Growth without sprawl -
Conversion as an instrument for sustainable urban development

Case study Bogotá, Colombia

Von der Fakultät Architektur und Stadtplanung der Universität Stuttgart
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Abstract

Transformation is an intrinsic characteristic of the city. Today, cities around the globe experience the consequences of an urban revolution. While some conurbations undergo processes of deindustrialization, others, mostly in developing countries, are still experiencing the phases of industrialization in the form of an explosive urbanization. The negative effects of urban sprawl are mostly palpable in the destruction of environments, the unnecessary use of resources and an increase of social segregation. Urban sprawl is also linked to the deterioration of centers and to an inefficient distribution of land uses.

Sustainable urban development implies a more environmental and social handling of urban land. An effective strategy to counteract urban sprawl is the implementation of inner urban development by means of conversion, which is understood as a reutilization of brownfields or suboptimally used urban sites by introducing new land uses. Frequent examples of potentially convertible sites are former industrial and military areas, as well as infrastructural sites such as railways and ports.

Many European cities have faced the challenge of turning urban development more sustainable. Stuttgart has demonstrated how inner development is a feasible task when planners are equipped with adequate instruments for implementation. Stuttgart has revitalized innumerable areas which had suffered the effects of postindustrialization and the end of Cold War. The city has become an international paradigm of sustainable development.

In the last two decades, Bogotá has experienced a revolution in terms of urban planning. However, the city has still not realized the importance of stopping urban sprawl. A true sustainable development can only be attained by systematically identifying conversion areas and by managing and promoting their development. Until now, Bogotá has very few examples of conversion projects in spite of its enormous potential for inner development.

Cities must rethink their development strategies and look for paradigms in order to face the ever more complex urban problems. The present work intends to prove that Bogotá not only meets the conditions for implementing conversion measures, but that it also has the legal platform to rethink traditional methods of urban planning. In an investor-oriented city like Bogotá, urban conversion constitutes an instrument for the reduction of demand for new urban land. Conversion also constitutes a chance of improving spatial and social quality. It becomes an opportunity to generate social inclusion by assigning central areas for the development of socially and functionally mixed spaces. In this context, the approach to inner development in Bogotá has a strong social component.

Improving urban quality of life requires new visions. In a rapidly urbanizing world, decision-makers need to develop strategies to make our natural habitat (which is the city) more livable. This work intends to contribute to this objective.

Zusammenfassung

Ein inhärentes Merkmal der Stadt ist Transformation. Städte weltweit erfahren heutzutage die Auswirkungen einer urbanen Revolution. Während einige Städte Prozesse der Deindustrialisierung durchleben, erleben andere, meistens in Entwicklungsländern, Phasen der Industrialisierung in Form von einer raschen Urbanisierung. Dabei werden natürliche Ökosysteme vernichtet, wertvolle Ressourcen verbraucht und soziale Segregation gesteigert. Zudem trägt die Verstädterung der „grünen Wiese“ zum Zerfall der Stadtkerne und zu einer ineffizienten Verteilung der Flächennutzung bei.

Eine nachhaltige Stadtentwicklung verlangt einen umweltfreundlichen und sozialgerechten Umgang mit urbanen Flächen. Eine der effektivsten Strategien, um dem grenzenlosen Wachstum der Städte entgegenzuwirken, ist die Implementierung von Innenentwicklung durch die Konversion von Bauflächen. Konversion versteht sich als die gezielte Umnutzung von Brach- und untergenutzten Flächen. Häufige Beispiele von Konversionsflächen sind ehemalige Industrie-, Bahn- und Militärgelände sowie Häfen.

Viele europäische Städte zielen bereits mit Entschlossenheit auf urbane Konversion. Stuttgart beweist, dass Innenentwicklung möglich ist, wenn notwendige Instrumente zur Implementierung vorhanden sind. Diese Stadt hat unzählbare Flächen konvertiert und sich dadurch als ein internationales Modell der Nachhaltigkeit etabliert.

Bogotá erlebt in den letzten Jahren eine städteplanerische Revolution. Dennoch hat die Stadt noch nicht begriffen, wie notwendig es ist, die Urbanisierung von ländlichem Umland zu stoppen. Obwohl die Stadt eine enorme Anzahl an potentialen Konversionsflächen besitzt, gibt es bisher sehr wenige Konversionsprojekte. Eine wahre nachhaltige Stadtentwicklung in Bogotá ist nur möglich, wenn die Potenziale systematisch identifiziert und genutzt werden.

Die Ziele einer sozialen und umweltbedingten Nachhaltigkeit können anhand eines effizienten Managements urbaner Flächen erreicht werden. Städte müssen ihre Entwicklungsstrategien überdenken und nach Paradigmen suchen, um traditionelle Planungsmethoden in Erwägung zu ziehen. In einer investororientierten Stadt wie Bogotá ist Konversion ein wichtiges Instrument zur Reduzierung der Flächeninanspruchnahme. Zudem ist sie eine Chance zur Verbesserung der räumlichen und sozialen Qualität der Stadt. Darüber hinaus bietet urbane Konversion eine einmalige Gelegenheit, soziale Inklusion in innenstädtischen Bereichen zu fördern, denen sozial und funktional gemischte Flächen zugewiesen werden. In diesem Kontext wäre der der Ansatz einer Innentwicklung in Bogotá durch seine starke soziale Komponente anders als in vielen europäischen Städten.

Die Verbesserung der Lebensqualität in unseren Städten verlangt neue Visionen und deren Realisierung. In einer schnell urbanisierenden Welt müssen Entscheidungsträger Strategien entwickeln, um unser Habitat (die Stadt) lebenswerter zu machen. Diese Arbeit soll dazu beitragen, dieses Ziel zu erreichen.

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I. Introduction

1. Object of the dissertation

Man muß die Städte -oppida- weder geviert,
noch mit hervorspringenden Ecken,
sondern in die Runde -circuitionibus- anlegen,
damit man den Feind von mehreren Orten sehen könne.

Vitruvio **ZEHN BÜCHER ÜBER ARCHITEKTUR** Book I Chapter V

Cities are ever changing objects. They experience constant internal restructuring in response to economic and social pressures. Cities expand, shrink, reach to the sky and to the underground, modify their image and undergo deterioration processes in the course of long spans of time like any other physical object. Kevin Lynch describes the city as temporal art, a construction in space of a very vast scale that allows no control or limitation[1]. "Urban development always means dealing with change; with movement. Change is a characteristic of the cities"[2].

All areas in urban space are affected by deterioration, not only due to the natural fact that constructions and infrastructure degrade with time, but because these eventually stop answering to the changing needs of their inhabitants. Economic, social and demographic changes have a particular impact in this respect. Many towns and cities are characterized by urban sprawl and the fragmentation of their neighborhoods. The pace of current developments, especially in exploding developing cities, presents demanding challenges to today's society[3].

Frequently urban areas are severely affected by wars, natural disasters, simple aging or by what can be more destructive, the mistakes of city planners and politicians. Two factors are determinant for an unsustainable development of the cities: the indifference of the decision makers and their incapacity to prevail over the selfish interests of the land markets. Other well intentioned, although somewhat city harming urban currents from the twentieth century defended the idea that a separation of land uses and the encouragement of low densities were the solution to all the problems faced by urban being (mostly as a reaction to the devastating social consequences of the

[1] Lynch, Kevin. *The Image of the City*. 1960
[2] Wolfgan Tiefensee. In: *Convertible City*. 2006. p. 8
[3] Manfred Stolpe. In: *Deutschlandscape, Deutschlandschaft – Epicenters at the perifery*. 2004. p. 8

Industrial Revolution)[4]. Soon many cities began to lose their central character, and new self-sufficient urban areas in the periphery started emerging.

All these physical changes, some of which take centuries and some months or days, affect the image of the cities and the way their inhabitants experience them. It is a natural ability of humans (and mobile animals in general) to identify, structure and pattern the environment they live in. Therefore, the quality of the space in which their activities take place is closely linked to their well-being. Citizens identify themselves with images and symbols that compose the patterns of a city.

Today, the determining capacity of urban planners and politicians to influence well-being in urban areas is widely accepted. Policies aimed at improving the urban environment can also improve the social life of citizens. "Ecological and social solutions reinforce each other and build healthier, livelier, more open-minded cities"[5]. Social well-being is a direct result of positive physical interventions and policies in the city fabrics. An organized, identifiable environment forms the adequate stage for the development of qualitative communities.

Deindustrialization processes and their consequences in the city have called for a fundamental rethinking of traditional ways of planning, which are subject to the economic forces that have been until now entirely predicated on growth[6]. Many different urban measures are currently being applied in cities throughout the world in the search for a more sustainable urbanism. This general framework has to be filled with creative concepts and innovative solutions coming from private and public actors that work together with compatible objectives. The latest tendencies aim at a city which is not seen as a threat to civilization, but rather a place where it is possible to live in harmony and dignity. The goal is to exploit the most important characteristic of the city, which is its urbanity.

Modern city planners are for example encouraging balanced city densities and mixed land uses, in order to bring back living quality into urban areas that are facing deterioration and to strengthen social cohesion. At the same time, the change from an industrial to a service and information society opens new possibilities for utilizing the existing infrastructure of cities, their buildings, streets and facilities. Planners are identifying the potentialities of inner areas as a way to slow down the urban sprawl, to protect the environment and to improve urban quality in central spaces. The idea is to exploit the full potential of limited spaces, "stretching the spaces between buildings to the maximum"[7]. Potentially convertible zones within the city fabrics, such as old industrial and military areas, ports or railways, are being recycled and integrated into their urban surroundings.

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[4] Powell, Kenneth. *La Transformación de la ciudad*. 2000.
[5] Rogers, Richard. *Cities for a small planet*. 1997. p. 32
[6] Ferguson. In: *Deutschlandscape, Deutschlandscape – Epicenters at the periphery*. 2004. p. 13
[7] Ferguson. *op.cit.* p. 14

Inner development instead of urban extension will be the priority in urban planning in many countries for the next decades[8].

Urban conversion is not a new concept for the city. With its inherent tendency to change, the city has faced cases of reutilization and recycling of areas since its appearance. However, the concept of influencing these transformations is rather new. Planners have the capacity of accelerating change and directing development towards more sustainable and socially-fair urbanism, and this way skipping the phases of physical and social deterioration in the urban fabrics.

The model of the compact European city, "historically aware, environmentally friendly, multifaceted, with attractive public spaces"[9] maintains its actuality today more than ever. To exploit this potential it is necessary to shift the perception we have of the city and to develop a stronger conscience towards a more sustainable urbanism by encouraging conversion in existing urban structures. All aspects of urban life aim at that objective. Families and businesses have escaped from the noisy, unattractive, dangerous city centers for decades. This tendency is changing[10] as people of all ages and lifestyles are realizing the advantages of proximity, community and an urban living. European architects and urban developers are facing the challenges of a restructuring industrial society, rapid demographic changes and an increasingly pluralistic society. These structural transformations demand the production of new urban concepts. Cities are faced with the task of reducing social segregation, protecting the environment and producing qualitative spaces.

The city is the symbol of the complexity of the modern society. The ideal city will probably never exist, but society will never stop struggling towards utopia. In a rapidly urbanizing world, the future of our cities is an unbearable responsibility of today's society.

[8] Scholl. In: *Innenentwicklung vor Außenentwicklung*. 2003. p. 11
[9] Tiefensee. *op.cit*. p. 9
[10] Gruentuch. In: *Convertible City*. 2006. p. 11-15

1.1 Description of the object

The world today is experiencing a time of a radical transformation of its traditional structures. In the new world order, a society of knowledge has replaced the industrial society that characterized the world in the last centuries. The economical forces have conquered the radical political forces that divided the world in two poles. The age pyramid has lost its balance: while some cities shrink, others "explode". Many activities have lost their raison d'être and have fallen into disuse, along with their infrastructure[11]. Today we speak of *globalization* and *post-industrialization* to describe the phenomena that characterize the age in which we are living.

Cities and urban conglomerations around the globe cannot be indifferent to such transformations; on the contrary, they are directly influenced and affected by them. In order to keep up with the permanent transformations, they must constantly adapt to the new needs and customs of their inhabitants. The "deindustrialization" processes demand a fundamental rethinking of the urban structures[12], where until not long ago sprawl was the obvious rule, the simple solution. The question is, how can our cities answer to the new challenges imposed by the new world order? How can they adapt to the transformations?

In an urbanizing world, new solutions must be found to counteract the problems that affect the cities. *Inner development* of urban conglomerations is for example one of the most effective measures to slow down the unlimited urban extension towards surrounding rural lands[13]. Urbanizing the periphery of the cities is proven to generate negative effects on the environment. It also increases the costs generated by the construction of new infrastructure and the need for mobility. Inner development slows down and counteracts the negative effects that urban growth generates[14].

The *conversion* of urban areas that no longer serve the activity for which they were conceived is one of the most effective ways of developing a city interiorly[15]. This can be achieved by introducing new land uses in these spaces and integrating them physically and functionally to their surrounding urban landscape. The new concept encloses as fields of action a densification of central areas, the

[11] TransEuropeHalles. *The factories - Conversions for urban culture*. 2002
[12] Ferguson. *op.cit*. 2004
[13] Ministerium für Umwelt und Verkehr Baden-Württemberg, et.al. (eds). *Innenentwicklung vor Aussenentwicklung - Strategien, Konzepte, Instrumente*. 2003
[14] Stimmann, Hans (ed). *Von der Architektur- zur Stadtdebatte - Die Diskussion um das Planwerk Innenstadt*. 2001
[15] Boeckl, Matthias (ed). *StadtUmbau / UrbanConversion - Recent international examples*. 2003

prioritization of mixed uses, an increase of cultural and historical attractiveness and an improvement of public space[16].

Potentially convertible urban areas are to be found nearly in every city on the globe. These are mostly unused or deteriorated spaces (brownfields, derelict land) within the urban fabrics, inherited from the industrial age that dominated the world order from the Industrial Revolution in the 19th century to the second half of the 20th century[17]. Typical examples of such areas are former industrial sites, ports, airports, stations and railroads; but also former military sites, trade centers, markets or simple residual areas. These are often impenetrable spaces located in central areas, surrounded by consolidated city structures, and therefore in most cases are already equipped with the basic infrastructure. In this context, the costs needed for their redevelopment are considerably smaller than the costs of urbanizing peripheral rural land (even without taking into account external costs).

The realisation of targeted conversion projects in cities of developed countries has proven to generate positive results in the urban landscape and in the way citizens perceive their city, especially in the last two decades of the last century[18]. Whereas in cities of Second and Third World Countries, where demographic growth and therefore the need for conversion are considerably higher, the realization of conversion projects is rather limited and slow[19]. Under these conditions, Third World cities can greatly benefit from the conversion of deteriorated inner spaces, since they possess as a general rule a high potential for conversion.

The final objective of this dissertation is the development of a strategy for the execution of good-quality, sustainable urban conversion projects through a systematic analysis of the cities of Bogotá and Stuttgart. These cities represent the main characteristics of their respective continents and culture. Both have experienced the implementation of urban conversion to different extents, according to their specific reality.

