satisfy the needs of present generations without compromising the needs of future generations. The second dimension of sustainability, in which this research is interested, is social sustainability, whose main goal is equity. This involves a solution to alleviate poverty, equitable distribution of benefits of development, and the fulfillment of conditions for the dignity of human life. The challenge of social sustainability is to satisfy human needs in the economic, social, political and cultural realm. This elevates the traditional concept of social equity from merely living at the poverty line to having a decent life, not only considering the issues of health, education, and housing recognized in the traditional social policies.

The third dimension is political sustainability. It is characterized as an extension of traditional conceptions of political freedom that ensure that all citizens can exercise their right to be part in the decision and implementation of their own development.

This concept claims equity participation in the area of the local communities, gender, age and cultures between the public and private sectors. It is important to note that unlike the concepts of sustainable development used by governments that prioritize social equity, environmental protection and economic growth, the framework does not incorporate an economic dimension as a foundational structural dimension of sustainability. This is because the economy and its objectives should be the result of democratic agreement on the objectives of social equity and environmental sustainability that each society determines, not the result of technocratic government planning decisions of national or multinational institutions (Larrain, 2002).

This re-definition of sustainability by the global south clearly differs in the goals, strategies and agendas of sustainability from the North. Strategies in the North have focused on over-consumption and the need to reduce greenhouse gas emissions and their agenda is primarily environmentally orientated and not much on social sustainability. On the contrary, the South
is focus on achieving social equity and poverty alleviation with an agenda focused on development that puts social sustainability at the core of the agenda.

However, this challenge from the south involves defining basic needs that must be satisfied in order to achieve sustainable societies. It requires defining a level of welfare and basic quality of life or a line of dignity in which human life should develop. The line of dignity not only requires the satisfaction of physical human needs, but needs such as identity, cultural recognition, participation and social integration.

Social sustainability from the global south includes the guiding principles of social equity, equitable distribution; alleviation of poverty and satisfaction of human needs. The scope of this research will consider the first two aspects because they can be addressed in physical form in the planning and design of UOS in low income neighbourhoods (i.e. Distribution of UOS, communal facilities that could generate some income, the right to have an appropriate park or UOS close by).

Following this concept, how social sustainability could be achieved in relation to with this research. Part of the focus on the definition is to give equal opportunities to all members of the society and in this case providing access to UOS such as green or civic open spaces to low income residents will allow them to receive the same benefits as the wealthy. The concept is also related to a democratic dimension that prioritizes equal access to meet others in public spaces. This will provide opportunities for all social groups to express themselves in UOS that serve as an attractive setting for organized as well as informal meetings (Gehl 2010).

With the differences of needs between the wealthy and the poor, it is important not to standardize successful examples because it is critical to consider age, gender, income status and culture to appropriate necessities in the existing community. Having appropriate UOS in our cities, especially in low-income areas, will allow different members of the community to encounter each other face to face and offer opportunities that these places have to strengthen social sustainability (Gehl 2010).
A different concept of Social Sustainability was adopted by the Vancouver City council in a 2005 mandate to foster social sustainability by maintaining and enhancing the social environment and providing support for social infrastructure. Four guiding principles are part of the definition: equity, social inclusion and interaction, security and adaptability (Gates and Lee, 2005).

This interpretation is useful, because while it considers equity in the same way as the global south, it also encompasses two other components of social sustainability that are relevant to consider in this research. The first is the individual capacity or opportunity for learning and self development and second the social or community capacity for the development of community organizations, networks that foster interaction.

Individual capacity refers to the attributes and resources that one could contribute to their own well being and the well being of the community as a whole. Such resources include education, skills, health, values and leadership (Gates and Lee, 2005). In the case of Alto Hospicio the need to strengthen capacities in the community could be supported by creating facilities in the UOS that give residents the opportunity to develop some skills and improve their education. Ultimately this may generate a better employment leading to high income and better quality of life.

The social or community capacity is defined as the social networks that facilitate collective action taken to improve upon quality of life and to ensure that such improvements are sustainable (Gates and Lee, 2005). This is directly related to the principle of social interaction, and urban open spaces are great places to foster that principle.

Issues of equitable distribution to alleviate poverty in low income neighbourhoods are directly related to spatial planning decisions. This topic will be instrumental in achieving social sustainability and equity.
3.1.2 Equity

The equitable spatial allocation of public resources and amenities is complex; an entire body of value judgments exists about who should benefit with what resources. Uneven distribution prevents healthy development and leaves part of the population without the healthful benefits that UOS can offer. Often the wealthy get most public goods and few public liabilities and the powerless get few public goods and most of the public liabilities (Marcuse, 1972).

During the last three decades planners and geographers often advocate to apply the concept of equity in planning decisions (Lucy, 1981). But, what does equity mean and how we can have more equitable access to urban open spaces? A definition of equity will be briefly explained and some ideas of how to incorporate equity into the planning process of providing UOS will be discussed.

Equity refers to the fairness of a situation or distribution (Smith 1986, Rawls 1971) but with respect to distribution of amenities or facilities, what is fair for whom? Who gets what? Clearly equity is a subjective concept and open to multiple interpretations but it is necessary to understand how the concept can be applied to planning decisions.

The term is too abstract, so five conceptions of equity suggested by Lucy (1981) will be useful for planners dealing with spatial dimensions: equality, need or compensatory equity, demand, preference and market or willingness to pay.

Equality is a concept where all members of a society receive the same benefits regardless the existing levels of need.

Need also known as compensatory equity (Crompton and Wicks , 1988; Talen, 1998 ) is consistent with the idea that those needing more service should get more, rather than less, so amenities should be redistributed to those most in need to compensate inequalities.
The demand concept suggests that active interest in a service should be rewarded. Basically the most eloquent residents get more resources by demanding them, while another group exist who are not motivated to act and so they are left with an inferior or inadequate service or amenity.

Market or the willingness to pay is the final equity concept with the idea that people who can afford to pay for a certain service, get access to it.

In this research the term compensatory equity is the most appropriate concept for working with socioeconomic disadvantaged communities. It emphasized that the need for specific benefits may be greater for some population group than for others (Talen, 1998), so in this research when we refer to equity it is this last definition that has been adopted.
In order to act on a need, we require a basis for identifying the need. Low income, poverty and minority race are indicators of need (Lucy, 1981). Need based criteria have been used in many studies to evaluate the spatial equity of amenity location (Talen, 1997; Talen and Anselin, 1998). For some researchers, spatial equity is regarded as equal access to basic public facilities as measured by distance (Smith 1994) and for others means that there is an even distribution of services in relation to the needs, mobility and service standards of each resident (Chang, 2011).

Normally the measurement of equity looks to the locational distribution of facilities relative to the location of different socioeconomic groups. To relate the location of facilities and population groups, accessibility between both locations must be measured. The importance of use and the notion of accessibility in these studies is substantive in the sense that measurements of accessibility have a definite role in determining what equity is (Talen, 1998).

The achievement of equity in the distribution of public resources is extremely important in countries like Chile, where extreme levels of inequity and segregation exist between low income and wealthy families. The government over the past years provided over two million houses for the most vulnerable families in cities across the country (Cities Alliance, 2008) and now the population has a better quality of life than in the past. But the perception of disappointment and inequity exists due to the unequal distribution of wealth and the physical and social conditions in which their neighborhoods are housed. If the role of the public sector is to redistribute resources in a compensatory way we need to provide them opportunities that in other circumstances they may not have (Nicholls, 2001).

Researchers in Latin America are trying to identify which criteria and form of assistance would be more appropriate and effective with the limited resources available. The main goal is to achieve the greatest impact possible and create changes at the neighbourhood and city levels. In times when government efforts are concentrated on the provision of housing, it is crucial to understand that communities have the skills to self build or expand their houses. What is critical to realize is that they cannot provide significant improvements in
infrastructure, transportation, amenities and the open space— all essential components of successful urban environments (Gouverneur and Grauer, 2008).

Fortunately, in 2006 the Chilean Government announced the New Quality Housing and Social Inclusion Policy and the main goal is to improve the living conditions of the urban poor. With limited funding it is critical to rethink the ways we are planning and designing UOS in low income neighbourhoods and ideally to optimize the use of resources.

3.2 Provision of Urban Open Space

The design and planning of our cities is crucial to support structures for how we live, work, and move across the landscape. If our cities are not well thought out it could create adverse impacts, not only in human health but to our cities and to the planet. So the ultimate goal is to create sustainable environments that support the life of everyone in our cities, and UOS is critical in reaching this goal.

The provision of UOS draw popular attention from New Urbanism to Smart Growth to economic growth and development schemes, with the understanding that UOS are crucial to create safe, viable and sustainable urban environments (Schmith, 2010). There is no common methodology or single planning approach in the provision of them but of course they vary from country and culture. The method used is often calculated according to formulas based on standards in planning legislations and policies but of course some other alternative approaches exist.
3.2.1 Approaches to Urban Open Space Planning

The standard approach, widely applied in North America, Europe and other parts of the world dates back to the early twentieth century when park planners established the minimum acceptable park allocations for urban dwellers (Taylor, 1999, Scott 1994). In particular, the two renowned firm responsible for the design of parks in American cities (Olmsted; Bartholomew and Associates) specified that no resident should be further than ¼ mile (400mts) from a park (Taylor, 1999, Scott 1994). Over time, agencies like World Health Organization (WHO), National Recreation and Park Association (NRPA) in the USA, Canadian Ministry of Culture and the National Playing field association (NPFA) in the UK set minimum requirements for the provision of UOS in our cities.

There are many ways to measure the amount of UOS required in our cities, but the most commonly used is the per capita measurement - ratio of open space v/s population per acre or hectare. The total area of UOS in a community is divided by the number of people living in that area (Trust for Public Land, 2004). Many cities calculate this ratio to obtain a broad picture of the adequacy of their level of supply. Perhaps the most known standard regarding the provision of parks in North America is the National Recreation and park Association (NRPA) recommendation of 10 acres (4.1ha) per 1,000 residents, and 6 acre (2.4ha) standard - advocated by the National Playing Fields Association (NPFA) in the UK (Nicholls, 2001). The international standard suggested by the World Health Organization (WHO) and adopted by various countries including Chile, asks for a minimum of 9 m2 of green open space per city dweller (Kuchelmeister, 1998) equivalent to 0.9 ha per 1000 residents.

In North America, the classic quota system allots a minimum acreage of each type of open space per 1000 residents. Other approaches in fairly common use are the minimum size provisions depending on the type of UOS and its function. Also distance catchment area is applied specifying the maximum distance from the residential area to the nearest park or other UOS.
The European standard suggests 13 m² per city dweller. In a study done by the Polytechnic University of Madrid, Spain, the approach suggested is the optimal per capita measurement distributed based on a hierarchy of scale. This is done by determining the units of scales in local, neighbourhood, and district and city level and then giving them a radius of action, and an approximate quantity of inhabitants, housing units and approximate area.

In Chile the process that regulates the provision of urban open spaces is based on the requirements established in the article 2.2.5 of the General Urban Development and Construction code (OGUC, 2012). The article establishes the mandatory allocation of land designated to urban open spaces based on a percentage of land that have to be supplied by developers depending on the characteristics of the project. This calculation depends on the housing density of the project with a maximum of 10% of the land. In addition, the area resulting from the application of the percentage, a mandatory 20% must be allocated for sports and recreational activities. The result normally is a multipurpose sport field that could house basketball, volleyball or football.
Planning for the provision of UOS per capita has remained controversial and involves more than recommended standards. Some municipalities and planners argue that “more is better”, showing evidence of its broad benefits, but with some decline or non use of parks or other UOS some researchers start to recognize that “more is not always better” and maybe what really matters most is what surrounds them and who will be benefit with the provision (Jacobs, 1961, Talen, 2010).

A standard approach is very useful to have something where you can measure the performance of a city related to some minimum requirements, but research has shown that many authorities failed to implement these standards (Harnik, 2000; Harnik and Simms, 2004). A quantitative approach can be misleading because it reports only open space per inhabitant, ignoring their spatial distribution (Talen, 2010). More importantly is where they should be located to generate more benefits to the community (Jacobs, 1961), but it’s essential to combine different approaches, looking at specific requirements of different countries or communities.

Ideally, planning for spatial provision should take into consideration local population demands and factors that impact on the quality, location and scale of facilities. A good example of this is the set of standards and guidelines elaborated by the City of Cape Town for the spatial provision and development of social facilities and recreational spaces (see Table 4). Standards were provided in terms of demand thresholds and accessibility targets in terms of travel time or distance by preferred mode. This planning approach in Cape Town was done to serve these main purposes: to determine the threshold populations for facilities, and basic

<table>
<thead>
<tr>
<th>Density inhab/ha</th>
<th>Green Areas, Sport and Recreation</th>
<th>Communal Facilities</th>
<th>Circulation and Streets</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 70</td>
<td>0.1 x density</td>
<td>0.03 x density - 0.1</td>
<td>Max 30% with all densities</td>
</tr>
<tr>
<td>&gt; 70</td>
<td>0.003 x density + 6.79 until max 10%</td>
<td>0.002 x density + 1.86 until max 4%</td>
<td>Max 30% with all densities</td>
</tr>
</tbody>
</table>

Table 3: Art. 2.2.5 General Urban Development and Construction code (OGUC, 2012)
land requirements serve as a departure point for negotiations with respect to land provision between developers and a municipality, and finally provide a basis for developing a spatial distribution network for facilities (Green, 2010).

<table>
<thead>
<tr>
<th>Hierarchy of park types</th>
<th>Allocation of total provision / 1000 people</th>
<th>Access distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighbourhood park</td>
<td>0.4 ha *</td>
<td>20 min walk</td>
</tr>
<tr>
<td>Community park</td>
<td></td>
<td></td>
</tr>
<tr>
<td>District / Regional park</td>
<td>0.2 ha *</td>
<td>20 min travel time by public transport</td>
</tr>
</tbody>
</table>

Table 4: Summary Guidelines and Standards for the Planning of City of Cape Town Social Facilities and Recreational Spaces (CSIR 2010)

What is interesting here is that the provision ratios in the table (marked with *) could be decreased if parks are clustered with sports fields, besides which the multi-use of parks leads to increased levels of security and maintenance in general. This was done because a survey of park usage by the residents indicated that if parks cannot be well-maintained and without proper provision they would prefer to have access to fewer than larger parks that are better maintained and secure rather than being provided with many small parks that are unkempt and lack facilities (Green and Argue, 2010). So the approach needs to be flexible and tailored to the community needs and this will guarantee a better appreciation and maintenance of the UOS.

### 3.2.2 Needs Assessment

“Every needs assessment relies on a thorough understanding of the current system. How can you tell what you need if you don’t know what you have?” (Barth, 2008)
Another alternative approach to the standard is based on needs assessment. The purpose of this method is to engage public dialogue regarding community values, quality of life criteria and long term vision. Essentially it is a “gap analysis identifying and measuring the gaps between existing and ideal conditions. Ideal conditions vary among communities and the needs assessment process provides the opportunity to define them according to the community's specific values and interests” (Barth, 2008, p.39).

A number of factors may be considered when seeking to meet a diverse population's needs. People have different needs and preferences which will change according to their personal circumstances and stages of life. For example, a community with many children and teenagers will need more facilities like playgrounds and sport fields than a community with elderly people. Income levels, gender, ethnicity, education, disability, culture and so on will also determine a completely different set of needs (Floyd, 2008; Kemperman, 2008; Burgess, 1988; Loukaitou-Sideris 1998).

Needs range from basic survival to others that are essential to elevate standards of living. This latter category is where the provision of UOS can help low income communities to meet their needs of recreation, physical activity and even socioeconomic improvements (Torkildsen, 1999). Because this research is focused on low income communities, we will discuss their needs in more detail shortly in this chapter.

An effective needs assessment will consider a variety of techniques. To select the most appropriate, the concept of “triangulation”, which considers the needs from at least three vantage points will be very useful. Triangulation will help to distinguish between the community's many needs and priorities. A need assessment conducted from one point of view could identify that a sport field may be the greatest need of the community, but the reality is that most residents prefer quiet sitting areas instead of more sport fields. Triangulation will help to ensure that the process is more accurate and effective. The types of assessment tools usually used in triangulation are anecdotal, qualitative and quantitative techniques (Barth, 2008).
Anecdotal techniques include site visits and photographs, telephone or face to face conversations with facility participants, personal observations, discussion with staff and other types of similar observations and discussions. The information gathered with these techniques are probably the least scientific but could be a very useful tool.

Qualitative techniques consider talking with community residents and stakeholders to identify common interests and needs. Not objectives as scientific methods, qualitative techniques can provide insights into community issues, hidden agendas or emotions. Some of the techniques are interviews with staff, community leaders or elected officials, and workshops and focus groups with different organizations.

Quantitative techniques normally have more credibility because people believe in statistics. Typical techniques include measuring park acreage, counting number of facilities, defining geographic service areas based on guidelines (Barth, 2008). Other quantitative techniques could be comparing a community’s resources such as acreage, facilities and staff budget, against communities of similar size and demographic composition. Another important qualitative method is conducting larger telephone or mail surveys regarding needs and priorities.
3.2.3 Needs Assessment Process

The alternative to a standard approach is the needs assessment process, which incorporates the socio-demographic variable. David Barth (2008), an American planner, wrote an interesting chapter about how you effectively assess community needs for UOS in the book “From Recreation to Re-Creation: New Directions in Park and Open Space System Planning” from the American Planning Association (APA, 2008). In this chapter he clearly expressed the needs assessment process in the United States and the review of this will be instrumental in providing useful insights of what things could be considered for a future process in the Chilean context.

The process has three steps: analyzing existing conditions, deciding what techniques apply and building consensus around the findings. An accurate base of maps and inventories of existing UOS, facilities, programs and users will be mandatory before deciding anything. Then it would be ideal to prepare an inventory of all the UOS types and areas (size), number of facilities, current conditions and other relevant data. Mapping and inventorying could be difficult and time consuming, but very useful in the long term. The components of the existing conditions analysis are: data collection, base map preparation, analysis of demographics and lifestyles and site visits (see figure 14).
Once existing conditions are documented and data analyzed, the next step is to decide which needs assessment techniques will be most effective to apply. The most common tools are anecdotal, qualitative and quantitative methods such as conversations, interviews, workshops and surveys. These techniques are useful to provide first impressions of community needs and priorities. For instance, casual conversations with park users may inform current preferences and use providing valuable inputs for UOS improvements.

The last step is building consensus. This part of the process will be to review the findings and identify common themes and priorities in the community. The most important needs tend to appear as top priority regardless of the technique used. Planners or other professionals conducting the process may wish to validate some methods more than others. For example, a mail survey conducted with 300 participants may be more successful gathering data than a workshop with attendance of five people.
Under the needs assessment method there are several assumptions. The first one is driven by the idea that needs should be calculated according to the population for whom facilities are planned (Lucy, W, 1981, Smoyer-Tomic, 2004). Another school of thought consider that the spatial distribution of population and resources within a given area will be uneven if you use the needs assessment method (Talen, 1997, Smoyer-Tomic 2004).

In comparison with the standard approach the needs assessment is more time consuming. Not only does it calculate the amount of UOS need per person in an area, it includes the socio demographic component, the type of needs and preferences and the type and number of facilities that will be required to fulfill the needs of the community. In addition, the needs assessment method is a much more complete approach, because it includes detailed assessment of the use of existing facilities to determine changes or improvements in a given area. As well it has an inclusive approach by creating a participatory process including interviews with community members and leaders, observation methods, workshops and focus group research (Barth, 2008).

Although it is a good method, some advocates of the needs assessment think that the population nowadays needs UOS to be flexible and adaptable to achieve current necessities and anticipate future ones (Maruani, 2007). Thus there is a need to consider future populations, not just current residents.

The standard approach described previously were introduced by planners to ensure a minimum provision of different types of urban open spaces, like parks to satisfy the recreational needs of the population. These standards became consecrated as best practices and have been incorporated into legislation and guidelines in many countries. Recent research has shown that this approach alone does not provide information about the needs of a specific community. Some researchers have recently found that some people are not interested in walking the suggested distances or that people from diverse cultural backgrounds find the spaces boring, unattractive or uncomfortable.
Considering that every community has its unique blend of social and economic characteristics, a more holistic approach is needed, combining the best of the two methods and considering each community on an individual basis in order to acknowledge the most appropriate amount, quantity and quality of their urban open spaces.

### 3.3 Spatial Organization

As previously mentioned, urban open spaces involve the application of standards, such as how many hectares or acres are required for a certain amount of residents, ignoring the spatial distributions of parks. The problem with this standard is that it only specifies the area required, but never specifies where the facilities should be located (Talen, 2010). Jacobs (1961) and Mumford (1937) critiqued that approach because it failed to respond to the social purpose of cities. In fact, they stated that parks or other form of UOS should be situated based on their surrounding social context.

#### 3.3.1 Spatial Logic: Location and Distribution

Most recently the geographer Emily Talen observed that often UOS such as parks are viewed and design as having certain qualities and characteristics, as environmental resources or spaces with unique social and economic value. Less studied is how they are geographically distributed from a spatial logic point of view (Talen, 2010).

The term spatial logic used by Talen refers to how UOS are or ought to be distributed across the urban landscape, arguing that a better understanding of park distribution could lead to important decisions in investment, planning and design. Her argument has particular focus in three spatial goals -proximity, diversity, and social need which will be explained shortly in the next section of the chapter.
Talen’s (2010) research investigates the spatial logic of parks in Phoenix and Chicago (USA) using a series of descriptive techniques. The method used seeks to evaluate the degree to which principles about park distribution are in evidence from the standpoint of the three spatial goals mentioned above. To understand what these three spatial goals mean, seems critical in this research because a better distribution of parks in low income neighbourhoods could be a matter of shifting inequities and better investing in UOS that are well located.

Following Talen’s (2010) research two questions arise, what could be done in low income neighbourhoods in Chile to improve the spatial distribution or spatial logic? How could planners or managers provide better spatial relationship between UOS locations, population, diversity and social need?

She stressed that that of course will be a challenge. With most of our cities growing faster it is hard to physically rearrange UOS, population and land use that would conform to one or more spatial principles, at least in the short term. Some planning and design strategies are suggested that with time could work repairing and improving the spatial logic gradually.

One option offer by Talen is to propose some changes to the immediate surroundings of UOS such as parks and playgrounds. In addition, she suggests developing a more spatially informed park typology, such as one that differentiates park type on the basis of surrounding context. This eventually could help identifying how green areas could be invested, designed and prioritized based on their context and function, not by their size alone.

Second, the zoning around the parks could be more responsive to UOS surroundings by allowing more diverse land uses, particularly in denser areas. Checking codes and ordinances to be more responsive to contexts with more diversity, will help to evaluate if there is enough use and density to activate this space. Or is the space serving different users?
Third, promote direct public investments in playground or park improvements in ways that gradually reinforce a better spatial logic. For example, facilities that are closer to existing density and diversity could be prioritized. In addition, allow public funds upgrade in UOS so its public surrounding areas.

“Whether based on proximity, diversity or social need, an improved spatial logic is essentially about making sure that valued public resources like UOS are located in places where they are needed most “ (Talen, 2010 ). This is critical especially when working with limited budgets to improve the conditions of low-income neighbourhoods.

3.3.2 Proximity and Access

Research into physical and social dimensions of green and civic spaces shows the positive benefits of living close to a park, improvements in quality of life and emotional and health benefits (Kuo, 2001; Kaplan and Kaplan, 1989; Chiesura, 2004) and highlight the benefits of places that generate social encounters, such as markets, playgrounds or residential plazas (Catell and Evans 1999).

Most scholars assume that there is a connection between proximity and quantity of parks and positives outcomes such as walkability and neighbourhood quality (Talen, 2010). This is being demonstrated in research that shows UOS access promotes physical activities and improves health (Roman and Chalfin, 2008; Bedimo-Rung et al., 2005) In addition, some studies indicate that people prefer easily reachable locations and would select their neighborhood park instead of a more distant park. The easier is to reach a local park, the greater the possibility that people will visited it (Maat and Vries, 2006).

From New Urbanism to sustainable developments and smart growth advocates, there is consensus that there should be better proximity between where people live and work, and the goods and services needed to fulfill their daily requirements. Urban open space is one good that when well distributed can help to achieve sustainability and equity goals.
Distribution requires locating facilities in places where many social groups can benefit or have access.

Under the proximity goal, UOS should be located where people live and not at the edge of the housing complex or in places where people can not gain access. To reach this goal one method is by identifying the number of housing units within a reasonable walking distance to parks.

### 3.3.3 Diversity and Connectivity

Under the diversity goal of spatial distribution, UOS should be located in diverse neighbourhoods. This could be measured by observing social diversity, which could be based on income levels, family type or ethnicity or land use diversity. The latter means to consider if UOS are immediately surrounded by diverse land uses, not only residential.

One of the relevant topics that Jane Jacobs emphasized in her book *The Death and Life of Great American Cities* was diversity. For Jacobs diversity corresponds to physical forms and patterns that maintain human interactions and patterns of relationships. Her definition supports mixed uses and variety of population as essential components of a good city (Jacobs 1961).

Related to urban open spaces, Jacobs postulated that it was essential to consider the spatial distribution of parks, especially in relation to social diversity and location. This means that what matters most is not to create more parks, without considering what surround them. Rather than to assume that more parks are better, she stated that it should be essential to consider if the proposed areas contain enough density and diversity to support their use (Jacobs, 1961).
She also argued that there was a strong correlation between crime, parks and diversity. Without enough density of users and population, parks could turn into places of emptiness and danger. In contrast the provision of UOS in more livable areas reinforces the concepts of territorial and natural surveillance (Newman, 1972) with proven results in low-income areas.

The achievement of equity in the distribution of public facilities like UOS is a goal in which spatial distribution really matters (Talen 1997, 1998). As mentioned previously, the topic of spatial equity is so complex that it not only involves methodological aspects determining measurements of spatial equity, but requires value judgments about how benefits should be distributed. Given the important role of equity in resource distribution, many disciplines such as geographers, sociologists and management scientists have explored this area.

Characterizing need on the basis of socio economic characteristics of specific populations has become established practice in geographic literature. If UOS ought to be distributed according to social need, they would be located in areas with higher density and greater need. Such areas usually are concentrated in low income communities (Talen, 2010). Research sometimes demonstrates the contrary.

If UOS such as green spaces were distributed according to social need, they would be located in denser areas where social need is greater, measured for example by income level. UOS such as green spaces according to the principle of social need should be distributed and would require them to be located closer to lower-income areas.

To adopt a simple population based standards approach to the provision of UOS supplemented by distance thresholds is not enough. Moreover municipalities or planning authorities use general guidelines developed at the federal level to address local needs. A better method is needed with support of the local community to make more appropriate decisions on planning and design of UOS. Better to get local standards tailored to individual communities. A mixed approach between standard and need assessment could be an alternative, and a more flexible approach.
Design and planning are crucial to support structures for how we live, work and move across the landscape. Planning has a crucial role to play protecting existing UOS from new developments but also ensuring that the existing ones are of appropriate quality and serve the needs of the existing population. If our cities are not well thought out they will produce adverse impacts not only in human health and quality of life, but to the planet. So the ultimate goal is to create sustainable environments for all, that support the life of everyone in our cities and urban open spaces play a critical role reaching this goal.

So what is important to incorporate in the process of planning and design that reflects local conditions and benefits the whole community in an equitable way? First of all municipal authorities, planners and designers need to develop their own standard and guidelines supported by the unique geography and culture. Good practices may be helpful as a reference, but may not be applicable everywhere and could be misleading if they are not carefully considered.

A better method is needed with support of the local community to make more appropriate decisions on planning and design of UOS. Keep it local.

3.4 Program and Design Qualities

“Design is the key decision-making process. At the strategic level, it creates the vision for places. At a more detailed level, it describes how we want them to work, look and feel. Good design is not inevitable. It needs to be championed, invested in and worked at” (CABE, 2009).

Research has demonstrated that lay people recognize that design often lies at the heart of what makes a successful urban open space. Additionally it is a key part of tackling many of the barriers in using UOS (Dunnett et al, 2002). Definitions of design related to preferred outcomes also exist. In the words of Herbert Simon “everyone designs who devises courses of action aimed at changing existing situations into preferred ones”. In the same way, the designer Bruce Mau argues that design is “no longer associated simply with objects and appearances, design is increasingly understood in a much wider sense as the human capacity
to plan and produce desired outcomes” (2007). Similarly, design is also a creative act aimed at problem solving and proposing change. It is a process that comprises the synthesis of information into ideas and proposals guided by thinking and visualizing techniques (Girling, 1980).

3.4.1 User Needs

Numerous studies have shown that design alone is not enough to create successful urban open spaces (Carr et al. 1992). Addressing user needs is critical in effective design and should be considered at the beginning of the design process. Designing for user needs will vary by open space types and context and it is widely accepted that well–designed UOS can create positive benefits to communities.

Questions about good or bad design often arise in discussions and debates surrounding the planning and designing of UOS. Good design is often associated with higher costs or a personal statement by a designer. On the contrary, good design means creating places that people and communities want to spend time in and will enjoy using. The basics of good design have been understood for centuries - they transcend fashion and personal taste (Simmons, 2009). The drawbacks of poor design are also well-known. Crime and vandalism often result in places where spatial or cultural needs of a community are not considered. Design is the way we decide how we want things to be. So the question is not whether we need or can afford design - it is whether design is good enough. Furthermore, the vision of well–designed public spaces should address the needs of those who can’t leave the city for rural open spaces and need places for recreation and relaxation these should reconnect people with their environment and enhance the quality of their everyday lives (Ryan, 2006).
In the book “Public Space” a collective work written by the architect and urban designer Stephen Carr, Mark Francis landscape architect, the environmental psychologist Leanne Rivlin and the planner Andrew Stone, they proposed three dimensions related with good urban open spaces: needs, rights and meanings. This perspective balanced the tendency to put more emphasis on physical design attributes and includes the human dimension. They found that successful UOS are those responsive to the needs of their users; they are democratic in their accessibility, and are meaningful for the community and society (Carr et al.1992).

Currently many urban open spaces in low income neighbourhoods in Chile are unused because the design fails to address user needs. Usually UOS are standardized with the same program that includes, a designated area for green space, a sport field and a community meeting house. This pattern is created and duplicated throughout the country without differentiating income, demographics and geographical context. Consequently the facilities that house these activities are vandalized and unused and instead of creating benefits, they create insecurity. For this reason, this research found it critical to consider in the design of UOS the programming and qualities targeted for user needs specifically considering the socioeconomic status and demographics of the existing low income communities.

Usually urban open spaces near home are used for work, leisure activities, gathering, and movements through the neighbourhood space. A common agreement by many researchers is that successful UOS are the ones that are lively and well–used by people. Observations by social scientists and designers such as William Whyte (1980), Clare Cooper Marcus and Carolyn Francis (1998), the Danish architect Jan Gehl (1987) and others have shown that user needs is an important ingredient for successful urban open spaces. William Whyte, with the results of his study of use and nonuse of plazas in New York City (1980), brought awareness of the importance of user’s needs in public places. Since that time organizations such as Project for Public Spaces (PPS) and Trust for Public Land in the United States identify user needs as one of the most critical considerations in planning and designing UOS.
As mentioned previously, people have different needs and preferences according to their socioeconomic status which evolves according to their personal circumstances and stages of life (Floyd, 2008; Kemperman, 2008; Burgess, 1988; Loukaitou-Sideris 1998). Clare Cooper Marcus (1998), Mark Francis (2003) and Stephen Carr (1992) are researchers that focus on open space qualities that support user needs and activities.

Mark Francis (2003) defined user needs as those amenities and experiences that people seek in enjoying urban open spaces. In his book Public Space, published in 1992 with Stephan Carr, he argued that UOS should satisfy at least five categories of needs to be considered in the design of UOS. These are: comfort, relaxation, passive and active engagement and discovery. Marcus (1998) proposed a set of criteria for successful people places that includes: UOS must be located easily accessible to users, convey the message that the place is available for use, support desirable activities, encourage use by different groups, provide feelings of security and safety, be comfortable, allow users options, either as individual or as member of a group and etcetera. The three authors agreed that successful UOS should meet individual needs such as comfort, relaxation, passive and active engagement through design because they are influential in the programming and the quality of the space.

3.4.1.1 Comfort, Relaxation, Passive and Active Engagement

Figure 15: Categories of needs (by the author)
Urban open space needs to be comfortable to be well used. The need for food, drink, shelter or a place to rest requires a certain degree of comfort to be satisfied. Without comfort achieved, it is difficult for the other needs to be met (Carr et al. 1992). Additionally, relief from sun or access to sun is a major factor that influences the use of UOS (Whyte, 1980; Bosselmann, 1983). Comfortable and sufficient seating is also important for the success of any UOS.