To attain this objective, it is necessary to study the practice of urban conversion in the European and the Latin American cases and to identify the similarities and differences between them by analyzing existing and potential examples. For this, the comparison criteria must be clearly defined, as well as the examples to be compared and the processes in which measures are applied. A systematic method to identify potentially convertible areas needs also to be developed, according to the specific characteristics and socio-economic situation of the place. The result should permit the identification of instruments and the proposal of a strategy for the application of

[16] Becker, Heidede, et.al. (eds). *Ohne Leitbild? Städtebau in Deutschland und Europa*. 1998
[17] Feldtkeller, Andreas (ed). *Städtebau: Vielfalt und Integration - Neue Konzepte für den Umgang mit Stadtbrachen*. 2001
[18] Powell, Kenneth. *City transformed - Urban architecture at the beginning of the 21st century*. 2000
[19] Rogers. *op.cit.* 1998

conversion measures in Third World cities (emphasizing in Latin American cities), taking into account their local characteristics and the specific approach for their redevelopment.

Can international models simply cross borders and be applied in other situations? Successful examples of urban conversion in cities of developed countries should certainly be regarded as models to follow. However, successful foreign urban models cannot be imported to a specific place without first being adapted to its social, economic, political and geographic realities[20]. Such realities should directly determine every conversion project.

In places where the social gap between rich and poor is very wide, a fundamental criteria to be taken into account when planning conversion projects is the identification of the real beneficiaries of the changes generated by their realization. The physical changes introduced by transforming a given space have a direct influence in its economic and social reality. An alteration of the given balance is unavoidable. Can urban conversion promote equality between the inhabitants of a city?

1.2 Objectives

More than a theoretic analysis of a problematic in a given situation, this dissertation intends to develop a strategy to apply urban conversion in third world cities, emphasizing in Latin American cities. Under the premise that conversion is one of the most effective measures to counteract the negative effects generated by urbanization, the analysis intends to generate and propose realistic measures for its execution.

The final objective of the work is to produce applicable instruments and strategies for the implementation of urban conversion in Latin America, taking as reference the European experience on the subject. To attain this objective it is necessary to closely analyze selected examples, which can be considered successful in their outcome. Convinced that international models should be creatively adopted and adapted to specific cases, it is intended to produce a systematic methodology of implementation, taking into account all the factors and criteria that influence conversion measures.

The following is a list of primary and secondary results to be attained and of key questions to be answered throughout the structure of this work:

1. A comprehensive description and analysis of the concept *urban conversion* in theory and practice. This dissertation copes with the existing literature on the subject, as well as with selected examples, in which the concepts are materialized.

[20] Bodenschatz, Harald, *Stadtumbau - Begriffe und Perspektiven*. From: architektur.aktuell (magazine) “Urban conversion - Graz, London, Melbourne, Rotterdam“. 2003

2. Identification of urban conversion examples and an objective analysis of their repercussions. Key questions: Which advantages or disadvantages are found in these examples? Is conversion a solution to all urban problems? Can it be applied in any deteriorated urban area? Does it have negative effects on space or society? In which cases is it not applicable?
3. An exhaustive systematic analysis of the cities of Bogotá and Stuttgart in terms of urban conversion. Of special interest is the attitude of these cities towards the subject. Key questions: To what extent do they react to effects of urbanization? How do they cope with the challenges imposed by a changing society?
4. Design of a method to identify potentially convertible areas and their new uses, according to specific situations. Key questions: Which factors and criteria should be taken into consideration? How can potentiality be measured? Which potential land uses can be taken into consideration for a specific site?
5. Comparison between both case studies using predetermined criteria. Key questions: To what extent can the cities be compared in terms of conversion? Do the cities face similar problems and challenges despite their geographical and cultural realities? To what extent can solutions be shared?
6. Generation of instruments for a critical exchange of models. Key questions: Is it possible to produce a strategy for the execution of urban conversion projects? Do new innovative concepts and terms arise with the proposed strategy? Is it realistic to consider conversion as an adequate solution to the problems caused by urbanization in Latin America?

1.3 Hypothesis

The present work finds its fundaments in the following hypotheses:

1. The modern world is experiencing radical changes in its social and economic structures. Cities around the globe are directly influenced by the global changes and must adapt constantly to the new needs and customs of their inhabitants.
2. Inner urban development should be prioritized by urban planners to counteract the negative effects that the urban sprawl generates. In a rapidly urbanizing world inner development is the most sustainable alternative.
3. Wastelands, brownfields and deteriorated urban areas, inherited from previous industrial, military and other uses, are to be found in nearly any city on the globe, regardless of their physical or cultural characteristics.
4. The conversion of wastelands, brownfields and unproductive areas by introducing new revitalizing uses is one of the most effective ways of developing a city in its interior. Implementing conversion practices increases substantially the quality of urban spaces.
5. The realization of conversion projects in developed countries has proven to generate excellent results on the sites and positive impacts on the rest of the city. At the same time, in cities of underdeveloped countries, where the need for slowing down the urban sprawl is higher, the implementation of conversion projects is limited and slow.
6. Bogotá and Stuttgart are two cities which represent the main characteristics of their respective continents and cultures. By exemplarily analyzing these two cities, general conclusions can be attained, which can be applicable to cities of similar characteristics.
7. Latin American cities with their high demographic growth, possess a great conversion potential. While many urban conglomerations throughout the globe tend to shrink, the urbanizing phenomenon in Latin America does not slow down.
8. Each convertible area has a different potentialities determined by its intrinsic characteristics. A systematic method to identify such potentially convertible areas can be developed, according to their physical qualities.
9. The characteristics of the convertible site and its surroundings should influence the type of land use to be adopted in a future development.
10. Successful urban foreign models cannot be imported without being adapted to the realities of a specific place, especially to its social, economic, political and geographic determinants. Such realities should directly determine every conversion project.

11. Different reasons lead to the incapacity of city administrations to implement conversion measures. In many cases it is the lack of political interest in other the force of the economic markets of land. Very often it is the absence of instruments or knowledge. A strategy must be developed to implement urban conversion projects in undeveloped countries.

1.4 Methodology

The dissertation is structured in four main parts. An introductory section (chapter 1) defines and describes the scope of the dissertation. The second section consists of three chapters that deal with the theory and practice of urban conversion with emphasis on European examples. This section also includes a case studying from Stuttgart, emphasizing on the legal and methodological aspects of inner development and urban conversion in the city. The objective of the first two sections of the work is to identify and categorize all the elements and instruments that have made urban conversion so successful in European cities, particularly in Stuttgart. The information obtained here should help to define a strategy for the implementation of inner development measures in Bogotá, as an example for other Latin American cities.

The third section of the research is dedicated to the city of Bogotá (Chapters 5 and 6). The first part of this section is a case study carried out in the city. The case study in Bogotá follows a similar structure of the case study from Stuttgart. This chapter analyses the city in terms of urban conversion especially from the legal and methodological points of view. The following chapter analyses the potentials inner development and urban conversion in Bogotá. The research intends to prove the hypothesis that the city has a great potential for inner development through the conversion of certain areas throughout the urban space.

Finally, the last section of the work is the proposal of the strategy for Bogotá, based on a direct comparison with Stuttgart. The resulting conclusions determine the instruments for the application of a series of strategies for urban conversion in Bogotá, and allow the generation of recommendations and guidelines for the implementation of long-term sustainable development concepts. Additionally, this chapter intends to highlight the economic and social differences between the European and the Latin American realities as determinants for the implementation of foreign strategies and their adaption to the local situation.

Each section of the dissertation has a specific character, and therefore, different investigating methods, research materials and sources were employed for each one of them, as follows:

Chapter 1 - Object of the dissertation

- Delimitation of the scope of the paper through discussions with the supervisors
- Recollection of literature on the subject

Chapters 2 and 3 - Theory and practice of urban conversion

The most important task in this chapter is to get familiarized with the topic urban conversion. To reach this objective, the following steps were taken:

- Identification and analysis of the existing bibliography regarding the topic
- Familiarization with the different urban currents and theories
- Systematic identification of the main features to be observed and analysed in urban conversion examples
- Identification, analysis and visits (where possible) of different conversion examples

Chapters 4 and 5 - Case studies

In order to analyze the cities of Stuttgart and Bogotá systematically, the following tasks were carried out:

- Identification and analysis of existing bibliography about the two case study cities
- Selection of conversion examples or potentially convertible areas
- Visit to the sites
- Interviews with city administrators, planners and citizens, especially with the persons affected by the measures
- Gathering of maps, pictures, statistics, documents, laws

Chapter 6 and 7 – Potentials, instruments and strategies

- Analysis of the information gathered in the previous chapters
- Determination of instruments and criteria for comparison
- Analysis of concepts and identification of transferable and non transferable models
- Definition of strategies for conversion
- Definition of guidelines

1.5 Urban conversion today

In the last decade urban conversion and inner urban development became the center of the international discussion on the urban problematic. Many consider the implementation of these concepts as the future of cities, or even as the only solution to the urbanization and environmental problems that the earth is facing[21]. Today, these concepts define a clear phase in the history of urban planning, phase which is supported in practice and theory by a respectable group of authors, planners, theorists and “prophets”.

[21] Urban Task Force. *Towards an urban renaissance - Final report of the Urban Task Force*. 1999

Since the sixties, authors concerned with the future of the cities have left a legacy through their works. The failure of the modern ideals from the first half of the 20th century stimulated planners worldwide to begin assuming a more critical position towards the decisions that affect the cities. Names such as Lynch, Jacobs, Cullen, Rossi or Rowe are still today being quoted and their works influence the present discourse more than ever.

The list of published works related specifically to the topic *urban conversion* is in the meantime considerably extensive. They range from simple enumeration and description of internationally renowned projects to a more critical display of urban theories and strategies. Many of these works have reached the level of classics; they are often quoted and admired. Others are controversial and condemned, but not less influential.

The following is a selection of some of the most influential authors and publications related to the thematic urban conversion:

- Harald Bodenschatz - *Stadterneuerung im Umbruch*[22]
- Matthias Boeckl - Stadtumbau - Urban conversion
- Oriol Bohigas - Barcelona
- Andreas Feldtkeller - *Städtebau - Vielfalt und Integration*[23]
- Jan Gehl - Life between buildings
- Dieter Hoffman-Axthelm - *Anleitung zum Stadtumbau / Die dritte Stadt*[24]
- Rem Koolhaas - Mutations
- Léon Krier - *Architecture - Choix ou Fatalité*[25]
- Kenneth Powell - City transformed
- Richard Rogers - Cities for a small planet
- Thomas Sieverts - *Zwischenstadt*[26]
- Hans Stimmann - *Von der Architektur zur Stadtdebatte*[27]
- Urban Task Force - Towards an urban renaissance
- Bernd Scholl – *Innenentwicklung vor Außenentwicklung*[28]

[22] Urban renewal in change
[23] Urban development – Diversity and integration
[24] Introduction in urban development / The third city
[25] Architecture – Choice or fatality
[26] The intermediate city
[27] From architecture to the city debate
[28] Inner development over outer development

1.6 Justification

The decision for the selection the cities of Bogotá and Stuttgart to carry out the case studies follows mainly practical reasons. Among them:

1. Accessibility to literature
2. Accessibility to the responsible persons of the public authorities and planners
3. Possibility of personally visiting the sites

Stuttgart is a perfect representative of the European city. In terms of urban planning, Stuttgart implements a strict and avant-gardist policy of inner development, which has become an international model world wide. Bogotá is a classic example of the Latin-American city, experiencing a series of phases of development since its foundation by the Spanish almost 500 years ago.

It is not the intention of this work to compare the Stuttgart and Bogotá in terms of size, history or physical context. The two cities face radically different realities. However, supported on the hypothesis that nearly every city on the globe possesses potentially convertible areas, regardless of their size and context, it is possible to elaborate a systematic analysis and an objective comparison between them in terms of urban conversion.

II. Theory and practice of inner urban conversion in Europe

2. Theory of urban conversion

Nicht daraus besteht die Stadt,
sondern aus Beziehungen zwischen
ihren räumlichen Abständen und den
Geschehnissen ihrer Vergangenheit.

Italo Calvino **DIE UNSICHTBAREN STÄDTE**

2.1 The industrial city vs. the post-industrial city

2.1.1 Industrialization

In order to comprehend the scope of the concept "urban conversion" it is necessary to search for its roots within the evolution of the urban theory. If the practice of conversion is to be strictly associated with the post-industrial society, its origins can only be explained by looking into the process of industrialization.

According to *the encyclopedia of the city*[29], industrialization marks the most fundamental economic, social, institutional, political and environmental transformation of human life in recorded history. This period is described as the process in which a country or a region is transformed "from its traditional agricultural production towards mass production based on modern technologies". It was a turning point in the history of humanity[30], made possible through an acceleration of economic growth resulting from a rapid economic, technical and social transformation[31]. Industrialization appeared originally in Britain in the second half of the eighteenth century with the Industrial Revolution, and it spread throughout the world, originally within Europe, subsequently in North America, Japan and Australia; in Latin America it appeared in the 1930s and the rest of the developing world after World War II.

Almost every country on the globe has experienced to some extent a rapid growth of productivity and an improvement of living standards through industrialization

[29] Caves (ed). *The encyclopedia of the city*. 2005. p. 258
[30] Benevolo. *Die Geschichte der Stadt*. 2000
[31] Couch. *Urban Renewal - Theory and Practice*. 1990. p. 126-128.

processes. Industrialization has caused profound changes in the socioeconomic and spatial structures of society. It has contributed to changes in consumption, it has changed income distribution generating inequalities, it has caused uneven development between countries and it has altered the economic organization of the society. Industrialization has also been the main source of environmental degradation, having as a response the general claim for sustainable development.

One of the most determining legacies of industrialization is the phenomenon of mass migration from rural areas to the large cities, which accelerated urbanization and changed the spatial patterns of the cities. Industrialization not only revolutionized economies, it also affected the internal structure of many cities. The introduction of factories into what were previously trading centers "generated a concentration of production and commercial activities in the central areas, while the functional specialization of the different parts of the city became clear due to the separation of home and work[32]". The industrial city began increasingly to be shaped by the competition for land. At the same time, the social class of the workers was segregated from the other social classes and relegated to slums.

The concept industrialization is directly associated with modernity, including all its positive and negative aspects. As a reaction to the problems caused by the transformations, humanity has been forced to find solutions to counteract the immense forces of industrialization. The practice of urban planning appears with the industrial city as a remedy to ameliorate the unhealthy living conditions by introducing regulations on the use of land.

[32] Caves. *op.cit.* p. 256

2.1.2 The garden city and the fall of the urban centers

Urban conversion deals with concepts such as densification, rehabilitation of city centers and mixture of uses. The discussion on these topics has its origins in the failure of the industrial city. One century ago, cities were regarded as a threat to humanity and as a reaction urban planners started searching for solutions that generated serious repercussions in the quality of urbanity.