People often seek outdoor settings for relaxation. Psychological comfort is one of the experiences people look for in UOS. This benefit can be provided by the restorative effects of water and vegetation. Past research has demonstrated that visiting areas with vegetation may have health effects such as reducing stress (Ulrich et al. 1981; Kaplan and Kaplan, 1989; Burgess et al., 1998) and some healing powers often result from perceived real relaxation (Kuo and Sullivan, 2001).

Comfort and relaxation are necessary qualities to incorporate in the design of the UOS that will prevent or invite the use and enjoyment of the space. Although they are subjective, because people’s ideas of comfort and relaxation can differ greatly, the emphasis on the design program of UOS will propose activities that create social interaction and engagements without leaving behind basic qualities of the space that provide comfort, relaxation and discovery.

Passive engagement differs from relaxation because it involves the need for an encounter with the setting without becoming actively involved. For instance, people enjoying watching the world go by. This encounter is passive because it involves looking rather than talking or doing (Carr et al. 1992). A frequently reported activity is people watching other people, according to Whyte “what attracts people most, it would appear, is other people” (Whyte, 1980).
In contrast, while some people enjoy watching people, others desire more direct contact with other people. Active engagement requires some physical involvement with the space. UOS are known to provide settings for physical activities and sports (Cranz, 1982). Providing active recreational needs is a critical aspect of design of UOS and the requirements will vary with regional, cultural, geographic and age differences. Vigorous encounters with physical elements represent another dimension of active engagement. This means physical contact rather than just being in the space (Carr et al.1992). For example the Forecourt Fountain and the Director Park in downtown Portland facilitate the interaction with water forming part of the engagement (see Figure 17).
In Santiago, Chile a growing trend in forms of active engagement are bicycle lanes, jogging paths and open gyms (Mora, 2012).

Other forms of active engagement are walking and gardening. This need has given rise to new forms of UOS such as greenways and community gardens (Francis, 2003). This latter form of active engagement already exist in Alto Hospicio in private lots and could be applied to provide good quality and affordable food to low income neighbourhoods. In addition, these types of facilities could provide an alternative to traditionally designed green areas. This ultimately may create a sense of community, economic opportunities and an enhanced environment in low income neighbourhoods (Armstrong, 2000; Hanna et al 2000).

Passive engagement of the contemplative variety is not possible to achieve in low income communities (Beardsley and Werthmann, 2008). UOS of these types are considered dangerous and provide more opportunities for drug dealers and crime. Facilities for active recreation are more suitable in low income neighbourhoods, especially in places with a large youth population that has limited educational and employment opportunities (Beardsley and Werthmann, 2008). We might need to expand on the active engagement category, where active recreation is housed or a new form of UOS called productive spaces that would include market facilities, community kitchens and development of skills areas.
3.4.1.2 Activities

How a place is used depends on the activity occurring there (Hester, 1984). According to Jan Gehl, outdoor activities can be divided into three categories, each of which places very different demands on the physical environment: necessary activities, optional activities and social activities (See figure 20). Necessary activities are those that involve a degree of participation in everyday tasks such as going to school or work, shopping or waiting for the bus. These activities will take place year round under all conditions more or less independent of the external environment. Optional activities are those pursuits that are performed if there is a wish to do so and if time and place make them possible. Here we include sunbathing, admiring flowers, walking for fresh air and exercise and so on. Normally these activities happen when weather conditions are favorable and are especially dependent on the physical quality of the outdoor environment. Social activities are all activities that depend on the presence of others in public spaces. These activities include conversations, children at play, communal activities and passive contacts, that involve seeing and hearing other people (Gehl 1987).
Social activities occur spontaneously as a direct consequence of people moving or being in the same space. The context, the physical layout and programming of UOS are critical. Physical design plays a significant role in facilitating or preventing interactions (Altman, 1987). An inappropriate design of open space or the program could convert an UOS into unused space that is left to deteriorate (Loukaitou-Sideris, 2003; Dines and Catell, 2008).

### 3.4.1.2 Program

As stated previously, active recreation is an important function of UOS and is more suitable for low income neighbourhoods. The function of recreation in parks is delivered through three main areas: park informal spaces, recreational facilities developed for specific activities and programs provided by recreation staff (Eysenbach, 2008).

Currently citizens are expressing their preferences for more informal flexible spaces where they can improvise a soccer game, a party or seating for a music concert. The recreational facilities developed for certain activities are commonly developed by the park authorities, in Chile by municipal authorities.
The provision of program in UOS is one crucial element to their success. To encourage people to linger in a green or civic space, there must be something that persuades them to stay. These may be physical elements such as seating areas or tables or areas that provide a nice view or other natural setting (Marcus et al 1998).

The existence of amenities in a space can have a critical impact on the social vitality of the space (Jacobs 1961). Opportunities for social interaction exist close to school, in a park or in the corner grocery store. The existence of such amenities in a deprived neighbourhood will reinforce ties between community members.

For these activities to occur, physical planning has to consider promoting good layout and program so as to not generate user conflict. In addition cultural and socioeconomic status, gender inclusion must be incorporated in the program of UOS. Most conflicts in UOS result from abuse that includes vandalism, dominance by one user group over others or lack of inclusion of minorities. Good program and design are key and have been found an effective way to address conflicts (Carr et al 1992; Cooper Marcus and Francis 1998).

In addition some observers of UOS suggest that conflicts result from cultural and class differences (Loukaitou-Sideris, 1995). This is related to the way different groups use the space. Authors like Shaftoe and Low highlight the role that design of urban open spaces can play in who uses the space and how they are used (Shaftoe, 2008; Low et al 2005). Some concerns exist about the design and management of social cultural diversity and how inclusive and exclusive those spaces are (Low et al 2005, Shaftoe, 2008). Social interaction between diverse groups is enhanced by the provision of safe, spatially adequate territories for everyone (Low et al 2005). As our cities are getting more populated and diverse, we need to provide appropriate open spaces for different users and create spaces that provide opportunities for interaction and communication with others.
Also there are some gender conflicts too. Often parks and UOS are more dominated by males. Females have been found to feel less comfortable using some UOS, particularly if they feel unsafe. Considerations of safety and comfort are especially important when designing spaces that will attract females.

Kevin Lynch in 1960 wrote that good public environments should be accessible to all people and that all citizens are entitled to some degree of opportunity, control and expression of identity. Since then the characteristics and demands of the population have increased to expect safe and healthy environments that create equal opportunities for all the members of the community. Concerns about inclusive and universal design and designing out crime are at the backbone when professionals are planning and designing public open spaces.

Inclusive design means designing products, services and environments that as many people as possible can use, regardless of age or ability (Burton & Mitchell 2006). The idea is to enable everyone to participate equally, confidently and independently in everyday activities and encompasses many considerations like physical, dialectal and cultural needs (Fletcher, 2006).

The concept of universal design appeared when the US passed the “American with Disabilities Act” (ADA). The intent was to create equal access and opportunities in the public realm for all members of the community. The universal design term was developed to avoid design isolating people with disabilities. What it proposes is design carefully planned and detailed to address the specific needs of the disabled, while providing a good solution for all other users (Cooper & Francis, 1998).

The organization the Commission for Architecture and the Built environment (CABE), in the UK is the government's advisor on architecture, urban design and UOS. They advocate that inclusive design places people at the heart of the design process. It celebrates the diversity of people, offers choice, provides flexibility in use and provides buildings and environments that are convenient and enjoyable to use for everyone (Fletcher, 2006).
3.4.1.3 Appropriated Facilities and Amenities for Low Income Communities

The provision of adequate social and productive infrastructure and amenities is important to consider in order to achieve social sustainability at different scales in urban planning. The concept of a compact city (Jenks et al, 1996) a common urban policy directed to promote higher densities pays little attention to the appropriate level of social infrastructure necessary to support communities.

Research conducted by Tony Manzi in the UK, found that the key factor to support local social infrastructures was the level of economic activity within communities. The central problem was the lack of skills and positions in relationship to the population as a whole in a competitive labour market (Manzi, 2010). Alto Hospicio suffers a high illiteracy rates so it is critical to provide facilities that upgrade those skills and this must be considered in the program process of UOS.

In addition, in most deprived neighbourhoods the economic aspect of UOS is less considered. Planning neighbourhoods for poor communities rarely accommodated private or public locations for commercial activities or markets. Survivalist trading occurs in unregulated conditions that create some safety and health issues (Southworth, 2002).

“In poorer communities, there is an ethic of “waste not, want not” that is a matter of necessity but can easily become a source of pride, rediscovery and inspiration. Necessity informed by wisdom leads to inventive improvisations to solve problems of scarcity. In Kenya, this is called “toti toti” (Hester, 2006). As an example in Nairobi, people use charcoal and wood fires for cooking. These fires cause respiratory diseases, contribute to pollution and denude natural resources. As an alternative the architect James Archer proposed a communal oven that used trash as a fuel, creating a community cooker called “Jiko ya jamil “. He designed the community cooker as a simple inexpensive machine, easily built and repaired by the local community. Residents collect or sort the trash in exchange for time cooking there (Smith, 2011).
A variation of the “toti toti” (Hester, 2006) term, in New York City was called “available materials, possible ideas”, which basically means envisioning and making something from nothing (Hester, 2006). Leftovers scraps of materials for someone could be garbage, but for those people in need could mean resources to make their living.

As a result we need to rethink new forms of program that motivate creativity, support deprived communities in the development of skills that ultimately will help with their economic status and will improve their current conditions.

### 3.4.2 Qualities of the Urban Open Spaces

William Whyte (1980) in his research on use and nonuse of plazas in New York City described the close connection between the qualities of city space and how they influenced the use of the space. He commented that simple alterations in that realm can notably improve the use of the space (Whyte, 1980).

Qualitative standards are difficult to define as they are based on the quality and the services that UOS offers, rather than the amount of UOS that exist. They are difficult to develop because of the variety of UOS (types) and the diverse functions that they serve. But they are extremely useful in improving the existing conditions of UOS in deprived neighbourhoods.

Certain UOS qualities are especially important in determining the use of urban open spaces and can greatly affect the specific benefits to a community. Well used spaces perceived as beneficial to well being posses certain basic properties (Cattell et al, 2008) Key principles for designing and enhancing existing UOS emphasize the importance of the qualities of a good outdoor environment and the impact that they could have in vulnerable communities. In this research the qualities considered essential to incorporate in UOS in low income neighbourhoods are: safety, comfort, diversity and flexibility.
These qualities reflect and reinforce what users defined as their needs. Achieving these basic qualities should succeed in creating favorable experiences that are consistent with the proposed goals.

3.4.2.1 Safety

A condition of one’s enjoyment of UOS depends on perceived safety. Fear of crime and violence, especially against women, can cause good spaces to be unused (Francis, 2003). Concerns about vulnerability to crime and enhancement of personal safety have always been an important element in design, management and use of urban open spaces (Cooper & Francis 1998).

Since the 1960s, designers have been aware that different environments provide varied level of support for criminal activity. Jane Jacobs (1961) stressed the importance of networks of small scale everyday public life and the resulting surveillance. She coined the term “eyes on the street”, which means having a variety of activities and different groups of people on the streets to create a safer and more livable environment. The approach that focuses specifically on design and management of the built environment is known as Crime Prevention through Environmental Design (CPTED). It is largely based on concepts of territoriality and natural surveillance. The origin of this approach was two books, one named for the concept by Jeffrey (1971) and the other, called “Creating a Defensible Space” by Newman (1972). The basic idea behind CPTED is to make crime more difficult both to contemplate and undertake. This is done by modifying the physical environment and human interactions with improvements such as good illumination and visual control.

3.4.2.2 Comfort

Comfort is a basic need. Food, drink, shelter or a place to rest are common elements required for comfort to be satisfied. Reliefs from sun or access to sun are major factors in the use of specific places (Carr et al 1992).
Research has demonstrated that for an outdoor space to be successful and well used, it must possess certain qualities. For example, comfortable and sufficient seating areas (Carr et al. 1992) are an important feature of physically comfortable areas, as well as the orientation of the seating, proximity to areas of access and choices of places to sit.

These basic comfort factors are enhanced by appropriate weather protection—shade from the sun, cover from the rain and so on. As well, areas that are well maintained, clean and free of litter draw more users. Vegetation, from flowers to lawns to trees to community gardens makes UOS more attractive and promotes use for diverse pleasures.

### 3.4.2.3 Flexibility and Adaptability

Unprogrammed spaces are more flexible than prescribed places and allow for different uses and modifications. Ryan (2006) proposed the concept of a 24-Hour City that encourages expectation and anticipation, and invites us to design spaces that are engaging in a variety of ways throughout the day and night. Projects presented here embody Mumford’s view of the urban environment where flexible spaces can accommodate different activities and have the capacity to transform to encourage new uses (Mumford, 1997).

A flexible place that accommodates multiple users and uses is manipulable in some way, such as an area for audience seating or a dance floor. Currently some authors call for flexible layouts in UOS that allow making some changes in response to future needs (Fletcher, 2008). As this research focuses on low income neighbourhoods and this group is in constant change, a partial approach is proposed where decisions relating to the spatial structure have to be made, while other aspects of plan or design are given more freedom.

In this chapter on the design process of UOS two tendencies were frequent: one that put emphasis on physical qualities and the other that supported user needs and activities. Emphasis on physical qualities alone fails to cover all other aspects that are relevant to create successful UOS. In order to create UOS used and valued by the community we must consider in the process of design basic needs such as comfort, relaxation, passive and active
engagement. However, for low income communities we must rethink how we are programming their spaces today. We must be aware of the current conditions and resources and that might guide the process of design.

Addressing cultural needs might contribute to the value and appreciation of the UOS and ultimately create social interaction and cohesion. To foster social cohesion, a site must create group connection. By satisfying individual needs and promoting active engagement this will allow members of the community to encounter each others. Connections can be created by repeating social activities such as socializing or shopping, simple gestures such as nod and smiles could establish the basis for future contact or friendship.

The extent and type of activities are greatly influenced by physical planning and through these decisions we create better or worse conditions for outdoor events and promote lively or lifeless cities. A lively city needs varied city life where recreational and social activities are mixed with room for pedestrians and traffic to participate as equals (Gehl, 1987, 2010). While the discussion is often centered on quantity in the form of providing minimums, quality is an equally important concern and the key consideration that invites or discourages use in certain spaces.

Key guiding principles were found that might achieve social sustainability and equity and may guide the process of planning and design of UOS of low income neighbourhoods in Chile.
KEY GUIDING PRINCIPLES

Figure 21: Objectives, Categories and Principles from Literature Review, Precedents and Case Study
CHAPTER 4: Las Americas Park, Case Study

The research question of this thesis seeks to understand what are the key issues to consider in planning and design of UOS that encourage use by low-income residents.

Las Americas Park was selected, to study in further detail, as a case study, because it was an emblematic project completed in 2008 with a government investment of $700,000 USD, it was the first project launched in the Master Plan of Public Spaces for Alto Hospicio in an area of high density, where UOS were scarce. Despite all efforts made in this process, obtaining funds, convincing political authorities and encouraging community participation in the design process, few members of the community use the park on a daily basis and some areas are vandalized or underused.

With the goal of gaining knowledge about how local people use the Park, this chapter focuses on answering if existing UOS are meeting the needs of a low-income community and if the quality and the program for the space is adequate for its residents.

4.1 Methodology

In the analysis of Las Americas Park, three qualitative research methods were used:

1) An observational study was conducted to understand the users of the park, their activities and, when and where they tended to linger. This is a useful method that assists in understanding park usage, and in experiencing the site before any analysis or other data is collected. The period of observation in Alto Hospicio was between May and June of 2012 and the information was gathered on different days of the week at different times of the day, usually mornings and evenings, until the study was completed, and was incorporated into a standard form found in appendix A.
2) During each visit to the park, another qualitative method called “observing physical traces” (Zeisel 2006, p.159) was used to find reflections of previous activity that were not observed in the previous “observational method”. Traces can be unconscious paths or conscious changes that people have made to their surroundings, reflecting what people do in different settings, such as making desire lines or informal paths in the grass, leaving litter behind such as beer cans, candy wrappers or cigarettes, simply physical adaptations to accommodate user needs (Zeisel 2006). This method was used to gain knowledge about how the park evolved to its current state, how people use the space, and how this particular space meets the needs of the users.

3) In addition, informal interviews were conducted randomly with park users as well as with previously contacted community leaders. The interviews were structured around seeking the answers of the research questions of this thesis and also, to review what was previously observed:

Who are the main users of the park and how often do they visit it?

What activities do they engage in?

How do they feel about the neighbourhood and the other people that live in the area?

What do they like or dislike about the design of the park?

What would they like to see changed or improved?

These interviews were also conducted to understand how the spaces are used by this community and if they felt a connection with their community organization.
4.2 Background

In 2007, an interdisciplinary group of regional public services composed of the Ministry of National Properties, the Municipality of Alto Hospicio and the Ministry of Housing and Urban Development, committed to developing the Master Plan of Public Spaces for Alto Hospicio (See Figure 22). The main goal of this initiative was to tackle the interstitial, vacant or undeveloped sites in areas with high social vulnerability and lack of recreational areas in those sectors that were part of the Alto Hospicio Integrated Plan - El Boro, La Pampa and La Negra. The purpose of this plan was to develop initiatives to improve existing UOS in short, medium and long term timelines using public funds from different government programs.

Figure 22: Master Plan of Public Spaces for Alto Hospicio and proposed parks (Source: Urban Development Department of Ministry of Housing. Used by permission of Pablo Fuentes the author)

This initiative was one of the first to break ground in determining what constitutes equitable open space within marginalized neighbourhoods. After a brief analysis of the provision of UOS in the three areas of the Alto Hospicio Integrated Plan, La Pampa was selected because it was the area with least UOS implementation representing large numbers of vacant sites. The interdisciplinary group prioritized the first initiative in this area with Las Americas Park project.
Figure 23: La Pampa, Alto Hospicio (Source: Urban Development Department of Ministry of Housing. Used by permission of Pablo Fuentes the author)
4.3 Physical Context

Las Americas Park is located on the west side of La Pampa along Las Americas Avenue, a major arterial connecting La Pampa with Alto Hospicio, between Estados Unidos and Calle Cuatro. The neighbourhood is comprised of two distinct housing types. On the west side of the park, there are two-storey single-family, semi-detached houses. These were built as a result of government social housing programs. On the east side of the park, we found one-storey self-built housing. The residents surrounding the park are low-income, young families and Aymara families from the interior of the region.

Figure 24: Context, Las Americas Park Alto Hospicio. (Diagram by the author: Base map: Image© 2013 Digital Globe (©2013 Map City)
The park occupies a long rectangular area, 1.4 ha (14,976 m²) in size, covering twelve city blocks, in a north-south orientation. It is partially flat with some slopes at the north end, and is open to Las Americas Avenue along the east side. The park is bordered by two-storey housing on the north and west, and is fenced by high concrete walls and a vacant lot to the extreme south. Land use in the surrounding area is predominantly residential including light commercial use with some grocery stores, a church and a liquor store. The park is organized into six thematic areas crossed by a longitudinal axis of pedestrian sidewalks and a bikeway. Local streets cross the park at perpendicular angles. The design was planned to house different activities in each block, linked with repeating elements such as paving, light fixtures and vegetation (see Figure 25).

Figure 25: Las Americas Park, Alto Hospicio (Diagram by the author)

Figure 26: Photo north end of the Park. (Photo by the author)
4.4 Observational Study

4.4.1 Use, Program and Physical Design

During site visits over the time period of this research, few people were found using the park. That was the first indicator that something was not right with the park’s goals. Although it is a recent addition to the neighbourhood, since 2008, the park has not been as popular as it was planned. This was mentioned and confirmed by one of the community leaders.

“People are afraid to visit the park, especially the elderly and housewives. Unfortunately, in this park, many teenagers meet at night to drink and vandalized the place, destroying plants, light fixtures, etc. Some gangs meet on weekends and street fights break out due to over consumption of alcohol. Sadly, installation of a liquor store was approved in front of the park and no one listened to those opposing it. Conflicts arise when respectable teenagers meet with their peers with the intention to enjoying the facilities and the gangs are using them for other purposes, like drinking or taking drugs, etc.”

The rectangular shape of the park is broken by five cross streets (see Figure 27); constant car traffic prevents any fluid pedestrian flow. The consequence is a layout of six areas with different programs. For example, the north side of the park has a stage for community events and festivals that never occur. Two sand fields that allow for informal games and activities for children are in the middle of the park. Playground areas with sheltered benches are located in two blocks of the south section. At the extreme south end of the park, exists a skateboard and roller sport park.
The most heavily used area is the extreme south end of the park where the skate park and playground are located (see figure 28).

Primary users of the park are teenagers between twelve to sixteen years of age, many of whom come to the park on their own by bike or skateboard from within a distance of five blocks. Well-used parts of the park are the playground areas that attract mothers accompanied by their children ranging in age from 6 to 11 years old. This was also mentioned in the interview with one of the community leaders:

“The playground and the skate park attract kids. However, that space is very small for the purpose it is serving and a lot of them complain it is too small. Also, in the design of that space nobody was consulted and now the kids complain that a lot of things were not well done”.
Wide sidewalks exist along the park allowing pedestrian continuity between all sectors of the project; this ensures accessibility for strollers and wheelchair users. A bikeway runs parallel to the park (see figure 29).

In the block 2 there is a sand field (see Figure 30) that is divided in two by lighting fixtures making the space unusable for any sport or activity that requires the whole area. In addition, there are steps that divide the space into two subareas. The material used here is sand that is very attractive to many street dogs, accompanied by fleas and other sanitary problems.
On the block 3, we found the playground (see Figure 31) with seating and vegetated areas, starting to be more frequently used by the mothers and children. As mentioned previously in the benefits chapter, play is critical to healthy growth and development of children, so appropriate structures, colors and forms will help in that process. Play structures are made of wood and many have been vandalized due to the lack of adequate care and maintenance.

![Figure 31: Playground areas (Photo by the author)](image)

During day time community members visiting the park with their children or just to chat with neighbours, enjoy the sunsheltered concrete benches. However, after dark, some undesirable users gather here to drink this contributes to conflicts within the community. The orientation of these benches is double facing; one side faces the path and the playgrounds and is the most used. The other side faces the local street with few attractions and is used the least.

![Figure 32: Seating areas (Photo by the author)](image)
On the block 4, an amphitheater was proposed for community use, but the size and the design of the structure was inadequate and therefore, has become a place to dump garbage. (see Figure 33).

![Figure 33: Amphitheater (Photo by the author)](image)

In terms of physical design, the park provided amenities such as seating places, sports oriented zones, playgrounds and vegetated areas. The sheltered benches areas work well; however they don’t provide much shade. The areas designated for active engagement, such as the skate park, are already too small for the currently high demand. There are few basic playground structures repeated through the entire park with little variation, but they seem to work. Although there is good street lighting at night time, the types of fixtures used are not high enough for adequate illumination and were easily vandalized. The layout of the park and the design of specific areas had good intentions, but clearly, there are a lot of areas that could have been more carefully designed.

Overall, the park is open and visible from the entire neighbourhood but is fragmented between east and west sides. Instead of being a unifying element; it enhances the differences between the two communities. This was reinforced by one of the community leaders.

“Now nobody cares about the park. It borders a busy arterial, creating safety issues and shares boundaries between two different social housing complexes. One that was previously an informal settlement, and the other, government operated social housing. Two different communities in the same area and none of them feel sense of ownership with that place”. 
Observing physical traces, the most visible change people have made to the park is the graffiti created by teenagers, reclaiming the space as their own territory (see fig.34). We found a large of graffiti on the stage in Block 1, and smaller ones on planters, the shelter benches and many more in the skate park.

Figure 34: Graffiti on planters (Photo by the author)

Figure 35: Graffiti in the skate park and on benches (Photo by the author)
Other traces found in the park were litter such as beer cans, candy wrappers, plastic bottles and bags. These were found mostly at the edges of the park that border the local streets and in residual areas under benches and around planters. As an outside observer, this demonstrated a lack of care and ownership that neighbours have for the park.

The results of the observational study and physical traces were mapped on a plan of Las Americas Park that includes existing physical conditions and usage (see Figure 36). Plans of each section of the park were developed describing the physical characteristics such as access, amenities and program. (See appendix B for more detail) The usage was recorded by using different symbols that represent age and gender including a dotted line to show the common routes used by people throughout the park. Overall, the park is not used to the extent for which it was planned.
In terms of program, the park performs poorly. The layout of the park promotes activities that are more suitable for teenagers, and lacks basic amenities such as washrooms and facilities for toddlers, adults and the elderly. Community leaders pointed out the park’s lack of community facilities and this has a negative impact on the area. They firmly believe these facilities are crucial to creation of community.

“I believe what will attract community members to the park and inspire people to engage in activities together are community focused activities and community facilities for adults and elders”.

4.5 Interview Results

Results of informal interviews were grouped into those issues relating to physical aspects, especially those involving the planning and design of the park. The ultimate goal was to gather ideas of what improvements the community would like to see in order to enhance usage of the space.

Frequent visitors were more likely to live within a short distance from the park, about one to five blocks away. The most popular activities were: going for a walk with baby in a stroller, taking children out to play, enjoying the company of friends and going for a bike ride or skating.

The park is clearly a valuable feature because previously there was nothing developed in the area for enjoyment and recreation. However, people think it is not a safe place after dark and have some issues with the design and programming that is not addressing the needs of the community. They would rather have community facilities such as educational and workshop areas, community gardens and a community centre that could bring people together for activities and events. They felt there should be programming with more activities for all ages and places to support physical activities. In terms of programming there were requests for more youth activities such as music, dance classes and for adult multi sport and exercise facilities/areas.
In general, the interviewees valued some of the physical settings and amenities, but demanded some improvements. They appreciated the playgrounds, even though they were designed for younger children, yet lacked facilities for toddlers. Teenagers are well recognized in the design of the park with an exclusive area dedicated to skateboarding and roller sports, but the area is too small for the demand and there is a lack of basic safety considerations to help avoid accidents. The lack of areas intended for adult use is clearly something that was also not considered and is reflected in the low numbers of female and male adult users.

Vegetation is very much valued especially by people that come from other greener parts of Chile, however, there is not enough to create areas for rest and shelter. The demand for more vegetated areas was a predominant issue that people mentioned when we asked about improvements. This was also strongly supported by one of the community leaders, pointing out the only thing that could save the park is increasing the vegetation.

“The key improvement I would like to see is substantially increased expanses vegetation transforming the area into a lush green oasis”.

There is a problem with street dogs and vandals destroying vegetation; this needs to be addressed through education and exploration of more creative design solutions to better respond to user needs.

While the location of the park seems to satisfy most of the community, the community leaders had a different opinion. For them, the location is inadequate and prevents the appropriation of the park by the community. In addition, high traffic use on Las Americas Avenue was identified as a safety problem.
“No, the park is not well located and this has been a concern from the beginning. Before they built the houses, they showed us the site development plan, and we asked if the reserve area for the park could be located in the interior part of the lot and not at the edge of our housing complex. The reason for not changing the location was that the houses could not be moved, because of geographical reasons and also, that was the best allocation in order to achieve the quantity of houses required for this community. This was a disappointment because if they had located the park in the interior of the lot, the park would have been on a local street and all houses would have been in front of the park. Thus, with that decision, the neighbours could have been stronger in taking care of the park.

“Now, nobody cares about the park. It’s in front of a busy arterial, creating safety issues, and shares boundaries between two different social housing complexes.”

The social environment of the area, represented in the interviews, asked residents if they liked the area and how well they interacted with their neighbours. Here, the community was not an asset; most of the people that live there, rent and have lived there for no longer than 6 years. The trade off with renting is the high turnover of people in the area, making it more difficult to create relationships within the neighbourhood. In addition, the lack of communal facilities is not promoting social interaction. Most of the respondents have little or no interaction with their neighbours.

The population is composed of families made up of from three to seven members ranging in age from newborn to nineteen years old, but predominantly toddlers from one to six years and teenagers from nine to sixteen years. From interview with community leaders, we realized that a high percentage of Aymara families live in the neighbourhood.

“Our neighbourhood population is composed mostly of Aymara people who originally were from towns in the interior of the region and migrated to the city.”
Most of the interviewees like the neighbourhood because it is quiet, although there were some comments raised about safety of the area after dark. Comments related to street dogs, alcohol, and drug abuse where also mentioned.

Most visits to the park are family related social activities about once or twice a week. Some of them commented they preferred to go to Iquique, where they could find more diverse activities. When they were asked what made them come to the park, respondents mentioned that it was a place closer to home, and the only open space available in the neighbourhood with amenities and vegetation. Other answers included that the park had quiet areas to rest or walk, sit or engage in physical activities.

Most of the interviewers were with females, 20 to 40 years of age, and males, 30 to 60 years of age.
CHAPTER 5: Proposed Planning and Design Framework

“You never change things by fighting the existing reality. To change something; build a new model that makes the existing model obsolete” R. Buchminster Fuller

As mentioned previously, in Chile, the provision of urban open spaces is mandatory by law when subdivision plans or new housing complexes are approved. Developers, have to allocate a percentage of land for urban open spaces such as green or civic areas, road systems and public facilities. Unfortunately, there is no specified timelines or enforcement or minimum design requirements to meet. Consequently, a piece of land is reserved by developers as, spare land where houses cannot be built, thereby transforming these areas to underutilized sites that become the focus of delinquency and dumping, without any benefit to the community.

Without having any policy, guidelines or process that could guide the implementation or improvement of the UOS in areas with high social vulnerability, make the investing of public and private funds going on intuition and feedback from municipal authorities. For that reason, the main goal of this thesis is to propose a design framework that will guide and inform government, municipal authorities, planners and designers in the planning and design process of more adequate urban open spaces in low-income communities in Chile.

This chapter will focus on explaining what are the key aspects and components of the proposed framework and will suggest how they can be applied.
5.1 Proposed Framework

The proposed framework is an organizational tool that contains key aspects and essential components that may guide and inform government, municipal authorities, planners and designers in the implementation of more adequate urban open spaces in under-utilized areas in low income communities in Chile. From literature reviews, precedents and the case study, 4 emerging aspects were identified as critical components, namely: provision of UOS, spatial organization, program and design qualities. Additionally, each of them has its own key components.

Provision of UOS

- The lack of quantitative and qualitative methods in Chile to evaluate the existing condition of the UOS in low income communities.

- A standard approach was introduced by planners to ensure a minimum provision of different types of urban open spaces, like parks, to satisfy recreational needs. It is useful to measure the performance of a city as it relates to certain minimum requirements but quantitative approaches can be misleading.

- Equal access to public facilities like UOS is needed

Key considerations: variety of UOS, developed % of UOS, ratio, 1000 inhab, Sociodemographics.
Spatial Organization

- Better understanding of UOS location and distribution could lead to important decisions in investment, planning and design. Ideally, there should be better proximities between where people live and work, and the goods and services needed to fulfill their daily requirements (Talen, 2010).

- Urban Open Spaces, when well distributed, can help to achieve sustainability and equity goals. Distribution requires locating facilities in places where many social groups can benefit or have access (Talen, 2010).

- Achievement of equity, in the distribution of public resources, is extremely important in countries like Chile, where extreme levels of inequity and segregation exist between low income and wealthy families.

- Connection between proximity and quantity of parks has positive outcomes such as walkability, neighbourhood quality and other benefits (Talen, 2010).

Key considerations: proximity, connectivity, diversity, local population demands.

Program

- Program is one crucial element for the success of the UOS. To guaranty that people stay, there must exist, certain activities and qualities that make them want to stay.

- Amenities in UOS can have a critical impact on the social vitality of the space (Jacobs 1961).

- Opportunities for social interaction exist close to schools, in a park or at the corner grocery store. The existing amenities in a deprived neighbourhood will reinforce ties between community members.
• Activities, physical planning and layout must consider promoting good layout and program so as not to generate user conflict.

Key considerations: Sociodemographics, socioeconomic status, gender

Design Qualities

• Designing for user needs on the basis of socio economic characteristics of a specific population (has become established practice in geographic literature).

• Design and planning are crucial to support structures for how we live, work and move across the landscape. Planning has a crucial role to play, protecting existing UOS from new developments but also ensuring that the existing ones are of appropriate quality and serve the needs of the existing population.

• Design alone is not enough to create successful urban open spaces (Carr et al. 1992). Addressing user needs is critical in effective design and should be considered at the beginning of the design process.

Key considerations: Safety, comfort, diversity, flexibility.