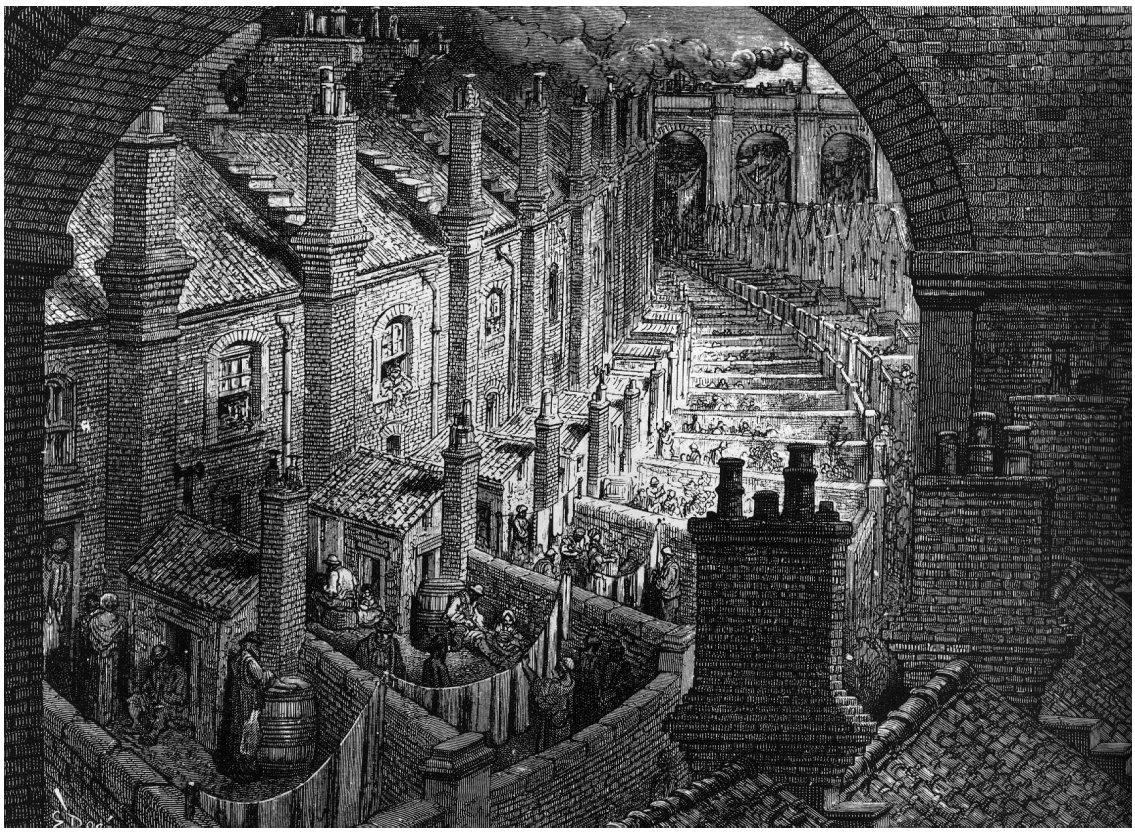
Two factors experienced in the end of the nineteenth century are relevant to this dissertation, since they can be regarded as the origins of some of today's urban problems. The deficit in housing and worsening the living conditions of the poor during industrialization implied the introduction of a new concept for the replacement of the cleared slums. Minimum standard dwelling was firstly developed in Britain as the quickest and cheapest solution to the urgent need for massive housing. In this period city centers began modifying their image. They began to experience a general reduction of inner city housing, which was replaced by more profitable office and shopping activities. This had as a consequence that central areas would only remain vital during office and shopping hours. At night they would "die".

In the book *Tomorrow: A Peaceful Path to Real Reform*[33], the English planner Ebenezer Howard proposed an alternative to the "threats" posed by the city by suggesting that the only way to obtain life quality was through the decentralization of urban areas and reduction of densities by constructing of new towns outside the boundaries of the cities. His intention was to control urban growth and mix the advantages of living in urban areas with the environmental benefits that characterize rural life, thus to protect the people from the worst features of the chaotic cities. Garden cities offered a new alternative to urban or rural life: this new concept offered all the advantages of living in towns and the country[34].

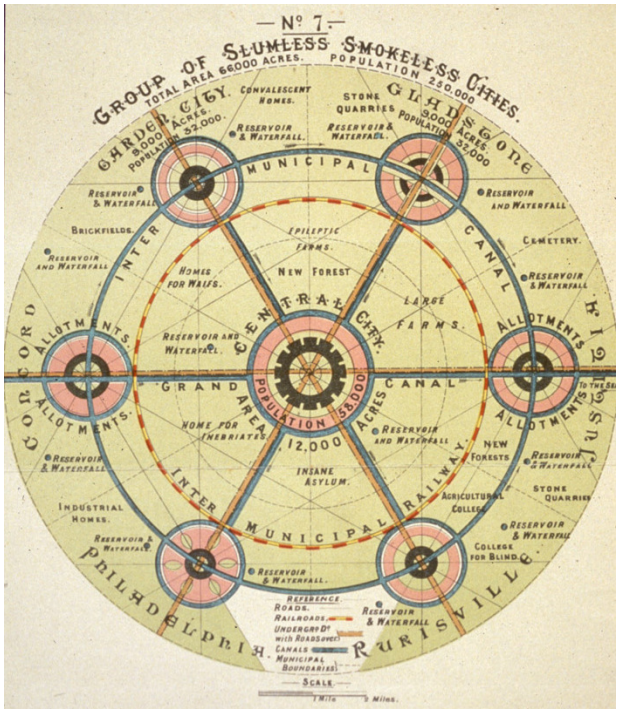
Planners all over the world positively accepted Howard's decentralization ideas, resulting in a rapid reduction of densities in the city centers. Howard had a clear image of what his cities should look like and how they should work. But these proved once again that they cannot be controlled. His proposals did not solve the urban problems, but on the contrary, they underestimated and neglected life in urban centers. The

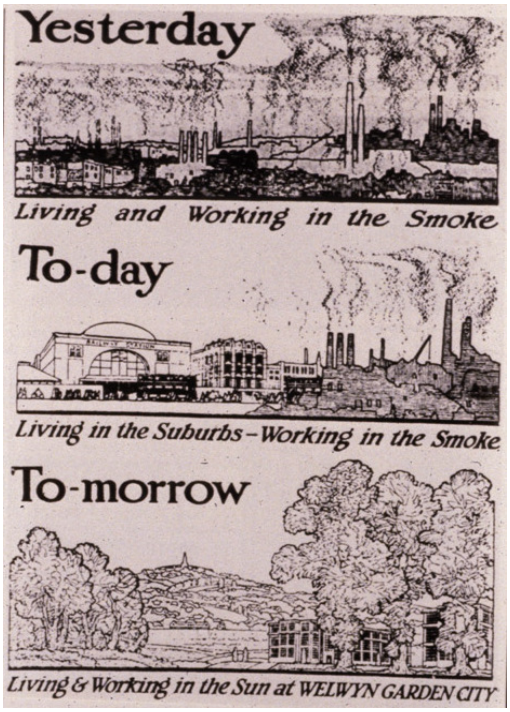
[33] Howard. *Gartenstädte von Morgen*. 1968
[34] Hotzan. *dtv-Atlas Stadt*. 1994. p. 48, 49

Figure 2.1 Image of London in the Industrial Revolution – Overcrowding,



Figures 2.2 Howard's Central City-Garden City diagram and a poster of Welwyn Garden City





emigration of the population affected specially city centers, where no activity would take place after office hours. This phenomenon is especially present in North American cities, where opposed to the compact city, conglomerations have developed in very low densities, far away from the ideals of a sustainable city.

2.1.3 The anti-city

With a similar intention but an even more radical proposal, the architect Frank Lloyd Wright wrote an article in 1932 entitled *The disappearing city*, in which the concept of the *Broadacre city* was proposed. This was the antithesis of the growing urban areas of the 19th century and the "apotheosis of the newly born suburbia"[35]. In his concept, Wright imagined a city in which every family would be given a one acre (4.000 m2) plot of land and mobilization is carried out by private car. This idea of urban qualities is therefore radically opposed to the concepts of *transit-oriented development*[36], where mixed-use areas are developed in function of improving accessibility to the public transport nodes.

Wright's concept is clearly based on an individualistic society, which at the time was experiencing the first phases of the motorization age (in Ebenezer Howard's garden city proposed three decades earlier there is an absence of the car as a means of transport). In such a utopia, centralities are dissolved and the population is dispersed, therefore it is considered to be the antithesis of the city.

Even though Wright's image of the future city remained a utopia, many cities in North America are developed following a model of low densities and urban extension. The motorways are the common feature of these cities, contributing again to more urban sprawl. The result is the destruction of communities and the creation of isolated, unnatural urban spaces.

The European city with all its inherent qualities stands as the counterpart to this type of urbanism. This city does not deny urban space but it draws precisely upon urbanity as the main future of life quality.

[35] The Broadacre city. On: en.wikipedia.org/wiki/Broadacre_City. Oct 10 2008
[36] Transit-oriented development. On: en.wikipedia.org/wiki/Transit-oriented_development. Oct 10 2008

2.1.4 The modern city

Modernism changed dramatically the image of cities worldwide. The physical change of the urban structures by introducing new typologies was the first important alteration of the urban townscape. Cities began growing vertically thanks to the advances in construction; and the relation building – public space was radically modified. One of the most influential prophets of modernism was Charles-Édouard Jeanneret, better known as Le Corbusier, who perceived existing cities as "chaotic, unhealthy and incompatible with the machine age[37]". He proposed an alternative urban concept in accordance with the construction technology of the time, which had little consideration with any historical legacy from past times. Crowded, disorganized and chaotic cities would be replaced by functionalistic, efficiently regulated urban spaces consisting of towers surrounded by ample green space. This concept has no mercy with the existing cities: entire historical centers would be demolished to make space for buildings as independent objects in a strong relationship with nature. Modernism not only transformed the image of the cities, it also influenced the types of social relationships within the population by generating new kinds of behaviors.

In the modernistic ideal cities work like a machine. The highway became one of the most determining elements of modernism. It assured rapid automobile accessibility and promoted suburbanization. With the mass production of cars, private transportation became a reality to many. Highways, viaducts, bridges and tunnels became a symbol of progress and modernity. However, these works of infrastructure produced a strong impact in the city and its inhabitants. One of the most influential, but at the same time most severely criticized urban shapers of the twentieth century was Robert Moses. As the master builder of New York City for almost half a century, he was responsible for the physical structure of the city[38]. The metropolitan city owes many of its famous landmarks to him. However, through the implementation of his projects he "bulldozed neighborhoods and replaced them with expressways and high rises; …he re-shaped New York for the car"[39]. Many of his projects used expropriation, evictions and demolition to clear areas for new construction, and thereby, thousands of homes and workplaces were relocated, destroying established neighborhoods and communities.

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[37] Caves. *op.cit.*
[38] Caro. *The Power Broker - Robert Moses and the Fall of New York.* 1975
[39] Angotti. *Midtown West Side Story: A conversation with Robert Moses*. 2003

Figures 2.3 Floor plan for Le Corbusier's *Plan Piloto* for Bogotá and *Plan Voisin* for Paris. Both plans foresee the demolition of vast parts of the historical centers to give way to modernistic blocks

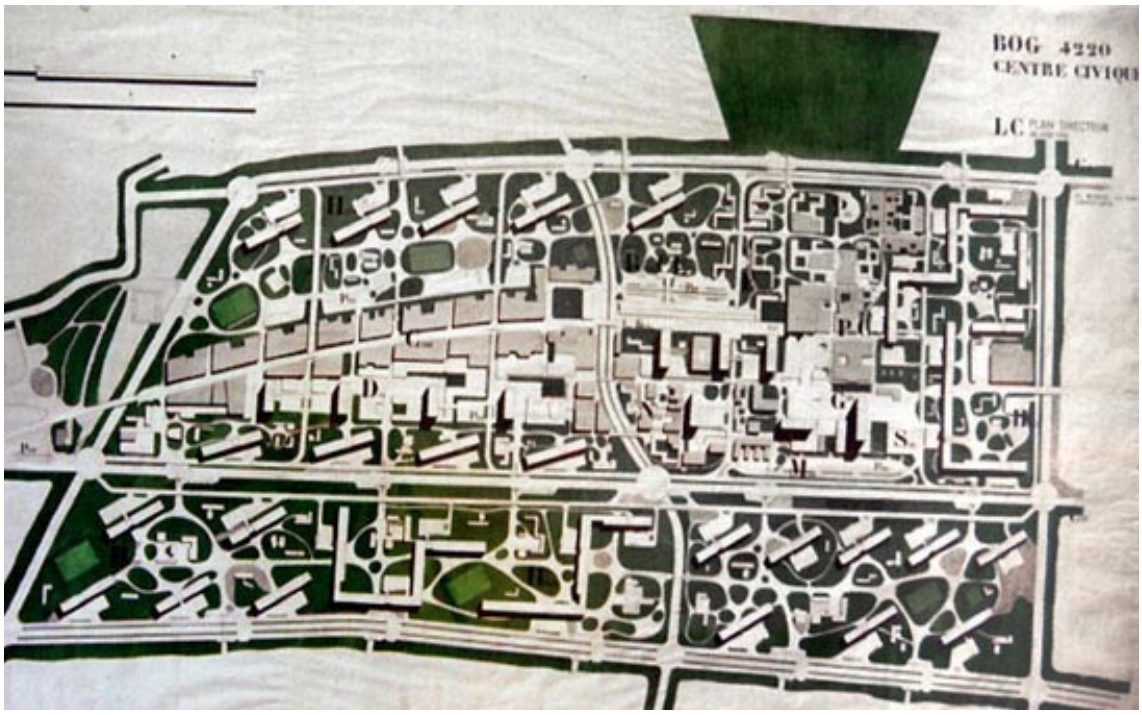

Figure 1.4 Highway through residential quarters in Los Angeles. The car is indispensible to overcome distances in low density areas – the result is contamination, time loss and lack of urbanity.

2.1.5 The reaction

Urbanity can be considered a byproduct of the failing urban currents of the first half of the 20th century. Influential critics and theorists such as Jane Jacobs, Kevin Lynch, Gordon Cullen, Mumford Lewis or Colin Rowe reacted harshly to the negative effects of modernism, by starting to deal with the problematic of the city, its image and the way the citizens perceive it. They also proposed methods and solutions to the problems of designing in urban areas to meet modern needs, but respecting the traditional city.

It was during the sixties that improvement and rehabilitation of urban areas were seen for the first time as an alternative option to demolition and slump clearance. This new tendency marked a significant turning point in urban renewal[40]. There was a growing dissatisfaction in many sectors, due to the fact that constructions and historically valuable buildings that were structurally sound were being torn down. Many of which could have been restored to adequately fulfill their original function or even a new one.

At the same time, a growing conservationist movement started during this decade to become aware of the limitation of energy resources, the destruction of vulnerable natural habitats and landscapes and the importance of the cultural heritage; all threatened by the fast expanding cities. The new high-rise constructions and the replacement settlements began to show their disadvantages. Remote locations, excessive fuel bills and poorly built constructions were often not a good substitute for the homes that relocated families left behind. Demolishing neighborhoods also proved to destroy a lot more than houses: it also disarticulated longstanding communities worth preserving.

Finally, an imminent population decline in Europe started influencing urban renewal. New policies had to be applied to avoid a loss of population in certain areas. This phenomenon only reinforced the rehabilitation and re-humanization tendencies of the second half of the twentieth century.

The death and life of great American cities, written by Jane Jacobs and published in 1961, is one of the most influential works in the history of recent town planning[41]. It is a direct denunciation of the “mistakes” that characterized much of the urban planning in the first half of the twentieth century, including the garden cities and the modernist interventions of Robert Moses in New York.