Considering that every community has its unique blend of social and economic characteristics, a more holistic approach in the provision, implementation and repair of UOS, in Chile, is needed. This could be achieved by combining the best available methods, processes and techniques. As previously mentioned, this framework is proposed with the aim of starting the discussion, in Chile, of how we should be implementing or repairing existing UOS specially targeted to low income communities. Every component has its quantitative or qualitative indicator to measure amount, quantity, quality, location and proximity of UOS at different scale.
Municipal authorities, planners and designers need to develop their own standards and guidelines supported by their unique geography and culture. Good practices may be helpful as a reference, but may not be applicable elsewhere and could be misleading if they are not well thought out. Designing for user needs will vary by open space types and context and it is widely accepted that well–designed UOS can create positive benefits for communities.

This framework is a work in progress. It is flexible and totally modifiable; it will be required to build consensus with community members and could be adapted to each specific city or neighbourhood. Its components are simple and easy to understand and apply by municipal authorities, designers or other members of the community interested in assessing the current conditions of their UOS.

This framework is not a complete organizational tool, but the aim is to start with a proposal that could rethink how things have been done in Chile and how things could be improved in the future. This tool could be a strategic element to assist planning authorities, municipalities or government members when they have limited funds and need to guarantee that funding will be well spent.
Figure 37: Diagram of proposed framework.
In this part of the chapter, the design framework will be applied at the city and the
neighbourhood scale to the existing City of Alto Hospicio in Chile. By doing so, this research
looks to evaluate how the city is performing in relation to the themes proposed in the design
framework. In addition, as previously mentioned, in Chile there is no metrics in place to
ensure a minimum provision and quality of different existing urban open spaces, so some
metrics are proposed too.

5.2 Applying the Framework to Alto Hospicio, Chile

5.2.1 Gathering Data

The structure of Alto Hospicio is the result of a combination of different urban growth
processes. Its initial configuration was a group of rural agricultural lots along the old access
road to Iquique, parallel to the aqueduct that brings water to Iquique, forming a linear
structure establishing the foundation of the city. In 1989, social housing construction started
on what is now the downtown area of Alto Hospicio, so this configuration of housing
developments, by aggregation, created a relatively concentric radius, but without a
consolidated urban core. In 2001, social housing complexes, driven by the government,
started to spread in a massive way without relationship between each other thus, adding to
the problems of irregular settlements in the areas of La Pampa, La Negra and El Boro and
creating what is now Alto Hospicio. This urban area is divided into two zones by highway A-16, creating a fragmentation between the north and south of the city.
The urban fabric of the city of Alto Hospicio is characterized by a fairly homogeneous structure of residential buildings (social housing) whose height does not exceed two stories and denotes a high density but in extension through sprawl. There are only two areas of the city where buildings exceed the height representing 4 to 8 stories, but this is an exception.
For the purpose of this analysis, the city was divided into 5 districts or areas mainly defined by the phases of settlement, parcel structure and type of existing buildings. (See Figure 41 the districts)

Figure 41: Districts, Alto Hospicio, Chile. (Base Map by Millahuala 2012. Used by permission)

Las Parcelas (1) is the first phase in the establishment of Alto Hospicio along the old route to Iquique and is characterized by large agricultural plots of land along the aqueduct that carry water to Iquique. This area is composed of 76 blocks with a total area of 392.9 hectares and 2,896 inhabitants with a density of 9.2 inhabitants / ha. (Census 2002)

La Tortuga (2) is the area located northwest of the intersection between the freeway (Route A-16) and Las Parcelas Avenue. It is the more established residential area of Alto Hospicio with a clear street network and one clear building pattern of single-family semi-detached homes of one or two-storeys. These complexes of social housing, created by the government, formed this pattern. This area is composed of 437 blocks with a total area of 276.1 hectares and 32,170 inhabitants with a density of 195.2 inhabitants / ha. (Census 2002)
The industrial areas (3) are located around the main two freeways along the old route to Iquique (A-616) and the existing one, A-16. It is also characterized by large lots of land to accommodate industrial uses such as materials for the mining industry, sulfur and boron. This area is composed of 31 blocks with a total area of 223 hectares with no inhabitants, except for workers (Census, 2002).

The self-construction area (4) is located in the southwest part of the city between the freeway and La Pampa. This area is characterized by bigger lots than the government housing projects because this area was a pilot project for self-construction. This area is composed of 68 blocks with a total area of 36.77 hectares and 3,701 inhabitants with a density of 99 inhabitants / ha. (Census, 2002).

The areas of the Integrated Plan (5) were conceived through the process of regularization of informal settlements in the three sub-areas in Alto Hospicio: La Pampa, La Negra and El Boro. These areas are characterized by single family, semi-detached homes of one or two storeys and is densely populated. There are 304 blocks with a total area of 209.5 hectares and 14,863 inhabitants and a density of 130.5 inhabitants / ha. (Census, 2002)

Figure 42: Land Uses, Alto Hospicio, Chile. (Base Map by Millahuala 2012. Used by permission)
The predominant land use in Alto Hospicio is residential with small retail at the neighbourhood level. Commercial use tends to be located on arterial streets, such as Los Condores or Los Alamos Avenue close to main intersections and activities, and in the downtown area. The industrial areas are located at the north and southeast parts of the city close to the freeways (route A-616 and A16) and at the outskirts of the city. Institutional or public buildings such the municipality, hospital, schools, etc. are located in the downtown area of La Tortuga with some in La Pampa, La Negra and El Boro. The urban open spaces or green and civic areas are spread throughout the city with most of them suffering a high stage of deterioration and decline. As the main area of this research is concerned with this latter land use, a whole section will be dedicated to this topic.

![Figure 43: Street system, Alto Hospicio, Chile. (Base Map by Millahuala 2012. Used by permission)](image)

The city of Alto Hospicio street network is strongly divided into north and south by freeway A-16 (east-west direction), creating difficulties in the internal connection because it is classified as one of the most important freeways in the region serving as the major access to the city. The general configuration of the street network throughout the city is based on the grid pattern which makes the traffic and circulation system very easy. However, there are still certain areas of the city where the streets are not yet paved. The arterial roads are Los Condores, Los Aromos, Los Alamos, Chijo, Las Parcelas and Las Americas Avenue. Most of the streets in Alto Hospicio are very generous in size and width.
There are 23.6 ha of formal designated urban open spaces in Alto Hospicio corresponding to green and civic spaces such as parks, plazas, playgrounds and sport fields. Of this number, 9.4 ha (40%) are developed and 14.2 ha (60%) are undeveloped. Developed UOS are defined in this study as the spaces that were formally nominated by subdivision or other official plans and are implemented by the Municipality, the community or other institutions.

The estimated population of Alto Hospicio today is 94,254 inhabitants (Census, 2012) and this translates into a ratio of 1m² per inhabitant or 0.09 ha of open space per 1000 inhabitants. Compared to the North American standard of 1.1 ha per 1000 inhabitants and the World Health Organization standard of 9m² per inhabitant, Alto Hospicio is far below the international standard.
Figure 45: UOS in Alto Hospicio, Chile. (Base Map by Millahuala 2012. Used by permission)

Figure 46: Type of UOS in Alto Hospicio, Chile.(by the author)
Three hectares of additional open space (30,019 m²) was identified and is comprised of reclaimed space by the community and land dedicated to traffic medians by the municipality.

The most important reclaimed urban open space is a market created by the local community in an abandoned ravine, previously a dumping site. This market is 0.8 ha (8,040 m²) and not only serves as a platform for exchange of goods and products but it plays a more important role as a place for social encounters and face-to-face interaction, that ultimately creates a sense of community.

At the outset, this activity was not endorsed by the municipal authorities and was a source of constant conflict between the community and officials. Ultimately, it was so successful in attracting people from all over the region that municipal authorities decided to provide the basic infrastructure to ensure continuance of the market and boost the economy of the city.

Another parcel of land classified as open space is agricultural lands and a plantation of olive trees at the edge of the North West part of the city. This area will not be considered in this study because this land is privately owned and managed. Among the existing urban open spaces in Alto Hospicio: 36 are developed, 25 correspond to green spaces such as plazas and playgrounds (the most common); 8 are civic spaces, the square being the most predominant, and only 3 are leftover abandoned pieces of land that were reclaimed by the community.
Select a Neighbourhood

The main criteria for choosing an area at the neighborhood scale, is the deficit of UOS, the ratio of open space v/s population and the density of the 5 districts previously defined (See Table 5: Data Districts in Alto Hospicio, Chile.)

<table>
<thead>
<tr>
<th>District</th>
<th>Designated UOS / ha</th>
<th>Developed UOS / ha</th>
<th>Developed %</th>
<th>Population</th>
<th>Inhab/ha</th>
<th>ha /1000</th>
<th>m²/ inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Las Parcelas</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2,896</td>
<td>9.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>La Tortuga</td>
<td>6.2</td>
<td>2.9</td>
<td>47</td>
<td>32,170</td>
<td>105.2</td>
<td>0.09</td>
<td>1.08</td>
</tr>
<tr>
<td>Industrial areas</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Self Built</td>
<td>2.0</td>
<td>0.7</td>
<td>35</td>
<td>3,701</td>
<td>99</td>
<td>0.16</td>
<td>1.9</td>
</tr>
<tr>
<td>Integrated Plan</td>
<td>15.5</td>
<td>3.7</td>
<td>23.8</td>
<td>14,663</td>
<td>130.5</td>
<td>0.2</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Table 5: Data Districts in Alto Hospicio, Chile.
The table indicates that La Tortuga, in comparison with the Integrated Plan, is performing lower in the calculation of ha per 1000 inhabitants with 0.09 compared with 0.2 ha. In contrast, La Tortuga has a higher amount of square meter by inhabitant with 1.8 m² compared with 0.4 m² in the Integrated Plan areas. As a result, both ratios in the Integrated Plan are far below the international standards of square meters per persons and ha per 1000 inhabitants (see Figure 49).

![Figure 49: Districts with ratios per UOS, Chile.](image)

As previously mentioned, in 2002 Alto Hospicio experiment, a fast increase of population and with the purpose of regulating the precarious situation of housing and poverty, three areas, as part of the Integrated Plan, were planned and developed under government special funding. So far, no non-evaluation of this program has been done.

The main criteria in selecting one of the three areas of the Integrated Plan that was examined in greater detail at the neighbourhood scale was the per capita measurement, deficit of UOS and population density.
Table 6 shows that El Boro and La Pampa performed similarly in the measurement of ha per one thousand inhabitants with 0.21 ha, but La Pampa has 2.1 m² per inhabitant in comparison with the 2.4 m² of El Boro. This explained the higher density of La Pampa. For that reason, and because the area was the starting point of the implementation of the Master Plan of Public Spaces in Alto Hospicio, La Pampa will be analyzed at the neighbourhood scale.

<table>
<thead>
<tr>
<th>District</th>
<th>Designated UOS / ha</th>
<th>Developed UOS / ha</th>
<th>%</th>
<th>Population</th>
<th>Ha /1000</th>
<th>m²/ inh</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Boro</td>
<td>2.4</td>
<td>0.5</td>
<td>20</td>
<td>2.278</td>
<td>0.2</td>
<td>2.4</td>
</tr>
<tr>
<td>La Negra</td>
<td>5.1</td>
<td>1.6</td>
<td>23</td>
<td>4.001</td>
<td>0.4</td>
<td>4.5</td>
</tr>
<tr>
<td>La Pampa</td>
<td>8.03</td>
<td>3.4</td>
<td>25</td>
<td>11,708</td>
<td>0.2</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Table 6: Data Integrated Plan Alto Hospicio, Chile.

Figure 50: Ratios UOS, Integrated Plan Alto Hospicio Chile.
La Pampa

La Pampa is located in the southwest corner of Alto Hospicio and has a total area of 83.23 ha with a population of 11,708 (Census, 2002). Today, the estimated population is around 15,727 with an increase of approximately 4,019 inhabitants over the last 10 years.

The urban fabric is characterized by a homogeneous structure of two-storey single family semi-detached houses resulting from government housing plans and self-build housing projects. La Pampa is a direct result of the application of social housing programs, executed through individual projects without generating either a spatial relationship or connection between each other, consequently, this has created many gaps of undeveloped land that are the focus of dumping and delinquency. A deficit of urban open spaces and public facilities is thus the predominant condition in the urban fabric and the residents are predominantly lower income families.

Figure 51: Urban Fabric La Pampa, Alto Hospicio Chile. (Base Map by Millahuala 2012. Used by permission)
The predominant land use in La Pampa is low density residential with small retail at the neighbourhood scale. The area also houses some important public buildings such as the Hospital, the public gymnasium and swimming pool, a few schools and daycare centres. Minor grocery stores tend to be located in the main arterial corridors of Las Americas and Gabriela Mistral.
The general configuration of the street system is a grid pattern and has two main arterials: Las Americas (north-south) and Naciones Unidas (west-east) that form an interconnected system with the local streets.

Figure 54: Street network. (Base Map by Millahuala 2012. Used by permission)

Figure 55: Arterial street views (by the author)
Determine Quantity

There are twenty designated UOS in La Pampa, and only 45% have been developed for the community. Only one has a name, and that is Las Americas Park. For the purpose of this study, the remaining spaces have been numbered and named. (See Figure 56)

Of the nine developed UOS, two of them are green spaces designated as neighbourhood parks and playgrounds: Singapur Plaza (12) and Gabriela Mistral (20) (see figure xx). Three of the nine UOS are civic spaces where the predominant surface is concrete for sport fields. They are Mirador Norte (2), Central (9) and Sur (18). Three of the nine are a mix of green and civic spaces. They are Las Americas Park (15), the Hospital Square (3) and the Gladys Marin Median (7). Lastly, one of the nine, numbered (1), was designated as reclaimed space developed by the community. This space was the location of the original farm-flea market, Lo Valledor, on the street at the entrance to La Pampa.
The quantitative analysis conducted at the city scale, to measure open space per capita, is an effective way to identify what issues are critical to address, but can be misleading at the smaller scale. Researchers in Spain (Hernandez et al, 1996) and in Chile (PULSO 2006) are proposing that the optimal per capita measurement should be distributed based on a hierarchy of scales. This is done by identifying the units of scale, for example, local, neighbourhood, district, city and giving them a radius of action, an approximate quantity of inhabitants, housing units and approximate area. Based on this study, a per capita measurement and estimated size of UOS is proposed in the Figure 57 at the different scales of the city. This is useful to determine if the provided existing UOS are far below the city scale. However, if we look in detail at the neighbourhood scale, the required amount of open space may be fulfilled.

Figure 57: Ratio of UOS / per capita / 1000 inhabitants.(Base Map by Millahuala 2012. Used by permission)
5.2.3 Measuring Location and Distribution

The first task is to collect available data. The information comes from existing comprehensive plans, ordinances and etc. Community input at this stage is helpful to include their vision and desired outcomes. Next step is to create a base map that includes basic features at the city scale. Identify areas or districts with similar characteristics.

In this step determine quantity by mapping existing UOS types, identify the deficit of UOS by mapping developed and undeveloped UOS. For the provision of UOS it is important to consider socio-demographics variables.

In order to identify best location for UOS we must measure proximity to UOS using a pedestrian shed of 500 m and 800 m depending on site or neighbourhood scale. Pedestrian connectivity should be evaluated to provide real access to UOS and avoid physical barriers.
A pedestrian shed of 500 m (1/4 mile) was made starting from each UOS to identify how many people had walkable access to them. Secondly, land uses were mapped to see how connected they were to their communities. The findings were, that overall, most of the housing units, with the exceptions of the ones located in the far southwest part of the site (Figure 59), had access to at least one park. It is important to mention that six of the nine developed UOS are located in central locations. However, three of them are at the edges of the sites with half of the pedestrian shed covering part of the cliff or vacant land.

Figure 59: Left: Diagram of location/proximity. Right: Diagram of location/connectivity. (Base Map by Millahuala 2012. Used by permission)

Once we have identified, at the neighbourhood scale, how many UOS are developed, how they are performing in terms of per capita measurement, location or access, we need to explore in more detail, their quality. The developed UOS may be situated in the right location and have the correct size and every household may have access, but the quality of the UOS may be so poor they are underused. For that reason, a performance evaluation instrument (see figure 61) was developed to determine the quality and the existing program in the UOS in La Pampa. A systematic evaluation, like this, can provide valuable information to determine how the space is being used.
5.2.4 Assess Program and Quality

Figure 60: Framework - Step 4 and 5

The first task is to collect available data. The information comes from existing comprehensive plans, ordinances and etc. Community input at this stage is helpful to include their vision and desired outcomes. Next step is to create a base map that includes basic features at the city scale. Identify areas or districts with similar characteristics.