[40] Couch. *op.cit.*
[41] Caves. *op.cit.*

In her book she suggests that in order to create healthy vital communities (that is communities that are economically, socially and environmentally vibrant), planners must design with the people, their activities and their values in mind[42]. Jacobs criticized a planning style that destroyed communities through slum clearance and that separated land uses by creating business districts. Thereby she fought for the protection of neighborhoods and the mixture of land uses. Her work also leads the reader to think about different city elements like sidewalks, parks and neighborhoods, and how they interact to structure the functioning dynamics of the cities. Vital cities need of diversity, and to generate diversity four conditions are indispensable:

1. The need for mixed primary uses – The districts must serve more than one primary function to encourage vitality and safety. This ensures the permanent presence of people, who are in the place for different purposes, on different schedules, but are able to use many facilities in common.
2. The need for small blocks – Streets and opportunities to turn corners must be frequent, since isolated streets "are apt to be helpless socially".
3. The need for aged buildings – The districts must contain buildings that vary in age and condition. "Not necessarily museum-piece old buildings, … but plain, ordinary, low-value old buildings". This is justified by the fact that if an area of the city has only new buildings, only the enterprises that can support the high costs of new construction can prevail.
4. The need for concentration – There must be a sufficiently dense concentration of people in the districts dedicated to whatever activity, including residence. Without concentration of people in a certain area there can be little diversity or liveliness. This condition refers to urban density. Low densities present in certain residential areas do not contribute to the cities. And according to Jacobs, high densities are not necessarily linked with slums and trouble as many suppose.

These ideas proposed by Jacobs in 1961 were revolutionary in their time. Today they are more actual than ever, and they are accepted as common truths. Urban rehabilitation and redevelopment are nourished with concepts that emerged in the middle of the twentieth century as a reaction to the degradation of urban qualities through industrialization and modernism. To understand practices like urban conversion it is necessary to look back into the history of urbanism, which is directly related to the history of society.

[42] Jacobs. *The death and life of great American cities*. 1992

2.1.6 The post-industrial society

A society which has undergone a specific series of changes after the process of industrialization is known as the post-industrial society. It is characterized mainly by the increasing importance of the theoretical knowledge and by the preponderance of a service economy over a production economy[43]. In this society, information, knowledge and creativity began being considered as “raw materials” of the economy, and as such they are interchangeable and generate profit. This way, the service sector has rapidly increased, replacing the manufacturing of goods. The post-industrial society is therefore based on the provision of services, in which muscle force and energy give way to information. While quality of life in the industrial society was measured by the quantity of goods, in the post-industrial society it is measured by the accessibility to services and comforts (health, education, recreation and art)[44].

This however does not imply that there has been a decrease in the production of manufactured goods, but rather that many factories now use machines instead of a human workforce. Technological advances in the manufacturing sector have lead to completely new typologies of industry, where functionality prevails. As a result of this, industrial sites that emerged during industrialization have become obsolete and manufacturing companies have been forced to move towards areas which accommodate to the specific needs.

Just like with industrialization, post-industrialization has had a profound impact on the cities, especially regarding the spatial qualities and potentials of urban space. The phenomenon repeats itself from city to city:

1. A factory or industrial site emerges during industrialization, mainly on the outskirts of a city.
2. As the city grows, the industrial area turns into an island within the urban fabrics.
3. With time, the factory has no chance of expanding, the facilities are old and inefficient, technology is incompatible with the given space, modern industrial areas emerge in other parts of the city or the company simply stopped existing.
4. The result is an abandoned former industrial site in an advanced state of deterioration, surrounded by urban fabrics. Its soils often show dangerous levels of contamination.

[43] Bell. *Die nachindustrielle Stadt*. 1973
[44] Bell. *Ibid*. p. 184

The revitalization of downgraded urban areas and the revindication of the urban quality is also a result of the fall of industrialization. The city is in a process of rediscovery and valorization. The migration towards rural areas for residential purposes and the use of the city only as work place has come to an end[45]. In a society where services have become the center of everything, living on the countryside has proven to have more disadvantages as advantages, especially in times when "time" has become a valuable good. For example, 79% of Germans think that quality of life is defined by social contact, culture and short displacements, which are only offered in cities. The gastronomic and cultural offers from a city, as well as the possibility of traveling with means of public transport are qualities only found in urban areas. This perception of the city is related to post-industrial times.

2.2 Definition of concepts and terms

As an essential requirement for the further development of this dissertation it is indispensable to clearly define the long list of terms and concepts that are frequently implemented by the theorists that deal with urban renewal topics. In fact, often the misuse of such terms can lead to misunderstandings and confusions. Their inexact employment has usually its origins in the inaccuracy of translations or the flexibility with which they are applied. As a matter of fact, many of these terms can be regarded as close synonyms that are difficult to distinguish from each other. In spite of the semantic closeness between them, these can usually be differentiated and strictly used.

Table 2.1 contains a list of the most frequently used terms related to the amelioration of public spaces. In order to compare the implementation of terms in different languages, the list is shown in English, German and Spanish. As shown in the table, not every noun in English has an exact translation in the other languages. The most implemented terms are written in bold.

[45] Opaschowski. *Besser leben, schöner wohnen? Leben in der Stadt der Zukunft*. 2005

Table 2.1 Terms related to the amelioration of public spaces. Comparison between English, German and Spanish

English (Noun – *verb*)	***German***	***Spanish***
Adjustment – *adjust*	Anpassung / Nachbesserung	Ajuste / Arreglo
Amelioration – *ameliorate*	Verbesserung	Mejoramiento
Enhancement – *enhance*	Betonung / Erhöhung	Realce
Cautious renewal	Behutsame Erneuerung	Renovación cautelosa / cuidadosa
Conservation - *conserve*	Erhaltung / Konservierung	Conservar
Conversion – *convert*	Konversion / Umbau / Umwandlung	Conversión
Healing – *heal*	Heilung / Sanation	Curación / Remediación
Improvement – *improve*	Verbesserung	Mejoramiento / Perfeccionamiento
Reactivation - *reactivate*	Reaktivierung	Reactivación
Reanimation - *reanimate*	Reanimation / Belebung	Reanimación
Reconstruction - *reconstruct*	Rekonstruktion / Sanierung / Umbau / Wiederaufbau	Reconstrucción
Reconversion - *reconvert*	Wiederverwandlung / Umwandlung	Reconversión
Recovery – *recover*	Besserung / Rückgewinnung Wiedergewinnung	Recuperación
Recycling – *recycle*	Recyclieren / Wiederverwerten	Reciclar
Redevelopment - *redevelop*	Sanierung / Umbau	Reurbanización / redesarrollo
Reestablishment - *reestablish*	Wiederherstellung	Restablecimiento
Refurbishment – *refurbish*	Modernisierung / Renovierung Sanierung	Renovación / Rejuvenecimiento
Regeneration - *regenerate*	Regeneration / Erneuerung / Wiederherstellung	Regeneración
Rehabilitation - *rehabilitate*	Rehabilitation / Modernisierung/ Sanierung / Wiedereinsetzung	Rehabilitación
Rejuvenation - *rejuvenate*	Verjüngung	Rejuvenecimiento
Remediation – *remedy*	Sanierung	Remediación
Renaissance	Renaissance	Renacimiento
Renewal – *renew*	Erneuerung	Renovación
Renovation – *renovate*	Erneuerung / Renovierung	Renovación
Reorganization - *reorganize*	Reorganisation / Rekonstruierung / Neugestaltung / Umgestaltung Sanierung / Umstrukturierung	Reorganización
Re-planning – *re-plan*[46]		
Restoration – *restore*	Instandsetzung / Restaurierung / Sanierung	Restauración
Restructuring - *restructure*	Neustrukturierung / Restrukturierung	Reestructuración
Revitalization – *revitalize*	Revitalisierung / Wiederbelebung	Revitalización
Upgrade - *upgrade*	Verbesserung	Mejora

[46] This term, which is not in the dictionary, is used by Matthias Boeckl in: *StadtUmbau / UrbanConversion - Recent international examples*. 2003. p. 8

Based on the table the following conclusions can be attained:

- The common roots of many of the nouns is explained by their common etymology. English terms usually have a corresponding term in Spanish due to the Latin or Greek origin of the words. This cannot always be observed in the German terms, whose translation is often less exact or allows more interpretations. This is the case of certain German terms such as *Sanierung* or *Umbau*, which are rather broad and can have a wide variety of translations in English according to the context in which they are used. For example the term *Sanierung* can be employed for the restoration of a house, as well as for the redevelopment of an entire urban area.
- From the 29 selected terms, 21 possess the prefix *re-*, which implies a *return* to something that already existed. According to the Merriam-Webster's Dictionary[47], the prefix *re-* comes from Latin and means *again, anew* or *back, backward*. That is for example to make something new *once again* (renew), to construct something *over again* (reconstruct), to structure something *back* (restructure), to bring life *once more* to a place (revitalize).
- For the Latin prefix *re-* the German prefixes *wieder-*, *um-*, *neu-* and *re-* are often employed. This can be observed for example in *Wieder*-einsetzung, *Um*-bau, *Neu*-gestaltung and *Re*-novierung.
- The term *conversion* on the contrary does not imply a return to something which already existed, but rather a transformation of an object into something different than what it was.
- Often medical terms or terms referring to human beings are employed in the urban planning language. This is clearly the case of terms such as *healing, recovery*, *remediation* or even *revitalization*. The reason for this is that the city with all its problems is often observed as a sick patient that has to be cured with medicine, which are the measures taken by planners.

The historical development of urban renewal enables us today to clearly differentiate and correctly employ most of the terms, according to its different phases. In this context, the term **urban renewal** can be defined as the superordinate concept that appeared in the international urban vocabulary in the postwar period as an answer to

[47] re-. From: www.merriam-webster.com/dictionary. 29 August 2008

the imminent decrease in the quality of the urban spaces. The aim was to slow down the physical and social deterioration process, especially in city centers.

However, the first approaches to urban renewal carried out in European cities in the sixties and seventies, often caused more harm to the image of the city and to the people, than solutions to the urban problems. The unnecessary demolition of buildings that could be rehabilitated, and the unfavorable relocation of socially weaker inhabitants, were the main causes for the emergence of a strong movement that defended the implementation in Germany of a more **cautious urban renewal**[48]. This new approach determines a second phase in the development of urban renewal.

The profound transformation that the world is experiencing today has clearly marked a third phase in the evolution of urban renewal. This transformation has radically affected the traditional industrial society on which the world was based, the familiar and social relations, the working conditions, the distribution of ages, the world borders, the economy. The city is not indifferent to all those changes. In fact, the perception that the people posses of the city has gained a new meaning.

To describe the new approach to urban renewal theorists are using new terms that express new concepts. One of them is **urban redevelopment**. The term has its origins in the German subsidy program “Urban Redevelopment East” (Stadtumbau Ost)[49], which was carried out to save the traditional city, by strengthening and emphasizing all its qualities and virtues. Also known as the 'European city', the traditional city has four main characteristics: a relatively high density of population and buildings, a system of networked public spaces, a mix of uses, styles and people, and a clear spatial hierarchy with a central character.

Urban redevelopment is not a concept on its own, but it comprises other fields of the urban renewal:

- **Urban rejuvenation** or **revitalization** intends to recover obsolete and worn out areas within the city fabrics. In the term rejuvenation the word 'youth' is implicit. In other words, the aim of the urban rejuvenation is to keep the city young. Revitalization on the other hand implies life; the return of life to places where it was absent. When people stop frequenting certain areas for whatever the reason, these lose vitality or even 'die'. Vitality is one of the most important

[48] Hardt-Waltherr Hämer. *Behutsame Stadterneuerung in Kreuzberg*. From: *Internationale Bauaustellung Berlin 1987. Projektübersicht*. 1987.
[49] Bodenschatz. *Stadtumbau - Begriffe und Perspektiven / Urban conversión, concepts and perspectives*. 2003. p. 108

virtues of any urban conglomeration. There is no city without life. It guarantees urban quality.

- **Conversion** or **urban recycling**, as defined above, is the transformation of an object into something new, into something different than it was before. This implies the introduction of a new use. Related to the city, urban conversion is the endowment of a new vocation to areas which are not anymore being utilized and have become wasteland. In postindustrial times, this form of urban redevelopment is rapidly gaining strength internationally because of its effective and positive effects in the recovery of the functionality of the city. Ports, docklands, industrial sites, former airports, military areas and stations are only some of the examples of **potentially convertible sites**.
- **Urban adjustment** (in German Nachbesserung) is the English term that refers to the redevelopment of large-scale monofunctional residential areas. Massive social housing developed under the principles of the modernist movement has proved in many cases to be inadequate spaces for the development of healthy social environments. The adjustment of these areas, either by demolishing and rebuilding or by rehabilitating, has become a priority to planners, especially in former socialist countries. The implementation of urban adjustment proves that urban renewal is not limited to central or historical areas, but it comprises every deteriorated built-up area.

To conclude this section of the dissertation, the term **urban regeneration** or **renaissance** is being employed by many urbanists today, especially in England. The dictionary of the Royal Spanish Academy defines the verb 'to regenerate' as the action of giving a new essence to something that has degenerated, to reestablish it and ameliorate it. This is a rather broad definition that could also be suitable with other terms of the list. However, urban regeneration in the urban renewal context comprises not only physical regeneration of an area, but also an economic and social regeneration. Good design must be accompanied by social investment and by a good management. “An urban renaissance should be founded on principles of design excellence, economic strength, environmental responsibility, good governance and social well-being”[50].

[50] Urban Task Force. *Towards an urban renaissance*. 1999. p 25

According to CABERNET[51] (Concerted Action on Brownfield and Economic Regeneration Network), **brownfields**[52] are defined as sites which:

- have been affected by former uses of the site or surrounding land
- are derelict or underused
- are mainly in fully or partly developed urban areas
- require intervention to bring them back to beneficial use
- may have real or perceived contamination problems

They result from changing patterns of industry and development in many regions. The loss of the industry, the resulting unemployment and the reluctance of new investors to take on the technical problems and liabilities associated with brownfield sites, affect the economic prosperity of the region, particularly in urban locations. Municipalities are often unable to revitalize brownfield from within their own resources, and their city centers and environs remain degraded and underutilized.

The concept of **sustainable development** can be understood as a "*pattern of resource use* that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but in the indefinite future"[53]. This is rather recent concept since it was firstly implemented by the World Commission on Environment and Development from the United Nations in 1987. The Commission, in its report, defined the term *sustainable development* as a development that "meets the needs of the present without compromising the ability of future generations to meet their own needs"[54].

Inner development[55] is the exploitation of the reserves of inner urban areas in existing settled structures opposite to the extension or sprawl of the city to its green periphery[56]. This kind of urban development can be attained by converting or intensifying the use in available sites, by cautiously densifying urban areas or by closing empty urban areas. The activation of potential convertible sites is the main objective in many cities in

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[51] CABERNET is a European network of experts addressing the complex multi-stakeholder issues that are raised by brownfield regeneration. The Network's aim is to enhance the rehabilitation of brownfield sites within the context of sustainable development, by sharing experiences from across Europe, providing new tools and management strategies and a framework for coordinated research activities. www.cabernet.org.uk

[52] Definition of brownfields. From: www.cabernet.org.uk/index.asp?c=1134. 18 August 2008

[53] Sustainable development. From: en.wikipedia.org/wiki/Sustainable_development. 10 July 2008

[54] United Nations. Report of the World Commission on Environment and Development. General Assembly Resolution 42/187, 11 December 1987. From: www.un-documents.net/wced-ocf.htm

[55] Ministerium für Umwelt und Verkehr Baden-Württemberg et.al. *Innenentwicklung vor Außenentwicklung*. 2003. p. 11 and 119

[56] In German called "*die grüne Wiese*" or green meadow.

developed countries. It aims at the improvement of land uses through a functional and spatial valorization of urban areas, and at the same time at the reduction of demand for new land for urbanization.

2.3 The theory of conversion

2.3.1 Land as perishable resource

Land is a basic principle of life, basis of our own existence. We usually do not perceive its importance and take it for granted. But just like air and water, land is indispensable for our survival: for food production, for the construction of our homes and streets, for animals and plants to live on. As any perishable good, the availability of land has its limits, and will use up eventually unless we do not handle it cautiously and sustainably. However, tendency tends to ignore this principle.

Cities across the world extend towards their outskirts, fertile soils and forests lose ground to the growth of settlements. The sealing of natural surfaces leads to the loss of the filter and storage properties of the soil. Urbanization damages underground and superficial water bodies, it destroys ecosystems.

Due to the rapidly growing world population, in 2007 more than half of the people will live in urban areas, and in 2025 it will be two thirds[57]. 90% of the world urbanization is concentrated in “Third World” countries. Moreover, before the year 2025, 360 urban centers will have more than one million inhabitants, and at least 27 megacities, more than ten million.

Population growth is however not directly proportional to the demand for urban space. A population does not need to grow to require more area. That is the case in countries like Germany, where over 115 hectares of natural land are transformed daily into residential areas, industrial areas and roads, while the number of inhabitants hardly fluctuates[58]. Yearly an area as extensive as the Lake Constance is urbanized in Germany. In reality, the space used for settlements and transportation increases disproportionately stronger as the population figures. The main determinants for this phenomenon[59] in Germany are:

[57] Ministerium für Umwelt und Verkehr Baden-Württemberg. *op.cit*. 2003. p. 119
[58] Bundesamt für Bauwesen und Raumordnung. 2006
[59] Ministerium für Umwelt und Verkehr Baden-Württemberg, et.al. (eds). *Innenentwicklung vor Aussenentwicklung - Strategien, Konzepte, Instrumente*. 2003. p.119

- the increase in living space per person from approximately 14 m^2 (1950) to 40 m^2 (2002).
- the diminution of the average size of households from 3 persons (1950) to approximately 2,1 persons per household (2002)
- the growing number of households: 3.643 (1980) to 4.839 (2002). From these, single households: 1.085 (1980) to 1.751 (2002)
- the continuous economical growth associated with the increase of the general living standards and the demand for housing supply
- the increase of migration towards the surroundings due to more attractive housing possibilities
- the new construction and extension of industrial and commercial areas
- the extension of transport and infrastructure networks

In fact, the changing structures of the post-industrial society are highly responsible for the urban sprawl. Today people demand more space for living and working due to their growing living standards and incomes. In addition, household structures have evolved from familiar to single households. The demand for space is growing exponentially. Since usually each household requires its own flat, more flats are needed when the amount of households increases.

In Germany land was not always considered a subject of protection like water and air. Only until the eighties and nineties the problematic with contaminated grounds became an important issue in the environmental policy. Since the second half of the last decade, the reactivation of deteriorated urban areas has become an integral part of urban planning in Germany, and the recycling of deteriorated areas (Flächenrecycling) has become a development priority[60]. To such an extent that a clause of the urban planning law in Germany stipulates as political objectives, the reduction of the use of land resources through a reutilization of existing urban areas and the optimization of the use of grounds through densification and mixture of uses.

2.3.2 Conversion as instrument for saving resources

Land is not the only perishable resource utilized in the urbanization process. The development of new urban quarters demands the consumption of enormous amount of materials, energy and resources. On the other hand, dense cities can through integrated planning be designed to increase energy efficiency, consume fewer

[60] Schweiker. Konz*eption eines GIS-gestützten Katasters für Flächenrecyclingprojekte in Stuttgart*. 2001

resources, produce less pollution and avoid sprawling to the countryside[61]. The consumption of resources linked to urban sprawl includes:

- construction materials for buildings, such as bricks, stone, steal, cement, glass
- materials for the construction of roads, bridges, sidewalks and transportation infrastructure
- materials for the construction of infrastructure for the distribution of public services, such as water, energy and gas
- materials for the construction of infrastructure for sanitary services and disposal of waste such as waste water
- materials for the construction of social infrastructure facilities, such as schools, kindergartens, hospitals, etc.
- private and public vehicles for the displacement to and from the new urban quarters (residence, work), along with fuels, tires, oils and other raw materials inherent to the utilization of vehicles
- energy needed to supply the new residential and work areas, but also the energy indirectly utilized to produce raw materials and goods
- financial resources that need to be invested for the production, maintenance and utilization of the mentioned resources

Today, many international currents plead for a “dematerialization” of society and economy. This theory stands up for the utilization of fewer natural resources to increment urban well-being and for the reduction of the production of raw materials to increment economical benefits. But above all, it promotes and encourages the reduction of consumption and the transformation of supply from production to services[62].

20 % of the world population consumes 80 % of the planet’s natural resources, 65 % of its electricity and 85 % of its metals and chemicals. At the same time, it produces 70 % of the world’s CO_2 emissions. According to these figures, the earth could not sustain a growth process of Third World countries which is similar to the one that today’s developed countries experienced. In other words, if Third World countries in their development process would use as many natural resources as First World countries did (and still do), one planet earth would not be enough to supply the demand for resources.

[61] Rogers. *Cities for a small planet*. 1997. p. 33
[62] Cortés. *La desmaterialización del futuro*. 2004

An interesting contribution of the dematerialization theory is the report “Factor Four”, which praises how at least four times as much wealth can be extracted from the resources we use: “doubling wealth, halving resource use”[63]. According to the report, the benefits obtained by reducing the amount of resources we consume are enormous: profits increase, pollution decreases and the quality of life improves. The report goes further by assuring that for many developing countries the “efficiency revolution” may offer the only realistic chance of prosperity within a reasonable time span. Factor Four numbers a series of successful examples of productivity that confirm these theories. Among them are examples of productivity of energy, materials and transportation. Even though the report emphasizes in these three topics, it briefly refers to the costs of urban sprawl: “the exploding costs of distance and sprawl”. According to this, studies have demonstrated that compact developments represent cost savings of 35% compared with the costs produced by urbanizing new areas.

Another important aspect of recycling of resources in urban levels is the conversion of existing buildings, phenomenon which is strongly related with the deindustrialization age. The change of use of existing buildings has been throughout history above all a question of economy: functionality prevailed over history[64]. However, in most cultures today the preservation of the constructed heritage has reached new dimensions. Jane Jacobs[65] was one of the first theorists that praised the need for cities to “grow” preserving old buildings, “plain, ordinary old buildings”. The adaptation of old buildings to shelter new uses should not be limited to landmarks and architectonical jewels. Certainly buildings such as train stations, market halls or even run down villas offer the perfect settings for the introduction of new commercial and office uses, and this way they escape the fate of running down and eventually being demolished. Nevertheless, the act of preserving is not only aimed at the conservation of old buildings per se: every citizen has long associations with some part of his city, and his image is soaked in memories and meanings[66]. In other words, identity plays an important role in the perception of the city. That counts as well for landmarks as for industrial buildings, which have a meaning to the collective memory of a place.

Industrial sites were until quite recently associated with noise, pollution and bad work conditions. Today they represent an enormous potential for conversion. There is no better example for this case than the so-called “industrial culture” which emerged in the Ruhr Region in northwest Germany. This region which is closely linked to the mining

[63] Weizsäcker. *Faktor Vier.* 1997
[64] Powell. *Bauen im Bestand*. 1999
[65] Jacobs. *The death and life of great American cities*. 1961
[66] Lynch. *The image of the city*. 1960

industry has elevated the foundation of its existence to a symbol of its own identity. Industry became a synonym of culture. With the decline of the mining industry, most of the industrial infrastructure was recycled to introduce new uses that would replace the original vocation of the sites. Today they shelter offices, museums, leisure parks, restaurants, stores, institutes, universities, theaters and many other uses, making it one of the most important examples of the saving of resources in the world.

Conversion, understood as the act of recycling deteriorated urban spaces, is a means for utilizing less natural and financial resources. By reusing already existing infrastructure the demand for raw materials and land is reduced and financial resources are spared. Conversion is consequently the sustainable alternative to urbanization. The following list summarizes the types of inner urban areas, which can be object to redevelopment or activation[67]:

- empty plots of urban land (gaps between buildings or unconstructed land)
- constructed brownfields with recyclable buildings
- constructed brownfields without recyclable buildings (ruins)
- cleared brownfields
- suboptimally used areas in height and extension
- redensification areas
- reorganization areas (old deteriorated buildings)
- conversion areas
- old workshops or yards

[67] Müller-Herbers et.al. In: Institut für Wasserbau. *VEGAS-Kolloquium 2008 – Ressource Fläche III*. p. 77

2.3.3 Inner development vs. urban extension

Inner development instead of outer development[68] is the fundamental principle of spatial development in the coming decades in Germany[69]. This kind of urban development deals with the exploitation of reserves of inner urban land opposite to the expansion of urban areas towards peripheral green areas. Inner development is achieved by the activation of potential areas, such as brownfields, suboptimally used sites and empty lots. This concept differs radically from today's dominant urban model, which is that of cities from the United States: "cities zones by function with downtown office areas, out-of-town shopping and leisure centers, residential suburbs and highways. So powerful is this image and so prevalent are the forces that motivate its creation (set by the market-driven criteria of commercial developers) that the less developed countries are now locked into a trajectory that has already failed the developed countries"[70].

Urban extension and the urbanization of green areas have serious consequences in the environmental, social, economic and spatial levels. The following reasons speak for the favoring of inner development and against urban extension:

1. Environmental reasons[71]

- The destruction of ecosystems, plant and animal diversity
- The destruction of the properties of soils (filer and buffer capacity, absorption and storage of water, fertility)
- The sealing of soils (radiation balance and heat storage capacity)
- The reduction in air quality, circulation of air
- The change in water balance, destruction of surface and groundwater recharge

2. Social reasons[72]

- Social exclusion through construction of social housing in the periphery
- Reduction of life quality due to longer time for mobilization as a result of longer distances to work places
- Separation of uses and the resulting loss of quality in certain areas
- Deterioration of life quality in run-down city centers

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[68] In German: *Innenentwicklung vor Außenentwicklung*.
[69] Scholl. *Innenentwicklung vor Außenentwicklung*! In: Ministerium für Umwelt und Verkehr Baden-Württemberg. *op.cit*. 2003. p.11
[70] Rogers. *op.cit*. p. 33
[71] Kaule. *Ecologically oriented planning*. 2000. p. 228
[72] PNUD. *Bogotá una apuesta por Colombia – Informe de desarrollo humano*. 2008

- Weakening of social relations through low densities

3. Economic reasons

- By reduction of density there is less revenue through taxes[73]
- Higher costs for infrastructure, public services, social facilities and public transport
- More investment needed for the construction of new roads and buildings

4. Spatial reasons

- Deterioration of city centers
- Deterioration of landscape
- Absence of urban qualities
- Increase in distances

The implementation Inner development is however a complex task, since the processes to carry out this type of development are a lot more complicated than the ones applied for the development of empty peripheral areas. Some of the reasons for this are:

- The risks of pollution in soils and groundwater
- The complexity of development due to the different interests involved
- The high value of land in inner areas compared to unsettled outer areas

In spite of all the advantages of inner development, it also has disadvantages in comparison to the traditional urban extension. Inner development projects deal with a higher exchange of opinions and interests from different actors who are involved I them. Therefore, this kind of development is linked with a higher tendency to conflicts and a higher need for discussion and compromise and agreement between the parts. For this reason, inner development diverts from the traditional planning procedures and demands tailored solutions and strategies in order to be materialized. The public sector is obliged to find instruments based on clear strategies and objectives in order to counteract the forces of the unsustainable development motored by the economic markets.

[73] Ministerium für Umwelt und Verkehr Baden-Württemberg. *op.cit.* p.11

3. Urban conversion in practice – Types of conversion

"Ich kann den Potsdamer Platz nicht finden!
Nein, ich meine, hier...
Das kann doch nicht sein! Denn am Potsdamer Platz,
da war doch das Café Josti."

Gedanken Stimme Homer **HIMMEL ÜBER BERLIN**

This chapter intends to describe the various aspects that concern the implementation of urban conversion by means of a series of real examples. The examples are a selection of existing cases of conversion to be found in different European cities. They are systematically catalogued and analyzed according to a series of criteria that describe urban conversion in its different aspects and types. The following aspects represent the most important variables in conversion projects:

1. Nature of the project
2. Original land use of the site
3. New / future land use of the site
4. Scale of conversion
5. Degree of conversion of the original function
6. Degree of reutilization of existing structures

Other aspects can also characterize conversion projects such as location with respect to centralities or level of contamination.

Each selected example illustrates a specific aspect that characterizes conversion projects. They were selected following mainly practical reasons. In order to carry out a systematical analysis of the selected examples, a fact sheet was designed containing basic information on each example, as well as pictures and plans.

3.1 Type of conversion according to the nature of the project

Conversion projects can be catalogued according to their nature; that is, to their inherent character and final objective for which they were conceived. There are four main types of projects following this principle:

- Projects related to special events (sport competitions, exhibitions, EXPOs)
- Flagship projects (museums, stadiums, theaters, etc.)
- Infrastructure projects (bridges, streets, stations, etc.)
- Projects related to urban renaissance (waterfront projects, historical centers)

Frequently projects can follow more than one objective and possess different natures, especially major projects. Four real examples were chosen to illustrate these four types of projects.

<u>- Projects related to special events</u>

Many different types of events can serve as impulse to drive entire urban projects to materialization. Special events confer projects a special character, but most importantly, they secure their financial feasibility. Large conversion projects require high investments from the public and the private sectors, which are guaranteed through these kinds of events. When a city is rewarded with the opportunity of hosting a special event, they see it also as a chance of improving certain urban areas and of marketing the city internationally. Among these events are Olympic games, the World Cup, other international sport competitions, garden exhibitions and world's fairs.

This type of projects is illustrated through the example of the **Expo 98 in Lisbon**. World's fairs are large expositions held since the mid 19th-century with the participation of many different nations. They acquire international attention due to their influence on the development of several aspects of society including technology, art, international trade and relations, and tourism. The Expo 98 took place in a 340-hectare areal along the River Tejo called the Park of the Nations. Part of the area belonged to a former hydroplane airport. The urban project contemplated the recovery of the river front to improve the relation of the city with the water and to integrate the area with the rest of the city by generating a new centrality.

- Flagship projects

The reactivation of a deteriorated or abandoned area can be guaranteed through the realization of a flagship project. A single building can generate such an impact on its surroundings and on the collective perception that it alone can contribute to the improvement of a place. Off course this single building is usually conferred a specific use, proportion and impressive architectural style. Frequently renowned international architects are awarded or assigned with the design and construction of the projects, adding attractiveness to the interventions. Museums, libraries, theaters and stadiums are some examples of flagship projects. However, certain commercial spaces also have the capacity of reactivating an area without vitality and character. These projects have the quality of generating improvements towards their surroundings in a kind of crystal effect. For this type of conversion a non-typical example has been selected: the **Jubilee church in Rome**, officially named Church of Dio Padre Misericordioso. Actually the church is part of a complex, including a community center, for a rather isolated and uninteresting residential quarter in the outskirts of the Italian capital. This flagship project has not only improved the urban quality of the place but it also turned the quarter into a tourist attraction, thanks to its architectural and urban qualities.