In this step determine quantity by mapping existing UOS types, identify the deficit of UOS by mapping developed and undeveloped UOS. For the provision of UOS it is important to consider socio-demographics variables.

In order to identify best location for UOS we must measure proximity to UOS using a pedestrian shed of 600 m and 800 m depending on site or neighborhood scale. Pedestrian connectivity should be evaluated to provide real access to UOS and avoid physical barriers.

In this phase assess existing programming at the neighborhood scale and evaluate performance. Next is to identify population, socioeconomic status, stage of life, and desired alternative programs with a variety of activities.

In order to assess the quality of UOS at the neighborhood scale, a quality performance evaluation is made that evaluates safety, comfort, diversity and flexibility.
UOS Performance Evaluation Card

The performance evaluation is divided into three parts and includes basic information such as location, context, type, area, qualitative aspects and program.

The qualitative section was developed based on existing research principles of what makes good quality UOS (PPS, CABE, etc) and considers fourth major categories: safety, comfort, diversity and flexibility that were previously explained in Chapter 3. Each of these categories has subsets of attributes that the space must possess to qualify as a safe or comfortable place and they were measured based on a good, adequate or poor scale. Further information and more detail about each of these can be found in the Appendix C.

Figure 61: UOS Performance Evaluation Card
Then, the results were compared in a matrix showing that one of the nine developed UOS in La Pampa is good quality, four are adequate and four of them are poor quality. (See Figure 62)

<table>
<thead>
<tr>
<th>Quality of Urban Open Space in La Pampa</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A Safety</strong></td>
</tr>
<tr>
<td>Natural Surveillance</td>
</tr>
<tr>
<td>No signs of Vandalism</td>
</tr>
<tr>
<td>Good lighting on site</td>
</tr>
<tr>
<td>Access and control</td>
</tr>
<tr>
<td>Security presence</td>
</tr>
<tr>
<td><strong>B Comfort</strong></td>
</tr>
<tr>
<td>Good Places to sit</td>
</tr>
<tr>
<td>Choices of places to sit</td>
</tr>
<tr>
<td>Appropriate weather protection</td>
</tr>
<tr>
<td>Clean and free of litter</td>
</tr>
<tr>
<td>Vegetation</td>
</tr>
<tr>
<td>Amenity</td>
</tr>
<tr>
<td><strong>C Diversity</strong></td>
</tr>
<tr>
<td>Many types of activities</td>
</tr>
<tr>
<td>Use by different users (child-adult-elderly)</td>
</tr>
<tr>
<td>Variety of programs</td>
</tr>
<tr>
<td><strong>D Flexibility</strong></td>
</tr>
<tr>
<td>Same space is used for other activities</td>
</tr>
<tr>
<td>Different users at the same time</td>
</tr>
<tr>
<td>Vacant space available for unplanned program</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Lo Valledor Market</th>
<th>Minister Norte</th>
<th>Hospital Plaza</th>
<th>Ciudad Anita</th>
<th>Minister Central</th>
<th>Singapore Plaza</th>
<th>Las Américas Park</th>
<th>Minister Sur</th>
<th>Gabriela Matral</th>
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<tbody>
<tr>
<td>1</td>
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</tbody>
</table>

Figure 62: Matrix of Assess Quality
<table>
<thead>
<tr>
<th>N</th>
<th>NAME</th>
<th>SCALE</th>
<th>TYPE</th>
<th>CATEGORY</th>
<th>SIZE [m²]</th>
<th>DENSITY [hab/ha]</th>
<th>AMENITIES</th>
<th>PROGRAM</th>
<th>QUALITY</th>
<th>IMAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lo Valledor</td>
<td>Neighbourhood</td>
<td>LOS</td>
<td>Market</td>
<td>816</td>
<td>185</td>
<td>Adequate</td>
<td>Poor</td>
<td>Adequate</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>2</td>
<td>Mirador Norte</td>
<td>Local</td>
<td>Civic</td>
<td>Sportfield</td>
<td>2,500</td>
<td>345</td>
<td>Poor</td>
<td>Adequate</td>
<td>Poor</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>3</td>
<td>Hospital Square</td>
<td>City</td>
<td>Civic+Green</td>
<td>Square</td>
<td>3,418</td>
<td>185</td>
<td>Adequate</td>
<td>Poor</td>
<td>Adequate</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>7</td>
<td>Gladys Marin</td>
<td>Neighbourhood</td>
<td>Civic+Green</td>
<td>Median</td>
<td>13,423</td>
<td>204.8</td>
<td>Adequate</td>
<td>Poor</td>
<td>Adequate</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>9</td>
<td>Mirador Central</td>
<td>Local</td>
<td>Civic</td>
<td>Plaza</td>
<td>2,057</td>
<td>345</td>
<td>Poor</td>
<td>Adequate</td>
<td>Poor</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
</tbody>
</table>

Figure 63: UOS Performance Evaluation Cards Summary
<table>
<thead>
<tr>
<th>N</th>
<th>NAME</th>
<th>SCALE</th>
<th>TYPE</th>
<th>CATEGORY</th>
<th>SIZE</th>
<th>DENSITY</th>
<th>AMENITIES</th>
<th>PROGRAM</th>
<th>QUALITY</th>
<th>IMAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Singapur Plaza</td>
<td>Local</td>
<td>Green</td>
<td>Plaza</td>
<td>3,902 m²</td>
<td>185 hab/ha</td>
<td>Adequate</td>
<td>Adequate</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Las Americas Park</td>
<td>Neighbourhood</td>
<td>Civic+Green</td>
<td>Park</td>
<td>14,976 m²</td>
<td>179 hab/ha</td>
<td>Adequate</td>
<td>Adequate</td>
<td>Adequate</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Mirador Sur</td>
<td>Local</td>
<td>Civic</td>
<td>Plaza</td>
<td>5,628 m²</td>
<td>345 hab/ha</td>
<td>Adequate</td>
<td>Adequate</td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Gabriela Mistral</td>
<td>Local</td>
<td>Civic+Green</td>
<td>Plaza</td>
<td>3,760 m²</td>
<td>268 hab/ha</td>
<td>Adequate</td>
<td>Poor</td>
<td>Poor</td>
<td></td>
</tr>
</tbody>
</table>

Figure 64: UOS Performance Evaluation Cards Summary
5.2.5 Community Needs Assessment

After all is done a Needs Assessment have to be done with the community to decide the future conditions of the existing under-utilized sites. In this particular case of this research there was no time to prepare needs assessment with the community of Alto Hospicio. Although this topic needs further research to investigate what are the most appropriate spaces for this particular community, the previous steps are the benchmark to start rethinking better ways to plan and design UOS for Low income communities.

Figure 65: Community Need Assessment - Step 6
5.3 Final Evaluation

After implementation of the framework, secondary questions proposed in this research were possible to answer.

How do we know if there is enough UOS and it is of the right quality?
Where should UOS be located?
And what is the right type and program?

There are not definitive answers to these questions but they will definitely depend on the context. There is no unique recipe. It will vary depending on the existence of available land, pattern of use, budgets and many other factors. But, in an effort to provide some benchmarks to guide the elaboration of guidelines or policy in Chile, some standards can be proposed.

5.3.1 Adequate Provision

There is no fixed quantitative standard applicable as a general rule, but it seems that the quota of UOS per person or inhabitants per hectare is the most used way to determine or evaluate how cities are performing in terms of providing UOS for their inhabitants. But, this standard must be applied in conjunction with qualitative standards that are equally important. The quantitative analysis conducted in Alto Hospicio, at the city scale, is an effective way to identify what issues are critical to address, but can be misleading at the smaller scale. Researchers in Spain (Hernandez et al, 1996) and in Chile (PULSO 2006) are proposing that the optimal per capita measurement should be distributed based on a hierarchy of scales. This is done by identifying the units of scale and giving them a radius of action, an approximate quantity of inhabitants, housing units and approximate area. Based on this study, and after reviewing other guidelines and ordinances, a per capita measurement relating to ha per 1000 residents and estimated size of UOS is proposed at both the neighbourhood scale and at city scale, as indicated in the Table 7 and 8.
Table 7: Proposed Standard per 1000/Inhabitants

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CANADA</th>
<th>USA</th>
<th>UK</th>
<th>SPAIN</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playground</td>
<td>0.1-0.2 ha</td>
<td>0.2-0.3 ha</td>
<td>0.1-0.5 ha</td>
<td>0.1-0.5 ha</td>
<td></td>
</tr>
<tr>
<td>Neighbourhood park</td>
<td>0.4-0.8 ha</td>
<td>0.4-0.8 ha</td>
<td>0.4-0.5 ha</td>
<td>1.0-2.0 ha</td>
<td>0.5-1.0 ha</td>
</tr>
<tr>
<td>Community park</td>
<td>0.4-0.8 ha</td>
<td>2.0-3.2 ha</td>
<td>2.2-2.6 ha</td>
<td>5.0-15 ha</td>
<td>1.0-5.0 ha</td>
</tr>
</tbody>
</table>

Table 8: Proposed Desirable Area

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CANADA</th>
<th>USA</th>
<th>UK</th>
<th>SPAIN</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playground</td>
<td>0.2 ha</td>
<td>0.2-0.3 ha</td>
<td>0.1-0.5 ha</td>
<td>0.2-0.3 ha</td>
<td></td>
</tr>
<tr>
<td>Neighbourhood park</td>
<td>2.4 ha</td>
<td>2.6 ha</td>
<td>1.2 ha</td>
<td>2.6 ha</td>
<td></td>
</tr>
<tr>
<td>Community park</td>
<td>3.2-10 ha</td>
<td>10 ha</td>
<td>5-15 ha</td>
<td>3-10 ha</td>
<td></td>
</tr>
</tbody>
</table>

Figure 66: Proposed Standard of UOS for Low Income Communities in Chile
5.3.2 Adequate Location and Distribution

Location is one of the most important characteristics to consider in the provision or implementation of UOS. They should be located, preferably where people live and not in places where people cannot gain access. Preferred locations are in the heart of the community where all pedestrian movement and action occurs. In addition, UOS are considered well located when there exist enough density of land uses and people to support them.

As previously mentioned and based on Talen’s (2010) research, better proximities between where people live and work, and the goods and services needed, have many positive outcomes. Furthermore, UOS should be located at a reasonable distance from home, a key factor in proximity consideration. To determine a good location, one method was identified and determined as knowing the average distance that members of a community are willing to travel. After that, it will be required to identify the number of housing units within walking distance to the UOS. The closer people live to UOS, the more likely then are to use them.

After review of North American and the European distance catchment areas, from the residential area to the nearest UOS, the average area that people are willing to travel is between 200 to 500 m, (five minute walk distance). In Chile there is no standard in place so the proposed maximum distance at the Neighbourhood scale is 500 m (see table 3). The distance will increase with scale of the UOS, the farther away they are, the modes of transportation start to change and it gets more difficult for people to use them every day. In addition, if they are situated along main streets or close to transit hubs where people flow into them, this will generate more impact and use.
### Table 9: Proposed Service Area

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CANADA</th>
<th>USA</th>
<th>UK</th>
<th>SPAIN</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playground</td>
<td>200-400 mts</td>
<td></td>
<td>400 mts</td>
<td>100-500 mts</td>
<td>500 mts</td>
</tr>
<tr>
<td>Neighbourhood park</td>
<td>800-1,600 mts</td>
<td>400-800 mts</td>
<td>600-800 mts</td>
<td>500-1,000 mts</td>
<td>800-1,000 mts</td>
</tr>
<tr>
<td>Community park</td>
<td>1,600 mts</td>
<td>1,600-3,200 mts</td>
<td>1,000 mts</td>
<td>1,000-2,000 mts</td>
<td>1,600 mts</td>
</tr>
</tbody>
</table>

### Figure 67: Proposed Location and Distribution
5.3.3 Adequate Program and Quality

In depressed environments repairing, and providing UOS can play an important role in creating a climate of confidence in the neighbourhood, thereby improving the physical and mental health of the inhabitants. Disadvantaged or low income communities are most in need of access to good quality urban open spaces and an opportunity to socialize in safe outdoor settings. Although, the scope of this research didn’t addressed needs of identity, cultural recognition and participation, this author believes that improving the physical conditions of urban open spaces will balance the historical inequity within this population and will create places for social interaction. Ideally, the program and quality of UOS will have to incorporate the provision of communal facilities such as training sites, community gardens, night school, gymnasiums, etc. but, of course, it has to be previously discussed with the community in order to generate real benefits and alleviate poverty.

The emphasis here is on provision of an adequate program targeted to user needs. Provisions of areas of activities needed within the communities are more welcome than standardized provision. Important factors to consider here are age, gender and income. Peoples preferences change with time according to their stage in life. With thorough knowledge of existing demographics and with information of local needs, different tools or techniques, previously mentioned, could be used to assess the demand of the existing population.

Lastly, the provision of communal facilities along continuous movement routes will contribute to the establishment of relationships between people, places and different activities. Proposed types are presented here (see fig. 3) in association with more desirable activities. Of course their implementation will depend on the size, scale and objectives of the specific community.
Figure 68: Proposed Types and Activities

Safety

Comfort

Diversity

Flexibility

Figure 69: Attributes Quality

Figure 70: Programs that update skills, create social interaction (by the author)
CHAPTER 6: Conclusions

My review indicates that the planning and design of UOS in low-income neighbourhoods resulted in no single solution applicable to all communities. Every country, city, and neighbourhood is different in term of demographics, history and geographical context. Although there are wide array of qualitative and quantitative methods that may be used to help us learn about the issues facing these developments, a standard approach is needed to ensure a minimum provision of UOS is applied to address the imbalance of historical inequity within these communities. However, this approach alone does not provide information about the needs of a specific community, so a balance between quantitative or qualitative approaches is required.

The results in La Pampa indicated that there was enough quantity of UOS and most of them were located in the right place. In fact half of UOS were underdeveloped, and created dumping sites and insecure areas within the neighbourhood. The way UOS are designed in Chile is deficient and poor quality. Most significantly the program of these spaces was standardized without considering demographics, gender and socioeconomic status. In fact, this was found critical to consider in order to assure the appropriate use of the UOS. In addition, this study found that most of the UOS were not safe, comfortable, diverse and flexible. These are attributes that the space must possess to qualify as good quality. Most of them didn’t have good lighting on site and presented signs of vandalism. Litter was an issue and there were very few places with weather protection. In addition, it didn’t accommodate multiple users. Many users of the UOS were male and teenagers. It appeared that the layout didn’t accommodate different uses to respond to current needs.
This research suggests that this situation could be further improved and would benefit from a rigorous planning and design framework for UOS for low-income communities. This framework would fill the gaps and help inform government, municipal authorities, planners, and designers in the implementation of more adequate urban open spaces in Chilean’s low-income communities.

Both process and physical design were found essential, but the process might be more important to address first because it will set up the rules of what is critical to consider before starting with the design of UOS.

In terms of minimum design qualities and program of the UOS, there needs to be an emphasis and effort invested in addressing the planning and creativity of these spaces. Current proposed facilities may not be fulfilling the needs of the current low income community and it may be useful to assess what type of programs are needed and how these could support and strengthen local capabilities.

There are some good models, existing in Colombia and South Africa (see appendix H ). Such models can be helpful to identify what has worked well in different places, however, they are not perfect application in all contexts. Good practices may be helpful as a reference and can inform current best practices, but their application in another context, without considering local realities, may be limited. Considering that every community has its unique blend of social and economic characteristics, a more holistic approach is needed by combining the best existing methods when planning and designing urban open spaces.

In addition, it is necessary to rethink how we are planning and designing UOS for low income communities in Chile in a way that generates benefits and guarantees that public funds are well spent. This study demonstrates that the critical aspects to consider are spatial, social and economical. However, difficulties were found balancing these three complex dimensions. Therefore, a holistic approach to upgrading deprived neighbourhoods is suggested and more likely to result in a successful, self-sufficient community.
However, these ideas are difficult to implement without developing public policy that recognizes the importance and benefits that UOS provides in deprived neighbourhoods and set them as a priority. This means that Chile has to elaborate on it UOS policies determinate the appropriate level of provision, define and classify UOS recognizing the existence of reclaimed spaces, and provide minimum requirements to improve the existing deficit and their poor quality of them in low-income neighbourhoods.

In addition, this policy should put emphasis on the development and revitalization (repair) of new and existing UOS in our cities, with an emphasis on programs that prioritize vulnerable areas. These programs can be seen as tools for upgrading deprived neighborhoods, however they need to be complemented by a strategy that incorporates social, spatial, economic strategy, and supported by governance. This clarity in policy and programs will help to generate greater discussion about the desired benefits of UOS and lay the foundation for improving resident’s quality of life.

6.1 Areas of Further Research

This work has been adapted from the literature but needs to be validated and calibrated with the community. This research found that community participation is an essential ingredient in creating well-utilized and sustainable urban open spaces. Participation is a process of working together to achieve a common goal. Encouraging and eliciting local involvement is critical in instilling the community’s sense of equality while recognizing and addressing their needs. I learned during my interviews and observations of Chilean UOS, that if a community does not feel represented in the space, they will not value and use them. I found that this frequently resulted in the abandonment and deterioration of the UOS.
The benefits of participation are widely known and recognized. Research indicates that residents actively involved in the development process will value and maintain their physical environments (Becker, 1997; Sanoff, 2000). However, in the Chilean communities I assessed, there was a lack of community participation or consultation. Further research in this area should be considered in the development of UOS.

My research also indicates that UOS needs to be reevaluated in terms of its quality and how it is resourced and serviced. Providing basic facilities and amenities in these environments is clearly not standardized. As I realized during my study, this is a complex process that involves assessing a community’s demographics and socioeconomic status is critical to determining necessities in order to fulfill the needs of low income communities. Involving the community in the planning and design phase is instrumental to understanding what their UOS and facilities needs are. The community’s involvement may also result in a stronger sense of community and increased utilization of the space.

Other research topics that are important to consider in further research may be:

- **Participatory and Community design as methods for addressing user needs.**
  This approach focuses on engaging the community in a process that will empower them in the process of designing their UOS to ensure that spaces will have special meanings for users. (Hester, 1990).

- **Urban Open Spaces as networks or systems.**
  As stated by the Urban Task Force (1999)” To achieve urban integration means thinking of urban open spaces not as an isolated unit-be it a street, park or square-but as a vital part of the urban landscape with its own specific set of functions “(Rogers, 2005, p.23).
• Informal Urban Open Spaces.

This study focused on the designated UOS in low income neighbourhoods that are underdeveloped but acknowledges that informal places outside homes, grocery stores, schools or work in between UOS are equally important for the community. They create opportunities within the neighbourhood to expand social interaction, exchange ideas and smiles with other members of the community. These places were identified as “third places “ by Ray Oldenburg (Orum & Neal, 2010) and are valued as sites that can develop a sense of community where people meet on a regular basis, on sidewalks, at corners, or even in front of the houses.
References


Dormann, F. (2010). *Analysis on Three Informal Settlements in Africa- Khayelitsha (Cape Town), Kibera (Nairobi) and Manshiet Nasser (Cairo)*. University of Wien.


Simmons, R. (2009). Good design: the fundamentals. CABE.


Appendix A: Behaviour Data Collection

<table>
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<tr>
<th>Gender</th>
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<tr>
<td>Time used</td>
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</table>

Site:
Date:
Day:
Arrival time:
Departure Time:
Weather:
Appendix B: Las Americas Park Use Analysis
Block 2
Appendix C: UOS Performance Evaluation Card

A. BASIC INFORMATION
Name: Lo Valledor Market

B. CONTEXT / LOCATION
- LAND USES:
  - Commercial
  - Institutional
  - Residential
  - Industrial
  - Other
- Site Plan

C. QUALITY
- SAFETY:
  - Natural surveillance
  - No sign of vandalism
  - Good lighting on site
  - Access and control
  - Security presence
- COMFORT:
  - Good place to sit
  - Choice of places to sit
  - Adequate weather protection
  - Clean and free of litter
  - Vegetation
  - Accessories
- DIVERSITY:
  - Mix of uses
  - Use by different uses
  - Variety of programs
- FLEXIBILITY:
  - Same space is use for other activities
  - Different users at the same time
  - Space set up for planned program

PROGRAMMING
- Amenities
- Site Plan
- Programming

QUALITY
- Good
- Adeq
- Poor
A. BASIC INFORMATION
NAME: Mirador Norte

B. CONTEXT / LOCATION

C. QUALITY
A. SAFETY
- Natural surveillance
- No signs of vandalism
- Good lighting on site
- Access and control
- Security presence

B. COMFORT
- Good places to sit
- Choices of places to sit
- Appropriate weather protection
- Clean and free of litter
- Vegetation
- Amenities

DIVERSITY
- Many type of amenities
- Used by different users
- Variety of programs

D. FLEXIBILITY
- The same space is use for other activities
- Different uses at the same time
- Vacant space set up for unplanned programs

SITE PLAN

Site Amenities:
- Trees and planting
- Seats
- Tables
- Drinking fountain
- Garbage bins

Amenities:
- Commercial
- Institutional
- Residential L
- Residential M
- Mix use (C+H)
- Industrial
- Others

Bus stop
Clear access
A. BASIC INFORMATION
Name: Shijapar Plaza

B. CONTEXT / LOCATION
LAND USES
- Commercial
- Institutional
- Residential L
- Residential M
- Mixed (C+R)
- Industrial
- Others

- Site Plan
- Bus stop
- Clear access

C. QUALITY
A. SAFETY
- Natural surveillance
- No signs of vandalism
- Good lighting on site
- Access and control
- Security presence

B. COMFORT
- Good places to sit
- Choice of place to sit
- Appropriate weather protection
- Clean and free of litter
- Vegetation
- Amenities

C. DIVERSITY
- Many type of amenities
- Use by different users
- Variety of programs

D. FLEXIBILITY
- The same space is use for other activities
- Different uses at the same time
- Vacant space set up for unplanned programs

QUALITY
- Good
- Adeq
- Poor

SITE PLAN
- Green
- Circ
- GC
- LOS
- Category: Plaza

PROGRAMMING
- Street Performance
- Sport and recreation
- Playground
- Community Garden
- Food court
- Washrooms
- Community facilities
- Others

AMENITIES
- Trees and planting
- Seats
- Tables
- Drinking fountain
- Garbage bins

Amenities
- Bike racks
- Shelter
- Light
- Others

Area: 2,002 m2
Appendix D: Letter of Contact Community Leaders

Date
Address or email potential Interviewee

Re: “Planning and designing urban open spaces (plazas and parks) in Alto Hospicio, Chile”

Dear………. (Name)

My name is Paula Leyton I am a graduate student at the University of British Columbia in Canada and due to your involvement in the community organization, we are writing to invite you to participate in an important study relate with usage of neighborhood parks and plazas in Alto Hospicio Chile.

The purpose of my research is to identify planning and design factors that contribute to creating better parks and plazas in Chile. Using Alto Hospicio as a case study, this research will evaluate how urban open spaces function and will seek to find strategies on how this condition could be improve.

I am hoping that you will agree to a confidential interview, which will be conducted by the researcher (Paula Leyton). The interview is expected to last approximately 20-30 minutes. This interview will take place at the time and place of your convenience if you would like to participate in this research. A consent form for your participation is enclosed for your review. I will be contacting you by phone or email to see if you would like to participate in this research. If you would like to participate a time and location will be arranged. You may ask any questions that you may have regarding this research at this time. Please see in the consent form all relevant contact information is included.

At your schedule interview time, the enclosed consent form will be reviewed again with the researcher, at which point if you still have more questions that one’s could be answer at that time. If you would still like to be interviewed, you will be asked to sign the consent form at that time and retain a copy for yourself.

Through your participation you will have contribute toward better understanding of the usage and future planning of neighborhood parks and plazas in Alto Hospicio and other communities in Chile. We look forward to hearing from you.

Best regards,

Paula Leyton Elizalde
MASLA candidate
School of Architecture and Landscape Architecture
University of British Columbia.
Appendix E: Interview for Community Members

Hello, my name is Paula Leyton I am a graduate student at the University of British Columbia in Canada. I am asking for your input in an important study related to usage of neighborhood parks and plazas in Alto Hospicio Chile.

The purpose of my research is to identify planning and design factors that contribute to create better parks and plazas in Chile. Using Alto Hospicio as a case study, this research will evaluate how urban open spaces function and will seek to find strategies on how this condition could be improve.

If you decide to participate in this research I will do an informational interview asking you 16 questions related with the use or lack of use of the space. All the information will be audio recorded with your permission and your comments and opinions will be treated with absolute confidentiality. Also, the treatment of the information will be used only in this research. Taking part in this study is entirely up to you. You have the right to refuse to participate in this study. If you decide to take part, you may choose to pull out of the study at any time without giving a reason and without any negative impact.

Questions

1. How far from this open space (plaza or park) do you live? (Blocks)

2. Do you rent or own your house?

3. How long you have lived in this neighbourhood?

4. What do you like about living in this neighbourhood? Is there anything you dislike about living here?

5. How many members are in your family? Spouse, children, other family members etc. (Kids age)

6. Are you working?
7. How often do you or your family members come to the open space (plaza or park)?
   (Daily basis or only the weekends)

8. Do you think this open space (plaza or park) is well located and accessible to the whole community?

9. What activities do you do here?

10. What are the attractions that make you come here and not come to other place?

11. What do you think are the most positive features of this place?

12. What do you think are the least positive features of this open space (plaza or park)?

13. What activities would you like to add to attract you to come more often?

14. Do you interact with other members of the community in formal or informal activities?

15. Do you feel safe in the open space (plaza or park)?

16. What are your ideas about how this (park or plaza) could be improved to serve the whole community? (more community facilities, site amenities and infrastructure, more landscaping (Trees, plants), etc?)

Thank you very much for your time. Your knowledge and insights will be very helpful to this research.

Sex: _____ Female _____ Male

Age range: _____ 18/20 _____ 20/30 _____ 30/40 _____ 40/50 _____ more than 50
Appendix F: Interview for Community Leaders

Hello, my name is Paula Leyton I am a graduate student at the University of British Columbia in Canada. I am asking for your input in an important study related to usage of neighborhood parks and plazas in Alto Hospicio Chile.

The purpose of my research is to identify planning and design factors that contribute to create better parks and plazas in Chile. Using Alto Hospicio as a case study, this research will evaluate how urban open spaces function and will seek to find strategies on how this condition could be improve.

If you decide to participate in this research I will do an informational interview asking you 17 questions related with the use or lack of use of the space. All the information will be audio recorded with your permission and your comments and opinions will be treated with absolute confidentiality. Also, the treatment of the information will be used only in this research. Taking part in this study is entirely up to you. You have the right to refuse to participate in this study. If you decide to take part, you may choose to pull out of the study at any time without giving a reason and without any negative impact.

Questions
1. How long you worked with this neighbourhood organization?

2. Do you work with other neighbourhood organizations?

3. How many members does this neighbourhood organization have?

4. In what initiatives does this neighbourhood organization do in the community?

5. Did you or the community members participate in the design process of [this-name it] open space (plaza or park)?

6. Does your organization make active use of [this park/plaza]

7. How often do you see local people coming to the open space (plaza or park)? (Daily basis or only the weekends)
8. Do you think this open space (plaza or park) is well located and accessible to the whole community?

9. What activities people do you observe people doing here?

10. What are the attractions that you think make people come here and not come to other place?

11. What do you think are the most positive features of this open space (plaza or park)?

12. What do you think are the least positive features of this open space (plaza or park)?

13. Do you know of any efforts of local people to organize themselves to create improvements in this open space (park or plaza)? (garbage collection, trees planting, etc)

14. What activities would you think that will attract community members to [this park/plaza] more often?

15. Do you see interaction between community members in formal or informal activities?

16. Do you think people feel safe in the open space (plaza or park)?

17. What are your ideas about how this (park or plaza) could be improved to serve the whole community? (More community facilities, what types? active recreation, productive spaces, more landscaping (Trees, plants) etc.?)

Thank you very much for your time. Your knowledge and insights will be very helpful to this research.

Sex : _____ Female _____ Male

Age range : _____ 18/20 _____ 20/30 _____ 30/40 _____ 40/50 _____ more than 50

Neighbourhood Organization number: ____________
Appendix G: Consent Form

"PLANNING AND DESIGNING URBAN OPEN SPACES (PLAZAS AND PARKS) IN ALTO HOSPICIO, CHILE"

1. STUDY TEAM

Principal Investigator
Cynthia Gilling, Professor, School of Architecture and Landscape Architecture
University of British Columbia (emailxxxx; phonexxxx)

Student Investigator
Paula Leyton Elizalde, Master Advanced Studies in Landscape Architecture
(MASLA) candidate at the School of Architecture and Landscape Architecture at
University of British Columbia (emailxxxx; phonexxxx)

This research is part of the student thesis project to obtain the MASLA degree.

2. STUDY PURPOSE AND PROCEDURES

The purpose of this research is to identify planning and design factors that contribute to create better urban open spaces (UOS) for neighbourhoods in Chile. Using a case study approach in Alto Hospicio, this research will evaluate how urban open spaces (Parks and Plazas) function and will seek to find strategies on how this condition could be improve. The results of this study will be a guidebook or manual that could guide government staff (municipal authorities, planners and designers) to plan and design better urban open spaces for communities in Chile.

With this study we want to understand why people decide to use or not use the urban open space in the select neighbourhood in Alto Hospicio and identify what are the predominant factors that make this happen. We are inviting people like you that live in neighbourhood because you are the ones that use open space on daily basis and we think your expertise and opinion is very useful for this study.

You will be asked to participate only one time lasting no more than 20 or 30 minutes. Your answers may be audio tape and this will be used for analysis purposes in the researcher thesis. If you don’t want to be record you have the option not to be recorded.
3. STUDY PROCEDURES
What happens if you say “yes, I want to be part of the study”? If you decide to participate in this research we will do an informational interview asking you 16 or 17 (depends community member or leaders) questions relate with the use or not use of the space. All the information will be audio recorded with your permission and your comments and opinions will be treated with absolute confidentiality. Also, the treatment of the information will be used only in this research.

4. THE STUDY RESULTS
The results of this study will be reported in a graduate thesis and may also be published in the final product the guidebook or manual.

5. POTENTIAL RISK OF THE STUDY
There is nothing in this research that could harm you.

6. POTENTIAL BENEFITS OF THE STUDY
Participants of this research may benefit from this study through the final product- a guidebook for planning and designing better urban open spaces in low income neighbourhoods in Chile will be provided to municipal authorities and community leaders as request.

7. CONFIDENTIALITY
The identities of all people who participate in this study will remain anonymous and will be kept confidential. Identifiable data and audio tapes will be stored securely in a locked metal filing cabinet in the researcher office at UBC or in a password protected computer account. All data from individual participants will be coded so that their anonymity will be protected in any reports, thesis documents, and presentations that result from this work.

8. PAYMENT / COMPENSATION
We are very grateful for your participation. However, you will not receive compensation of any kind for participating in this study.

9. CONTACT FOR INFORMATION ABOUT THE STUDY
If you have any questions or concerns about what we are asking of you, please contact the principal investigator or one of the study staff. The names and telephone numbers are listed at the top of the first page of this form.

10. CONTACT FOR COMPLAINTS
If you have any concerns about your rights as a research subject and/or your experiences while participating in this study, you may contact the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.
11. PARTICIPANT CONSENT AND SIGNATURE PAGE

"Taking part in this study is entirely up to you. You have the right to refuse to participate in this study. If you decide to take part, you may choose to pull out of the study at any time without giving a reason and without any negative impact."

- Your signature below indicates that you have received a copy of this consent form for your own records.
- Your signature indicates that you consent to participate in this study.