- Infrastructure projects

The regeneration of a deteriorated urban area is often related to infrastructure projects. The term infrastructure has been used since 1927 to refer collectively to the roads, bridges, rail lines, tunnels, stations of any kind, subway lines and similar public works that are required for an industrial economy, or a portion of it, to function[74]. There is a close connection between the improvement of an urban area and the need of endowing it with the needed infrastructure. On the other hand, infrastructure projects can be the motor of redevelopment. The construction of infrastructure facilities is seen as a chance to ameliorate its surroundings.

The **Gateshead Millennium Bridge in England** is an interesting example of built up infrastructure as part of a conversion project. The bridge aims to fulfilling more than one objective. It not only serves pedestrians and bicycles that require crossing the River Tyne between the cities of Newcastle and Gateshead. The bridge is part of an entire regeneration project for the revitalization of the areas along the river. The former port area has become a cultural space with museums (Baltic Museum), music halls ("The Sage" from architect Norman Foster), and leisure spaces with high quality public areas. The Millennium Bridge becomes a symbol for the connection of the two cities and for the identity of the place. The bridge has the property of tilting on special pivots to allow small ships and boats to pass

[74] www.thefreedictionary.com/infrastructural. 17.1.2008

underneath. It has quickly become a tourist attraction for its aesthetic beauty, technique and symbolism.

- Projects for the urban renaissance

The term *renaissance* implies the rebirth, or the return to something that has been lost. In urban terms, renaissance refers to the recovery of lost qualities that reinforce a specific character to a place. Typical examples for this type of projects are cities with waterfronts, historical or traditional quarters, or even areas with a very specific character.

Historically, Industrialization turned urban waterfronts into impenetrable industrial and port areas, due especially to the possibility of transporting goods on water. Only in the second half of the 20th century cities began rediscovering the structural and esthetical qualities of waterfronts. Today, many cities in the world have relocated and revitalized their ports and docklands in order to connect the urban fabrics with the water bodies (river, lakes, see). By doing this, they extend the city generating new space for development. Additionally, water has a special property of strengthening the identity of a place.

That is the case of the **MedienHafen in Düsseldorf**, where an old trade port has transformed into a media quarter, in which firms of this branch concentrate, giving the area a special character. The 185-hectare areal has been redeveloped by internationally renowned architects, making of this markedly commercial space a tourist attraction. The quality of the public space is enriched by the water bodies and the harbor character. The former trade port has experienced a renaissance thanks to MedienHafen.

Table 3.1 Fact sheet of the World's Fair EXPO 98 in Lisbon

City / country

Lisbon, Portugal

Project

World's Fair EXPO 98

Situation before intervention

Former hydroplanes airport

Original use

Hydroplanes airport

New use

Exhibition area, residential, offices, services, greenery

Type of project

Event project

Level of conversion of function

High

Level of reutilization of existing structure

Low

Scale of intervention

Large

Instruments / Strategies

- Recovery of riverfront
- Integration with city fabrics
- Introduction of mixed uses
- Internationalization / marketing of the city
- Creation of a new centrality
- Improvement of public space and architecture

Type of project

Project related to special events

Description

Lisbon has taken a step towards internationalization by hosting the World's Fair in 1998. The city took the chance of improving a disintegrated area with high potential thanks to its relation to the riverfront. Expo 98 acted as a development motor for the creation of a new centrality for the metropolitan area. The water strengthens the identity of this traditional port city.

Information on the web

www.parquedasnacoes.pt

Pictures and plans

Table 3.2 Fact sheet of the Jubilee Church in Rome

City / country

Rome, Italy

Project

Jubilee Church (Dio Padre Misericordioso)

Situation before intervention

Downgraded residential quarter

Original use

Residential

New use

Religious / Community center

Type of project

Flagship project

Level of conversion of function

High

Level of reutilization of existing structure

Low

Scale of intervention

Middle

Instruments / Strategies

- Improvement of urban qualities through high quality architecture and urbanism
- Generating an attraction of general interest
- Generating spaces for the congregation of the inhabitants

Description

The design of the Jubilee church was wan through a competition by the architect Richard Meier, who created a complex of high architectural quality. The space is also dedicated to a community center for the isolated residential quarter. The construction increased substantially the urban quality of the place. This is an example of flagship projects.

Information on the web

www.diopadremisericordioso.it

Pictures and plans

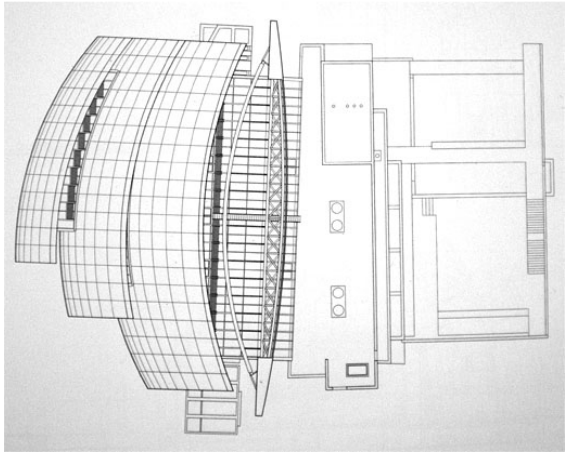


Table 3.3 Fact sheet of the Gateshead Millenium Bridge and redevelopment along the River Tyne

City / country	**Pictures and plans**
Newcastle / Gateshead, England	
Project	
Gateshead Millenium Bridge and redevelopment along the River Tyne	
Situation before intervention	
Deteriorated port area on the River Tyne	
Original use	
Port, industry	
New use	
Cultural, residential, commercial	
Type of project	
Infrastructure (bridge), urban renaissance	
Level of conversion of function	
High	
Level of reutilization of existing structure	
Middle	
Scale of intervention	
Medium	
Instruments / Strategies	
- Recovery of waterfront - Connection of regeneration projects from two different municipalities - Impressive architecture and engineering (tilting bridge, museums, music halls) - Improvement of public space - Introduction of cultural uses	
Description	
The regeneration program of the River Tyne aims at the connection of the municipalities of Newcastle and Gateshead by redeveloping the areas along the river. New cultural uses were introduced in the area and impressive constructions were erected in order to create new symbols that strengthen the local identity and attractiveness.	
Information on the web	
www.gateshead.gov.uk	

Table 3.4 Fact sheet of the Medienhafen port in Düsseldorf

City / country

Düsseldorf, Germany

Project

MedienHafen

Situation before intervention

Former tradeport

Original use

Port

New use

Offices (media sector), services, leisure

Type of project

Urban renassaince

Level of conversion of function

High

Level of reutilization of existing structure

Middle

Scale of intervention

Large (185 ha)

Instruments / Strategies

- Strengthening of port identity
- Creation of public and leisure space
- Grouping of a specific branch to give a special character to the area
- The participation of world renowned architects

Description

The creative sector of Düsseldorf has found its space in an area formerly used as a trade port directly on the River Rhine. Companies from the media and publicity sectors, fashion, arts and others have settled in this atmospheric space, which keeps its traditional harbor character. Planners have given high importance to the architectonical quality of the buildings, inviting internationally renowned architects to construct in the site. the Mediahafen has turned into a touristic attraction.

Information on the web

www.medienhafen.de

Pictures and plans

3.2 Conversion according to the original land use of the site

Conversion implies the replacement of an old use through a new one. Its intrinsic property is a change of function. Conversion also implicates the amelioration of a given situation. It presupposes a structural problem in a specific area, such as low urban quality, existence of brownfields, abandonment of sites, economic unsustainability, absence of vitality and identity and contamination, among other negative aspects.

Areas with conversion potential are mostly related to a lost function. The loss of function again is closely related to radical changes in the economical structures experienced in a specific place. Spaces become inadequate to the present circumstances. They are suboptimally used. The nature of potentially convertible spaces is diverse. High potential of conversion is inherent of urban areas which sheltered the following land uses:

- Military
- Industrial
- Ports
- Railways
- Airports
- Quarries

To illustrate the different original functions six examples were selected.

<u>- Military</u>

The **Französisches Viertel in Tübingen** is one of the most original examples of conversion from a former military area to a mixed, mostly residential quarter. After the Second World War many military areas were taken over or erected by foreign troops throughout Germany. The end of the Cold War meant the abandonment of hundreds of hectares of barracks and the chance of integrating them to the cities through redevelopment. The case of Tübingen is especially interesting because of the strong citizen participation and the sustainable awareness of the proposal. The result is an urban space full of vitality and urbanity, as well as physical attractiveness.

<u>- Industrial</u>

To illustrate this case, the region known as the **Ruhrgebiet in Germany** was selected. No other place in the world has realized the conversion potential of former industrial areas to the extent of this traditional miming region. The need to find creative solutions to the numerous abandoned facilities, consequence of the economical transformations, has resulted in the implementation of the most varied new uses. The entire Ruhrgebiet is impregnated with a strong industrial character, for which its inhabitants are very proud. Industry identifies the

area and becomes the center of its culture. Instead of demolishing the obsolete built up environment, this has been preserved and has been assigned new functions that relate to the present needs of the region and society[75].

- Port

In the 1980s the **port of Barcelona** became the model of successful redevelopment measures for the world. A deteriorated strip of urban land with serious social deficiencies blocks the see from the city. The product of the conversion measures is a space that contributes substantially to the quality of urban space and of the attractiveness of the city. Ports are a classic case for conversion due to the urban quality and to the unique identity conferred by water bodies. Water possesses qualities that have the capacity of enriching the urban landscape and increasing attractiveness.

- Railways

The relocation of the former **goods station of Frankfurt am Main** released 70 hectares of highly valuable, strategically located urban land. The area, which was mainly covered by rail tracks, offers the city the chance of developing new urban quarters with high quality urbanism and architecture. The vicinity to the Exhibition Fair and the already existing connection with public transport systems increase the potential of the area to a greater extent. The new mixed quarters will supply space for housing, offices and commerce[76].

- Airport

Conversion projects receive an impulse when their development is accompanied by big events, such as big sport events and exhibitions. That is the case of the conversion of the **Airport in Munich-Riem** into a mixed urban space, where the opportunity of redeveloping the area was reinforced by the realization of the Federal Garden Exhibition (Bundesgartenschau) in 2005. The vast area of the airport was divided in three sections, with three different characters: residential, leisure (parks) and commercial (exhibition fair).

- Quarry

The exploitation of minerals leaves scars on the landscape. In the outskirts of the city of **Cracow**, an abandoned **limestone quarry** was transformed into a lake for leisure and sport activities. Around the lake, the landscape was restored and ecosystems began regaining space. The area turned from an aggressive brownfield to a leisure space.

[75] Kommunalverband Ruhrgebiet. *Ruhrstadt*. 2000
[76] Powell. *Stadt im Umbau*. 2000. p. 194-199

Table 3.5 Fact sheet of the Französisches Viertel in Tübingen

City / country	Pictures and plans
Tübingen, Germany	
Project	
New residential area "Französisches Viertel"	
Situation before intervention	
An abandoned military area since 1991 (French barracks)	
Original use	
Military	
New use	
Mixed: residential (mainly), services, culture, commercial, small workshops or factories	
Type of project	
Urban renaissance	
Level of conversion of function	
High	
Level of reutilization of existing structure	
High	
Scale of intervention	
Medium (60 ha, 6.000 inh.)	
Instruments / Strategies	
- High diversity of uses - Remediation and conversion of existing buildings - Emphasis on a strong mix of functions - Citizen participation on development - Development of a social and cultural infrastructure as a product of community work - Creative mobility solutions - High density - Ecological recovery and planning	
Description	
This project constitutes one of the most creative, citizen-oriented interventions. It emphasizes on a strict mix of uses and community work. Additionally, cars are banned from the area, which can only be accessed by foot.	
Information on the web	
www.difu.de www.franzoesisches-viertel.de	

Table 3.6 Fact sheet of the Ruhrgebiet in Germany

Region / country

Ruhrgebiet, Germany

Projects

Industrial culture

Situation before intervention

Industrial facilities lost their original function due to economic transformations in the region

Original use

Industrial: mines, coal and steel production

New use

Leisure: parcs, Culture: museums, exhibition halls, theaters, Educational, Sports

Type of project

Urban renaissance, flagship projects (cultural sites)

Level of conversion of function

High

Level of reutilization of existing structure

High

Scale of intervention

Large

Instruments / Strategies

- Reutilization of existing buildings (100 %) and industrial facilities for new creative uses
- Strengthening of regional symbols / landmarks
- Emphasize on the industrial culture / identity of the region
- Guarantee economic sustainability
- Ecological rehabilitation of contaminated sites
- Creation of a network / route of sites

Description

The Ruhr Region is one of the most dense areas in Europe. For decades its economy depended on the mine, coal, and steel industries. Deindustrialization brought a rapid stop of production and the region was left with a great number of abandoned industrial facilities. In the last decades, these facilities have been assigned new uses, avoiding demolition. Today the city is proud of its industrial past, and the sites became landmarks which strengthen the local identity and foment its culture and history.

References

Kommunalverband Ruhrgebiet, *Ruhrstadt,* 2000

Information on the web

www.rvr-online.de

www.route-industriekultur.de

Pictures and plans

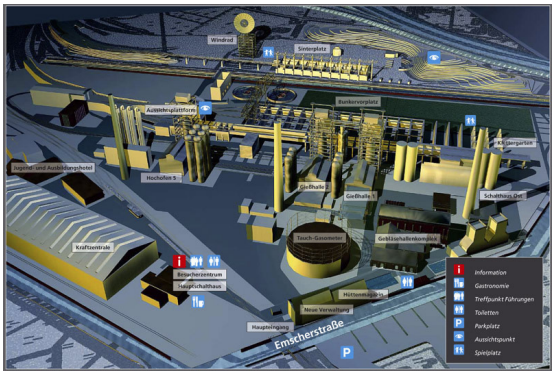


Table 3.7 Fact sheet of the waterfront of Barcelona

City / country

Barcelona, Spain

Project

Rehabilitation of coastline

Situation before intervention

Deteriorated and unattractive port area, city turns back to harbor

Original use

Port and fisherman's quarter

New use

Mixed: commerce, leisure, cultural, housing

Type of project

Urban renaissance (waterfront), event project (Olympic games), infrastructure project (new port)

Level of conversion of function

High

Level of reutilization of existing structure

Medium

Scale of intervention

Large

Instruments / Strategies

- Rehabilitation of coastline
- Revitalization of deteriorated areas
- Introduction of new uses for urban quality
- Improvement of landscape and public space
- Improvement of social situation of inhabitants
- Reduce poverty and increase investment

Description

This city was the pioneer of urban redevelopment. The city had lost its access to the sea, due to the port. In the 1980s the city turned towards the waterfront by rehabilitating the former industrial space and generating high quality urban spaces.

Information on the web

www.bcn.es

Pictures and plans

Table 3.8 Fact sheet of the project Frankfurt 21

City / country

Frankfurt, Germany

Project

Frankfurt 21

Situation before intervention

The goods station demolished, leaving extensive area for building

Original use

Railways and goods station

New use

Mixed: residential, commercial, offices

Type of project

Urban renaissance

Level of conversion of function

High

Level of reutilization of existing structure

Low

Scale of intervention

Large (70 ha)

Instruments / Strategies

- Restructuring the area of the railway tracks into a new urban quarter
- Development of new parks and pedestrian zones
- Introduction of new residential and mixed areas
- Connection to the exhibition fair

Description

Thanks to the restructuring of the railway lines, a vast area of the city can be developed by introducing mixed uses in an attractive urban proposal. The area is strategically located on the vicinity of the exhibition fair and the main station.

References

Powell, *Stadt im Umbau*, 2000

Information on the web

Pictures and plans

Table 3.9 Fact sheet of the new urban quarter Munich-Riem

City / country

Munich, Germany

Project

New urban quarter München-Riem

Situation before intervention

Airport München-Riem closed down in 1992

Original use

Airport

New use

Mixed: Leisure and ecological recuperation (Areal for Garden exhibition, public park), residential and commercial (exhibition fair)

Type of project

Event project (garden exhibition), urban renaissance

Level of conversion of function

High

Level of reutilization of existing structure

Low

Scale of intervention

Large (560 ha)

Instruments / Strategies

- Emphasis on sustainable development for a new urban quarter
- Economical compatability
- New proposals through competitions
- Diversity in housing types
- Balaced and stable social structure of the new inhabitants

Description

After 52 years of operations, the München-Riem airport closed down in 1992. The city used the opportunity to develop a sustainable concept of residential, commercial (exhibition fair) and leisure spaces. Highlight was the Federal Garden Exhibition, which took place in the former grounds of the airport in 2005.

Information on the web

www.buga2005.de

Pictures and plans

Table 3.10 Fact sheet of the conversion of the old quarry in Cracow

City / country

Cracow, Poland

Project

Conversion of old quarry

Situation before intervention

Abandoned quarry

Original use

Industrial: extraction of construction materials

New use

Leisure, recuperation: lake, park, natural habitat

Type of project

(Sub)urban renaissance

Level of conversion of function

High

Level of reutilization of existing structure

High

Scale of intervention

Medium

Instruments / Strategies

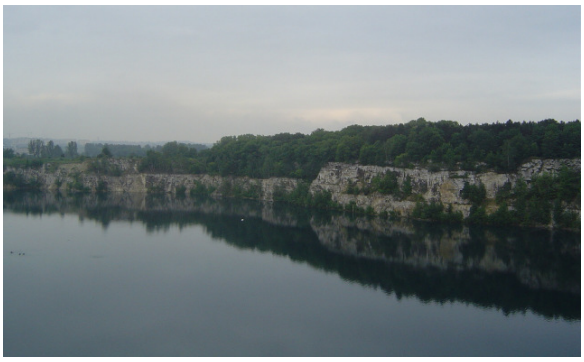
- Recuperation of degraded area for the introduction of leisure activities
- Recovery of natural habitats
- Improvement of landscape

Description

Located at the outskirts of the city, the abandoned quarries for the extraction of lime stone were converted into an attractive leisure space not far from the city center. Its main attractions are a lake for sport activities and nature itself.

Information on the web

Pictures and plans



3.3 Conversion according to the future land use of the site

Through conversion, brownfields and deteriorated areas offer the chance of introducing new constructive functions to urban areas. The dismantling and relocation of former industrial, military and railway areas brings vitality and quality to inner city spaces. Planners tend to introduce mixed uses in new areas, or at least land uses that guarantee a sustainable and qualitative urbanity. The following land uses usually replace obsolete functions:

- Mixed
- Residential
- Commercial
- Industrial
- Cultural
- Sports
- Leisure
- Forests

The following examples were selected to illustrate these new land uses.

<u>- Mixed uses</u>

The advantages of mixing different kinds of uses have been demonstrated since Jane Jacobs first explained the importance of diversity in the city in the 1960s[77].

"The district, and indeed many of its internal parts as possible, must serve more than one primary function; preferably more than two. These must insure the presence of people who go outdoors on different schedules and are in the place for different purposes, but who are able to use many facilities in common."

The project **Kop van Zuid in Rotterdam** is a good example of the introduction of mixed uses in a former port area. The former docklands were completely redeveloped after the old function was relocated by introducing new uses. These include new office buildings, commercial areas, cultural establishments, service facilities, residential quarters, leisure spaces and light industry. Through this project, a port area gave way to a modern vital urban space that aimed at the improvement of urban space, but also at the extension of the city center, emphasizing on high quality architecture and infrastructure[78].

<u>- Residential uses</u>

[77] Jacobs. *The death and life of great American cities*. 1961 p. 152
[78] Powell. *op.cit*. 2000. p. 114-123

The ability of industrial sites to adapt to new functions is not a novelty. **Lofts** are a housing concept, which had its origins in metropolitan areas like Manhattan or Chicago. These are types of residences that result from the conversion of large adaptable open spaces in former factories, warehouses or other commercial spaces. Such spaces generally contain very high ceilings, large windows and concrete floors and ceilings. Lofts became popular when they started being adopted by artists. With time they became highly sought-after residential spaces. Quarters with lofts experienced gentrification processes that turned cheap housing into expensive homes for wealthy inhabitants. After the fall of the Berlin Wall, the former East **Berlin** experienced similar processes of gentrification in deteriorated quarters. Lofts became a very attractive housing solution for the most diverse nature of people, including the entire spectrum of social and economic classes[79].

- Commercial

Many different types of activities can be understood under the term *commercial land use*. Referring to its basic definition, commercial areas are mainly urban spaces were the trading of something of economic value takes place, such as goods, services, information or money between two or more entities. In urban terms, the commercial land use refers to areas where the inhabitants have the access to goods and services. The main types of businesses to be found in commercial areas belong to the retail, services and gastronomy sectors.

To illustrate urban conversion in the commercial sector, the shopping center **Galeria Kazimierz in Cracow** was selected. This is only one example of many interesting cases in which an industrial site is converted into a commercial area. Interesting in this case is however the reutilization of specific parts of the factory facilities, giving the mall an interesting atmosphere, which emphasizes its previous vocation. The introduction of a commercial space in the central and traditional Kazimierz District intends to revitalize the area, which has experienced deterioration for decades and is expected to regain its tourist and historical character.

- Industrial

Less common is to contemplate the permanence of industrial activities in conversion projects. Usually residential, commercial and other uses replace former industries. However, in many major projects industry is considered a fundamental element of the master plan, depending on the importance of this sector for the area or its strategic location with regard to the city. This is exactly what happens in the project **Seine Rive Gauche in Paris**. A traditionally industrial area of vast proportions (300.000 m^2) is thoroughly restructured and revitalized. The plan included the erection of flagship constructions such as the National Library, which should drive the entire area towards integration with the rest of the city and a

[79] de Dijn, *Lofts in Berlin*, 2004

considerable increase in the district's urban qualities. Additionally to the implementation of new uses, the plan conceives the reorganization of industrial areas within the project's scope. This is an example of implementing industrial uses in conversion projects[80].

- Cultural

Cultural activities are a fundamental ingredient in urban quality. This is the reason why many conversion projects are closely related to the introduction of the cultural land use in deteriorated areas. In many cases, the construction of a museum, a concert hall or a theater can radically transform the character of a place. There is a wide variety of examples world wide. **Transeuropehalles** is a European network of culture that has contributed to the preservation of former industrial sites by converting abandoned factories into multifunctional centers. Conversion has become their signature to such an extent that the network has created a new European post-industrial trend for culture.

- Sports

Sport facilities not only contribute to generating healthy, citizen-friendly urban environments, but they also have the ability of improving and enhancing deteriorated areas. Sport functions can be an important ingredient in conversion projects in the most various ways, ranging from simple sport fields to vast sport complexes that include stadiums and Olympic villages. When the city of **Turin** was selected to host the Winter Olympics in 2006, the organizers saw chance of combining such an event with the redevelopment of a vast extension of land that belonged to the traditional automobile company FIAT. One of the most impressive elements of this project is the conversion of the enormous **Lingotto** buildings into a multifunctional complex of shops, grocery stores, education, offices, hotel, restaurants, galleries, exhibition fairs and other functions. The old car factory possesses such enormous proportions that it can easily accommodate thousands of people doing many different kinds of activities at the same time. The Winter Olympics were a motor for the transformation of the area. Among the features of this event were the construction of a multifunctional sport complex and the Olympic village.

- Leisure

Conversion can be seen as a chance of releasing social and spatial pressure in "unhealthy" urban areas. This is the case of former industrial or port areas, or also of unplanned districts, where there is no adequate space available for inhabitants to develop leisure activities. One of the first conversion projects of international importance was the **Parc de la Villette in Paris**. Apart from the numerous cultural and educational facilities that the park features, this

[80] Powell. *op.cit*. 2000. p. 214-221

green public space offers an exiting and qualitative space for the realization of leisure activities and for cultural interchange.

- Forestal use

In some regions conversion is seen as an opportunity of returning nature what it lost in the urbanizing process. The term *renaturation* is defined as the restoration of something to its original condition. In an urban context, the term implies the recovery of natural habitats that were destructed with urban sprawl. Just as the world tends to urbanize, many cities and regions are facing problems of shrinking population. The former East Germany is an example of this phenomenon. After the dismantling of the socialistic system in 1989, many regions fell into a profound economic crisis which mainly affected the employment market. This led to a resettlement of work forces to other regions, and this way, population strongly declined[81]. The consequence was an excess of housing supply and the suboptimal utilization of urban land. The **State of Thüringen in Germany** has taken this chance to adopt a renaturation campaign. The principal measures of renaturation are the demolition of suboptimally used buildings, the clearing of sealed areas, the recuperation of water bodies (rivers, groundwater) and the stimulation of new natural habitats and ecosystems.

[81] Ferguson (ed). *Deutschlandscape – Deutschlandschaft*. 2004. p. 207

Table 3.11 Fact sheet of Kop van Zuid in Rotterdam

City / country

Rotterdam, The Netherlands

Project

Kop van Zuid

Situation before intervention

Docklands became brownfields

Original use

Docklands, port

New use

Mixed: office buildings, commercial, cultural, services, residential, leisure, light industry

Type of project

Urban renaissance (waterfront), infrastructure project (bridge)

Level of conversion of function

High

Level of reutilization of existing structure

Low

Scale of intervention

Large

Instruments / Strategies

- Integration of area with the rest of the city, specially with the center (extension of center)
- Introduction of high quality modern architecture
- Improved connection with the city through public transport and infrastructure (Erasmus Bridge)
- Bridge as symbol for the revitalization
- Social and economical problems considered
- Developments through PPP

Description

Rotterdam is one of the most important port cities in Europe. The Kop van Zuid area suffered from the changing needs from the shipping industry, turning into brownfields in the last century. The redevelopment of the area not only aimed at the improvement of urban quality but also at the extension of the city center, emphasizing on high quality architecture and infrastructure.

References

Powell, *Stadt im Umbau*, 2000

Information on the web

www.kopvanzuid.info

Pictures and plans

Table 3.12 Fact sheet of lofts in Berlin

City / country

Berlin, Germany

Project

Lofts

Situation before intervention

Abandoned fabrics

Original use

Industrial

New use

Residential or offices

Type of project

Urban renaissance

Level of conversion of function

High

Level of reutilization of existing structure

High

Scale of intervention

Small, punctual

Instruments / Strategies

- Reutilization of existing buildings
- Low costs
- Ample spaces for living or working
- Restoration of buildings with ecological standards
- New emerging markets
- Integration of former industrial sites in residential areas
- Valorization of land

Description

Since the fall of the wall Berlin has experienced an accelerated urban transformation. Some of the new phenomena present in the city are not as obvious as the new quarters and the spectacular architecture. Housing concepts have also evolved due to the revolution in the value of land and real estate. Deindustrialization released former industrial spaces for the introduction of new uses including residential. It is an alternative which contributes to preserve the built up environment and adapts to different lifestyles.

References

de Dijn, *Lofts in Berlin*, 2004

Information on the web

www.berlinlofts.de

Pictures and plans

Table 3.13 Fact sheet of the Galeria Kazimierz in Cracow

City / country

Cracow, Poland

Project

Commercial and entertainment center Galeria Kazimierz

Situation before intervention

Area lost ist original function due to changes in the economy

Original use

Industry

New use

Commerce

Type of project

Flagship project (commercial center), renaissance

Level of conversion of function

High

Level of reutilization of existing structure

Medium

Scale of intervention

Small (36.000 m^2)

Instruments / Strategies

- Parcial reutlization of existing buildings
- Revitalization of the area
- Financial sustainability
- Improvement of the sector and its services

Description

After the fall of the iron wall, Poland has transformed into a booming nation. Lake many other countries, it has suffered processes of deindustrialization, increasing the potentials of conversion. This project shows a successful example of the reutilization of former industrial areas for commercial purposes. It partially reutilizes previously existing buildings.

Information on the web

www.galeriakazimierz.pl

Pictures and plans

Table 3.14 Fact sheet of Seine Rive Gauche in Paris

City / country

Paris, France

Project

Seine Rive Gauche

Situation before intervention

Deteriorated unattractive area

Original use

Mixed: railways, industry, deposits, residential

New use

Mixed: residential, offices, cultural (library), railways (reduced), industry, services

Type of project

Urban renaissance (waterfront), flagship project (library)

Level of conversion of function

Medium

Level of reutilization of existing structure

Medium

Scale of intervention

Large (300.000 m^2, 20.000 inh.)

Instruments / Strategies

- Introduction of housing (from social to exclusive)
- Improvement of public space
- Connection of the area with the rest of the city
- Impulse through megaprojects (library)
- New masterplan with new distribution of uses
- New infrastructure (bridges, avenues, etc.)
- High quality architecture
- Reutilzation and remediation of existing buildings
- Approx. 50 % of the area dedicated to traditional and new industry and factories

Description

The area is located near the center of Paris, however it is influenced by industry and the railways, legacies from the 19th century. Efforts to revitalize the area have included the introduction of important landmarks like the National Library of France and of a clear redistribution of land uses. Industry continues to be an important part of the area, however many spaces were recuperated for new development to increase urban quality, attractiveness and connection to the rest of the city.

References

Powell, *Stadt im Umbau*, 2000

Information on the web

www.parisrivegauche.com/

Pictures and plans

Table 3.15 Fact sheet of factories turned into theaters

City / country

Various European countries

Project

Transeuropehalles

Situation before intervention

Abandoned factories, warehouses, market halls, slaughter houses or barracks

Original use

Industrial

New use

Cultural: theater, dance, art

Type of project

Urban renaissance

Level of conversion of function

High

Level of reutilization of existing structure

High

Scale of intervention

Small

Instruments / Strategies

- Creation of a European network of independent cultural centers
- Support for young artists and cultural exchange
- Reutilization of existing former industrial buildings

Description

This transeuropean project intends to create a cultural network for the interchange of artistic expressions. It has the peculiarity that it selects former industrial areas in every member city to establish. The conversion of these sites into multifunctional centers contributes to the improvement of urban space.

Information on the web

www.teh.net

Pictures and plans

Table 3.16 Fact sheet of the Lingotto area in Turin

City / country

Turin, Italy

Project

Lingotto

Situation before intervention

Lost its original function due to economic transformations

Original use

Automobile industry: Fiat

New use

Mixed: sport, leisure, commerce, educational, cultural, offices, residential, exhibition fair

Type of project

Event project (Winter Olympic games), infrastructure project (bridge), flagship project (Lingotto)

Level of conversion of function

High

Level of reutilization of existing structure

High

Scale of intervention

Large

Instruments / Strategies

- Strengthening of regional symbol / landmark
- Reutilization of existing buildings for the Winter Olympics and other events and fairs
- Introduction of sport facilities, galleries, theaters
- Emphasize on the industrial culture / identity of the region

Description

Fiat is the symbol of Turin and it was for decades the motor of its economy. Deindustrialization generated the opportunity to convert the vast areal where the factory was located. Redevelopment consisted in partially reutilizing impressive industrial buildings at the Lingotto and partially constructing new ones. The city gained impressive spaces for new uses. Many of the competitions of the Winter Olympics of 2006 took place in this area. For this, new facilities were constructed, as well as an Olympic village.