Participant Signature __________________________ Date __________

Printed Name of the Participant signing above __________________________

Student Investigator’s Signature __________________________ Date __________
Appendix H: Introducing Precedents

Introduction

International experiences that have tackled the challenges associated with the plan and design of urban open spaces for low-income neighbourhoods will be explored. Countries like South Africa and Colombia are good examples of how improvements to the open space of low income communities are being used as a strategy for creating better built environmental conditions, thereby improving the quality of life of their inhabitants. Each precedent will include basic information and history, project description and goals, best practices and achievements and the applicability to Alto Hospicio in different contexts. The review of best practices will be instrumental in developing a set of principles that promote better planning and design of urban open spaces for low-income populations.

a) Khayelitsha, South Africa

Country : South Africa
Province : Western Cape
Municipality : Cape Town
Area : 43.51 km2
Population : 800,000

Basic Information and History

Khayelitsha is located 30 km from Cape Town and is part of the Southeast Region also known as the Cape Town poverty trap. It was formed in 1985 and is the youngest and last established township of Cape Town (Bauer 2010). The city was built to accommodate an increasing influx of Eastern Cape migrants who were living on the outskirts of Capetown and to prevent overcrowding in existing townships (Dormann, 2010). Kayelitsha was defined by government officials as a dormitory town in which residents had to use public transport to get to the Cape Town Business district.
Khayelitsha means "our new home" in isiXhosa (one of the eleven official languages in South Africa), and housed between 800,000 and 1.0 million inhabitants representing approximately 11% of the total population of the City of Cape Town (Dormann, 2010). The settlement is characterized by “increasing crime rates including sexual and domestic violence, poverty, high unemployment and serious health problems like HIV/AIDS and Tuberculosis” (Bauer 2010). In addition, informal settlements comprise 64% of households.

In 2005, the City of Cape Town, in partnership with the German Federal Ministry for Economic Cooperation and Development (BMZ) and the German Development Bank (KfW), created an innovative urban renewal program for Khayelitsha called Violence Prevention through Urban Upgrading Program (VPUU).

**Project Description and Goals**

*Violence Prevention through Urban Upgrading Program (VPUU)*

The main goal of the VPUU program was to improve the living conditions of the community using social engagement and planning as tools to fight crime. The aim was not only to reduce violent crime and increase safety levels, but furthermore, to upgrade neighbourhoods, improve social standards and introduce sustainable community projects that empower the local residents (City of Cape Town, 2010).

The VPUU concept starts from the premise that: “A sustainable, safe and integrated human settlement can be achieved through capital infrastructure projects, socioeconomic improvements coupled with institutional capacity building and access to public facilities” (Bliss and Zagst , 2011). The project principles are trust, accountability, a participatory and developmental approach, volunteerism, sustainability, mutually beneficial partnership, and local ownership (Bliss and Zagst , 2011).
The strategic approach developed a methodology based on these steps:

(a) baseline Survey of analytical elements of the current situation focusing on perception of crime, business survey, land availability; (b) prioritization of Interventions, a process in cooperation with community members and their representative bodies; (c) development of local area strategy including budget, which informs individual interventions that make up the strategy (d) design of individual sub-projects, (e) implementation of sub-projects, (f) process-oriented monitoring and evaluation, and (g) sustainable community-based operation and maintenance. Implementation is by using, as much as possible, local resources (VPUU website).

The program has three main components: social crime prevention projects financed by community based organizations (CBOs) and resident groups that support crime prevention activities, provision of legal aid, patrolling, library and schools; situational crime prevention that creates positive changes in the physical as well as spatial environment building facilities, and “active boxes”; institutional crime prevention is the third component of the program that promotes local economic development, skills training, the management and maintenance of safe spaces and places.

The situational crime prevention has been addressed by the development of the urban design principles on a “safe node area” based on the principles of crime prevention through environmental design (CPTED). This approach was adapted to the South African context and implemented by the council of Scientific and Industrial Research (CSIR) (Designing Safer places, 2001).

In the “safe nodes areas“ are proposed “active boxes“, small three-storey buildings like community centres strategically located in areas such as parks and would contain offices for NGOs, a caretaker’s flat and a room for patrollers to enhance passive surveillance. Close to the building, under the caretaker’s supervision, is a children’s playground as well as football
pitches used all day by teenagers (OCDE, Bliss and Zagst, 2011). They also include communal facilities such as a community library or youth centre where training courses take place. The main goals of “safe node areas” are to reanimate dark, neglected and dangerous hotspots within the settlement, create space for safe commerce and lastly, to improve and guarantee safety by improving the socioeconomic situation of the residents in these areas (Bauer, 2010).

**Best Practices and Achievements**

*Situational crime prevention*

- Significant improvements to safety and security of the neighbourhoods. The murder rate dropped by 33%, the best in a low income area in Cape Town.
- Highly engaged community participation and stakeholder involvement
- Development of schools into community learning and development centres
- Construction of children’s parks, sports complexes and recreational sites
- Mixed used facilities ranging from work live units to multipurpose centres
- Improve safety and security on the streets by creating safe pedestrian walkways
- Infill housing
- New library that houses an early childhood development area, a study room, local NGO and civic organization offices, and a community hall.

*Social crime prevention*

- The creation of a Neighbourhood Patrol Project that promotes volunteerism and rewards with skills development. More than 420 volunteers received training in conflict prevention techniques.
- The creation of an Anti Rape and Gender Violence Project, that involves around two dozen NGOs working together to provide support for victims as quickly as possible.
- The creation of a Legal Aid Project that advises families on legal problems often concerning tenancy issues.
• The creation of an Early Childhood Development and School Safety Project that supports children.

Institutional crime prevention

• Provided support for 200 small businesses through the provision of training courses
• Almost 1500 residents have received training courses as part of the project’s initiative. These range from computer courses, safety and security, instruction conflict management, and even one on how to obtain a drivers license.
• The funding of more than 80 community projects
• Financial support for thirteen daycare facilities

Applicability

One of the most significant aspects of this initiative is that similar projects could be initiated in other high crime areas and it is more likely that initiatives such as this will be more effective than simply hiring more police to patrol an area.

The ongoing monitoring and evaluation process undertaken by the community and carried out by the project, makes it easier for other groups to replicate as it can outline both best practices as well as initiatives which were unsuccessful.

Summary

The program shows a multi-sectorial approach for the prevention of violence which is very interesting. The outcomes not only include physical improvements in the neighbourhoods, it goes further, creating partnerships between the community and various stakeholders. It supports the community through the provision of various programs such as legal aid, training courses and aid for victims of abuse. In addition, funded community projects create local jobs and prosperity that ultimately was essential to improve the socio economic situation of the community.
The program uses intelligent planning and design strategies such as implementing safe node zones and “active box” concepts to improve the existing deteriorated urban open spaces and concentrates activities associated with the programming that is reducing everyday crime and improving safety in the neighbourhood.

One of the key elements of VPUU program was to empower and involve the residents at earlier stages of the proposed projects to create greater responsibility and pride for their community. Additionally, it offers incentives for training through involvement in volunteer opportunities and prioritizes local organizations when there is a need to operate and manage new facilities.

Overall, the broader perspective on violence has led to the development of a multi-dimensional approach focused on social prevention and physical changes rather than using more police enforcement and prison terms.

Finally, another key outcome of the program is the involvement of different actors (participatory approach) and establishment of partnerships at all levels including Local, Provincial and National Government, various departments within the City, the community, NGOs, the private sector and other support agencies, guaranteeing the VPUU program’s long term success. In addition, the engagement of the local community and it’s residents instills in them a responsibility & pride (for their community) with which they can strongly identify.
b) Medellin, Colombia

Country : Colombia
Province : Antioquía
Municipality : Medellín
Area : 382 km2
Population : 2.249 million

**Basic Information and History**

Medellin is the capital city of the Antioquia prefecture and second largest city in Colombia. This prefecture concentrates 12% of the Colombian population (Blanco and Kobayashi, 2009) with 2.7 million inhabitants. Located in the Valley of Aburra at an elevation of 1,600 meters, the city is surrounded by mountains and the Medellin River cuts through the entire 382 kilometers of the city in a north south direction. During the 1970s and 1980s it was home to the biggest drug cartel in Latin America, gaining a reputation the most violent city in the world.

This is the story about two cites, the “formal” city consolidated along the river valley and the densely “informal” city that grew in the surrounding hills (Smith and Lipps 2011). The northeastern part of Medellin, during 1950s and 1960s, housed the largest informal settlements in the city (Betancur, 2007). The predominant constructions were self-built housing structures occupying almost all the ravines in the area. The irregular form of appropriation encouraged the government to create infrastructure projects (roads) and social housing projects. By the 1980s, the area was more or less consolidated but still very segregated from the main city. The response of the government agencies to interventions in informal settlements, at that time, was minimal, due to difficulties in dealing with crime and delinquency. Lack of police enforcement in the area created an insecure area resulting in high rates of crime, social problems, drugs and poverty. In addition, there was no efficient public infrastructure between areas or neighbourhoods such as street connections, lights and urban open spaces.
**Project Description and Goals**

Between 2004 and 2008 Medellin drove a four part project of radical urban intervention that improved the lives of urban poor living in crowded neighbourhoods on the edges of the city. The first line of intervention focused on education by vastly improving the area’s libraries and parks, placing youth as a priority. The second line of intervention was Proyectos Urbanos Integrales (PUI)/The Integral Urban Project. The goal here was to reconnect isolated areas with the city centre through a cable car system, which in turn created high quality public spaces at the system anchor points. The third line of intervention targeted social housing communities located in dangerous locations. Then all these actions were brought together by the fourth line of intervention, the walkways plan, which included the emblematic streets programs and the lineal Sistemsto and aimed at connecting the city across its various lines of division and segregation (Pieterse, 2011).

Due to the large quantity of projects, this precedent will be focused on the Nor–oriental area (Northeastern area) of Medellin and their urban interventions.

*Proyecto Urbano Integral Nororiental (PUI) / The Integral Urban Project*

The main goal of PUI was to implement a holistic model of intervention which embraces an institutional, physical and social approach, replicable in other areas with similar conditions. The strategy focuses on strengthening community participation; inter-institutional coordination and co responsibility; providing housing, public buildings, public spaces and mobility; environmental restoration; and implementing social development projects (Blanco et al 2009).

The programs were put into action with the assistance of other institutions such as various public entities: the Ministry of Housing and Environment, NGOs, local community-based organizations, and private companies. All these tangible interventions were instigated using participatory decision making processes, social development and capacity-building activities to enhance leadership.
Metro Cable Nor oriental

The Metrocable project is a transportation system introduced in Medellin, that connects the informal urban sector known as comuna Nororiental, located at the northeastern hill of Medellin, with the central Metro system in the formal city through a new massive monocable gondolas system.

The Metro cable project was proposed to overcome difficulties presented by the rugged topography and the density of the northeast part of the city and to reduce commuting time from two hours to seven minutes (Smith and Lipps, 2011). The main goal of the project was to provide transport infrastructure to people living in informal settlements connecting them with the rest of the city and giving them access to jobs, public and goods transport. Metro cable stations were conceived as multifunctional spaces for education, commerce and community assistance. This transportation system is complemented by less ambitious interventions on the ground such as stairways, pathways, parks and squares that help to improve circulation.

The introduction of the Metrocable in one of the most marginalized areas of the country was the beginning of a physical and social transformation within the area, not just in terms of reducing the transport gap between the inhabitants of the peripheral neighborhoods (who commonly needed to walk long distances before being able to access the Metro system or the urban buses network), but also, in terms of recognition of these areas by institutional bodies and even encouraging self-recognition for their inhabitants, who, when commuting by air were able to better observe their neighborhood (Blanco et al 2009).
Best Practices and Achievements

Proyecto Urbano Integral Nororiental (PUI) / The Integral Urban Project

- The project constructs safe public spaces to address urban violence and provide areas for social exchange and meeting.
- The implementation of new public buildings such as libraries, business development centers, and sports facilities. The improvement of existing schools, medical centers and other services that contribute to social development and the alleviation of poverty.
- Addressed is also the restoration and preservation of the environment to lower the risk of natural disasters and to achieve environmental sustainability.

Metro Cable Nor oriental

- Introduction of a new transportation system (gondola) that links steep informal barrios with the Metro and Bus system in the formal city.
- The creation of areas of centrality and community services around the gondola stations.
- Interconnecting these centralities with pedestrian paths, bridges and linear parks to help reconnect formal and informal areas of the city.
- The creation of activity nodes that often include parks and libraries, and a system of open spaces through the tight urban structures of the dense settlements. In addition, the incorporation of community centres, an amphitheater, schools and training centres for the development of small scale industries thereby tapping into community skills.
- All these interventions were accomplished with high design standards. Buildings and UOS were adapted to local conditions such as topography, climate and culture.
Overall the project interventions achieve:

- Generation of 125.000 sq. m of new public spaces
- 18 new parks
- 92% of the work employed community members
- Investment in PUI is four times the Metro cable investment
- 4 pedestrian bridges
- 8 neighbourhoods have a park - for the first time
- 4 pedestrian streets with 2.8 km of linear connection
- A 300% increase in commercial activities in paseo Andalucia
- An increase in community events with community participation
- Drastic reduction of crime rates

Applicability

Significant improvements in low-income neighbourhoods can be achieved through a combination of small scale or local initiatives with city scale interventions. That could be done with planning processes that decide what should be the most appropriate intervention considering topography, context, culture and the needs of the existing community.

The approach to creation of safe urban open spaces that address urban violence and provide areas for social exchange and meeting, can be applied in other deprived or vandalized areas by using a multidisciplinary approach. An holistic model that embraces an institutional, physical and social approach may be more effective in creating long term benefits for the community.

In addition, the appropriate design and program will require direct involvement of the community. If the community supports the initiatives and decides to be part of the projects, they will be more likely to use the space and generate sufficient traffic and that will reduce crime and violence.
The implementation of business development centers, sports facilities and improvement of existing schools, medical centers and other services that contribute to social development and the alleviation of poverty are totally compatible with low-income communities.

**Summary**

In this case, transportation has been central to improving the quality of life in low income neighbourhoods. The spatial, aesthetic and symbolic aspects inherent in the infrastructure enhance and enrich this proposal.

Initiatives like these ones, demonstrated that significant improvements in low-income neighbourhoods can be achieved through a combination of small scale or local initiatives with massive upgrades like transportation systems.

Interventions in the urban fabric providing good urban open spaces generate pride in the community and sense of ownership. Medellin has experienced exceptional civic empowerment.

Local government demonstrates a commitment to act quickly and holistically at different scales. To create organizations and plans to quickly deliver ideas, projects and interventions. Establishment of high design standards and promotion of community participation are also crucial.

The synergy between talented politicians and creative professionals under a progressive leadership has become a model of the promotion of urban progress despite adverse conditions.

The radical urban interventions originally proposed to improve the living conditions and quality of life of the poorest zones of Medellin, created more benefits than were expected. During nine years of the programs, the City’s crime rates drooped and it is now being highly valued by the residents.
The key to Medellin’s success has been investments in integrating lower-income areas with the city centre. Additionally, like other Latin American cities, a lot of progress has been made tackling issues of violence, resentment and dealing with inequities between the formal and the informal city.

Moreover, Medellin has become a model in developing countries around the world of how to promote urban progress despite adverse conditions. Recently Medellin was recognized the “City of the Year (2012) by the Urban Land Institute in the United States.

**Findings and Conclusions**

**Khayelitsha**

- Multi-sectorial approach for the prevention of violence
- Involvement of different actors
- Creation of key partnerships
- Urban Design Principles promoting CPTED.
- Ongoing monitoring and evaluation by the community
- High engagement of the local community.
- Building a sense of ownership

**Medellin**

- Transport has been central to improving the quality of life
- The spatial, aesthetic and symbolic aspects inherent in this transport infrastructure enhance and enrich this proposal.
- Improvements can be achieved through a combination of small scale with massive upgrades like transportation systems.
- Interventions in the urban fabric generate pride in the community and sense of ownership.
- Government commitment to act quickly and holistically at different scales.
• Establishment of high design standards and promotion of community participation.

Conclusions

The different topographies, social and economic conditions, cultural traditions and level of physical development require different strategies.

The strong involvement of government authorities facilitates improvements in some countries and progressive leaders can catalyze effort in others. The absence of government leadership takes a more activist or entrepreneurial approach. (community based organizations)

The focus has to be shifted from the provision of shelter to improvements in infrastructure, transportation, services, amenities and open spaces.

Holistic strategies that consider urban planning tools, crime prevention principles, and community involvement, strong partnerships with community and stakeholders and economic activities have more opportunities to flourish.

On a global level these programs, plans and initiatives contribute to reduction of the worldwide problem of slum formation in urban areas, and aim to achieve the eradication of extreme poverty and establishment of environmental sustainability.

Principles

Multi-dimensional approaches are more effective than single ones because they are more inclusive and tackle various aspects of human life.

Good planning and design decisions are fundamental to the success of a space

By identifying potential nodes of activities, people can determine key interventions

Partnership with other institutions is necessary to build long term relationships
Participation with people in the community is crucial in any improvement of existing conditions.

The creation of jobs or any facilities that increase or generate some income are crucial to improvement of the economic situation.