Information on the web

Pictures and plans

Table 3.17 Fact sheet of Parc de la Villette in Paris

City / country

Paris, France

Project

Parc de la Villette

Situation before intervention

Slaughter house dismantelled in 1974, brownfields

Original use

Slaughter house, industrial

New use

Leisure: park, cinema, Culture: museums, concert halls, exhibition hall, theater, circus, Educational: music school

Type of project

Urban renaissance, Flagship projects (museums, theaters, etc.)

Level of conversion of function

High

Level of reutilization of existing structure

Medium

Scale of intervention

Large (35 ha)

Instruments / Strategies

- Avant-guardist landscape planning and architecture
- Reutilization of existing buildings
- Creation of a space for cultural interchange
- Impulse to popular arts
- Promotion of cultural and educational activities
- Create green spaces within the city

Description

The design of the park is the result of an international competition, in which major architect took part. The winner war Bernhard Tschumi with a conceptually brilliant and formally impeccable proposal. The main features are the public cultural park of unique landscape and the promotion of science and music through museums and artistic facilities.

Information on the web

www.villette.com

Pictures and plans

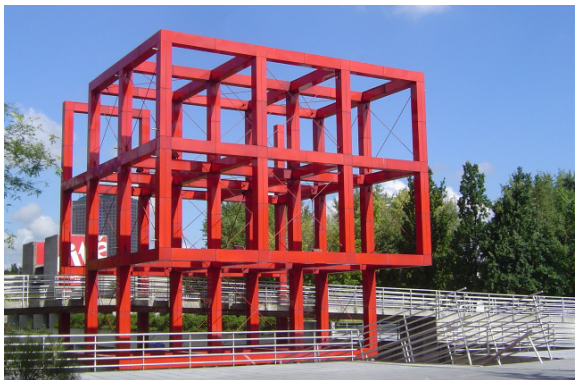


Table 3.18 Fact sheet of Renaturation of urban areas in Thüringen, Germany

Region / country

Thüringen, Germany

Project

Renaturation of brownfields

Situation before intervention

Brownfields and suboptimally used areas due to shrinking population

Original use

Industrial and others

New use

Forests and parks

Type of project

(Sub)urban renaissance

Level of conversion of function

High

Level of reutilization of existing structure

High

Scale of intervention

Large

Instruments / Strategies

- Return to nature suboptimally used areas and brownfields
- Creation of new habitats and ecosystems
- Rehabilitation of soils, ground and surface waters
- Improvement of landscape
- Creation of spaces for leisure activities

Description

The State of Thüringen, as many other regions in Germany, is experiencing shrinking population. The result is an oversupply of built up areas. Renaturation is a sustainable alternative to "ghost quarters". It gives back to nature what has been taken away from her in the urbanization process.

Information on the web

Pictures and plans

3.4 Scale of conversion

Conversion is not restricted to a specific size of projects. Examples range from simple punctual interventions on a single building to complex revitalization projects that comprise vast extensions of urban land. The complexity and cost of a conversion project are directly related to its size, not only due to physical extension, but rather to the number and the nature of actors involved and the time projects require to materialize.

Conversion projects, independently from their scale, produce positive impacts on the urban quality. Ownership, feasibility and investment are fundamental criteria that influence the success of a project. The extent of participation of the private or public sectors depend very much on their scale: the bigger an intervened area, the higher the participation of the public sector. In urban conversion size is a fundamental aspect.

Three different scales of conversion were determined in order to systematically catalogue projects according to their size[82]:

- Small scale — punctual interventions up to 1 hectare
- Middle scale — areas of 1 to 5 hectares
- Large scale (megaprojects) — areas of 5 and more hectares

In this section, three examples are analyzed in order to describe the low, middle and large scales of conversion.

<u>- Small scale conversion</u>

Good examples of punctual interventions are abandoned factories which are reconditioned to shelter cultural activities. Frequently factories or industrial buildings prove themselves adequate for this purpose, mainly due to the fact that such type of constructions tend to posses the dimensions (height, area) which are needed for the development of different artistic expressions, as well as for the accommodation of large numbers of persons. Additionally, former industrial areas allow certain flexibility and do not require high investments for renovation and reconditioning. The buildings, with their industrial character, become part of the scenery. An interesting example of punctual conversion is the **Gasometer in Oberhausen**, which is analyzed in this section.

[82] This scale of areas is used in the project “Small and medium companies develop small and medium areas” (Kleine und mittlere Unternehmen entwickeln kleine und mittlere Flächen – KMUKMF) from the Funding Priority REFINA of the German Federal Ministry of Education and Research (see cahapter 4.2.4).

- Middle scale

The **inner port of Duisburg** is a typical middle scale conversion example. This scale of projects produces positive impacts on a quarter and its surroundings. Through this kinds of projects urban land valorizes and the living quality is improved. Conversion aims mostly at balanced mixed uses, in which the areas maintain a permanent vitality. The project of the inner port is a perfect example of the impact of conversion in middle scale areas[83].

- Large scale

Many different actors, representing many different interests, stand behind “megaprojects”. Large scale conversion projects are not as common as middle or small scale. They are seen as unique opportunities to revitalize areas which have serious structural problems or where their original function is lost due to strong transformations in the economical and infrastructural situations. Typical examples of large scale projects are former railways and ports.

Vast urban areas are adequate for conversion purposes. This is often the case in big cities, were entire districts can be redeveloped according to the specific policies of the local governments. In these cases, the investment needed for revitalization is so high that public-private partnerships become the best alternative to carry out the interventions. An example of large scale conversion is the **docklands in London**. The megaproject of Canary Wharf alone comprises 97 hectares of former ship yards. The redevelopment of such vast extensions of land can only be carried out through campaigns from the local governments to solve serious structural urban problems. Megaprojects can be very controversial. The detractors of these projects argue among other things that the costs do not justify the interventions and that the public sector loses ground to the private actors[84].

[83] Powell. *op.cit*. p. 124-131
[84] Powell. *ibid*. p. 98-107

Table 3.19 Fact sheet of the Gasometer in Oberhausen

City / country	**Pictures and plans**
Oberhausen, Germany	
Project	
Gasometer	
Situation before intervention	
Lost its original function due to economic transformations of the region	
Original use	
Industrial: Oversized gas and coke container	
New use	
Cultural: Space for exhibitions, cultural events and observation platform	
Type of project	
Flagship project	
Level of conversion of function	
High	
Level of reutilization of existing structure	
High	
Scale of intervention	
Punctual	
Instruments / Strategies	
- Strengthening of regional symbol / landmark - Creation of an unique space for the promotion of culture - Emphasize on the industrial culture / identity of the region	
Description	
With 117 meter high, the gasometer has become a landmark for the entire region. The decision not to dismantle it after it lost its function proved to be correct. It not only strengthened the identity of the place, but it has become an original space for the promotion of culture.	
Information on the web	
www.gasometer.de	

Table 3.20 Fact sheet of the inland port of Duisburg

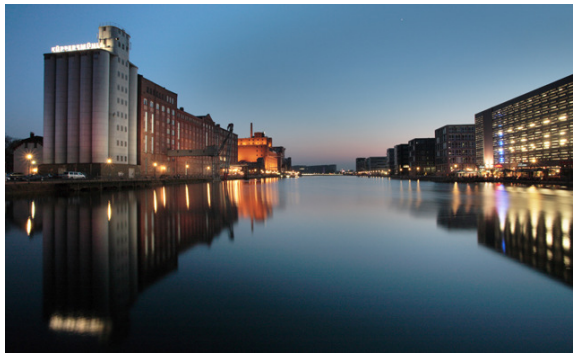
City / country	Pictures and plans
Duisburg, Germany	
Project	
Inland port	
Situation before intervention	
The port turned into brownfield due to economic transformations of the region	
Original use	
Port	
New use	
Mixed: residential, commercial, cultural, office buildings	
Type of project	
Urban renaissance (waterfront)	
Level of conversion of function	
High	
Level of reutilization of existing structure	
Medium	
Scale of intervention	
Medium (1,8 km, 89 ha)	
Instruments / Strategies	
- Reutilization of existing buildings through restauration and conversion (warehouses) - Decontamination of waters - Introduction of residential uses - Upgradal of public space (promenade)	
Description	
The port of Duisburg is the biggest inland port of the world. Strong changes in the economic structure of the region lead the area to deteriorate. In 1991 a competition was carried out to redevelop the port area with the participation of famous architects. The concepts aim to reutilizing existing buildings and to attract investment in housing in a very mixed environment.	
References	
Powell, *Stadt im Umbau*, 2000	
Information on the web	
www.innenhafen-duisburg.de	

Table 3.21 Fact sheet of the Canary Wharf in London

City / country

London, England

Project

Canary Wharf

Situation before intervention

Docklands closed down in 70'

Original use

Docklands

New use

Mixed: office buildings (mainly), commercial, services, residential (exclusive)

Type of project

Urban renaissance (waterfront)

Level of conversion of function

High

Level of reutilization of existing structure

Low

Scale of intervention

Large (97 hectares)

Instruments / Strategies

- Integration with the rest of the city
- Introduction of new modern architecture
- Creation of a new urban center
- New areas generated to solve the high demand for office space

Description

The origin of the docklands date back to the 1200s, reaching its peak in the Industrial Revolution. With deindustrialization the area became deteriorated and disconnected from the rest of the city. Thanks to high investments and visionary planning, the docklands have become a development pole for the city.

References

Powell, *Stadt im Umbau*, 2000

Information on the web

www.canarywharf.com

Pictures and plans

3.5 Degree of conversion of the original function

Urban conversion can be experienced in different levels according to extent to which the original function of an area is transformed. This depends on the kind of intervention to be carried out in the area, as well as on its level of existing deterioration. Three levels were determined as a way of systematically cataloguing projects according to the extent to which the function is converted:

- High degree - complete conversion 80 - 100 %
- Medium degree - partial conversion 20 - 80 %
- Low degree - reduced conversion 0 - 20 %

To illustrate the different levels of function conversion three examples were selected.

<u>- High degree of conversion</u>

Places where the original land use has ceased to exist tend to evolve into brownfields unless they are intervened with the introduction of a new use or uses. In these cases the former function is completely replaced by a new one. The area called **Hafencity in Hamburg** was selected to illustrate this case. Ports, shipyards and docklands are good examples of the total replacement of functions. This is mainly due to the strong transformations suffered by the shipping industry since the beginning of the Industrial Revolution; especially due to the change in the size and quantity of ships and to the introduction of the international container system. Old ports have become obsolete throughout the decades, and in many cases they have been relocated to more adequate facilities. Many cities see this as an opportunity to redevelop former ports and at the same time generate new attractive mixed spaces, which are usually in the vicinity of central areas. This is an example of complete conversion of functions.

<u>- Medium degree of conversion</u>

Often the function of an urban area is only partially replaced in order to selectively improve the quality of a specific sector. In other words, after intervention the original land use of an area can partially be maintained. The area of **Zorrozaurre in Bilbao** is a longitudinal peninsula in the River Nervión, which has kept for decades a predominantly industrial and port character. However, some settlements are to be found on its grounds. The new Master plan for the site, designed by architect Zaha Hadid, proposes the redevelopment of the area, by introducing new functions, such as housing, sport facilities, commerce, office buildings and leisure activities. The plan intends to replace to a great extent the existing buildings and functions. However, many of the existing constructions will be renovated and this way they

partially maintain their original use (residential, religious, etc.). This is an example of partial conversion of functions.

- Low degree of conversion

The third case are the areas were the original function stays mainly the same after the intervention has taken place. These areas require usually revitalization measures that improve the urban quality and strengthen a specific desired character of the area. The quarter **Temple Bar in Dublin** was selected to illustrate this case. In this example, the cultural character of the quarter has been emphasized by introducing high quality architecture and by upgrading the public space. The new Master plan for Temple Bar is based on the existing advantages of the place, especially the richness of the historical buildings and the cultural atmosphere. At the same time, new public space is created and the connection with the rest of the city is improved. This way, the function of the area remains mainly the same, even when conversion has taken place. This is an example of a reduced conversion of urban functions[85].

[85] Powell. *op.cit*. 2000. p. 58-65

Table 3.22 Fact sheet of the Hafencity in Hamburg

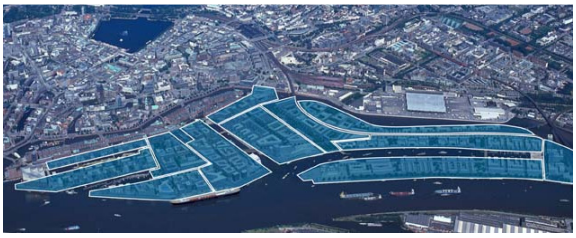
City / country	Pictures and plans
Hamburg, Germany	
Project	
Hafencity	
Situation before intervention	
Area lost its original function due to changes in the economy of ports	
Original use	
Port	
New use	
Mixed: residential, offices, cultural, commercial, leisure	
Type of project	
Urban renaissance (waterfront), flagship project (concert hall)	
Level of conversion of function	
High	
Level of reutilization of existing structure	
Medium	
Scale of intervention	
Large	
Instruments / Strategies	
- Creation of high quality public space - Extension of the city center towards the river - Reutilization of existing buildings - Emphasize on the industrial culture / identity of the region	
Description	
Formerly part of the Port of Hamburg, the HafenCity urban development zone offers space for Hamburg's inner city area to grow and expand. Like many other port areas in Europe, suffered from the changing needs from the shipping industry, turning into brownfields in the last century. The redevelopment of the area aims at the development of high quality architecture and infrastructure. This way the city turns towards the river as an organizing element that generates vitality and improves the urban landscape.	
Information on the web	
www.hafencity.com	

Table 3.23 Fact sheet of Zorrozaurre in Bilbao

City / country

Bilbao, Spain

Project

Masterplan of Zorrozaurre

Situation before intervention

Suboptimally used area with low urban quality, strategically located on development axis

Original use

Mixed: industrial, port, residential

New use

Mixed: residential, sport, leisure, services, offices

Type of project

Urban renaissance

Level of conversion of function

High

Level of reutilization of existing structure

Medium

Scale of intervention

Large

Instruments / Strategies

- Reutilization of existing structure and buildings
- Improvement of urban quality
- Valorization of land
- Enhancement of the city landscape
- Development of river as organizing space
- Revitalization of deteriorated areas
- Introduction of high quality urbanism and architecture

Description

Like the rest of the river front in Bilbao, Zorrozaurre has an industrial and port character which lacks of attractiveness and urbanity. The city has rediscovered the river, realizing its potential of development. The axis of the river creates a space for new areas that enrich and ameliorate urban space. The project area has a unique form and the master plan of the project from architect Zaha Hadid proposes mixed areas with new and old buildings.

Information on the web

www.pritzkerprize.com/2004/pdf/Bilbao.pdf

Pictures and plans

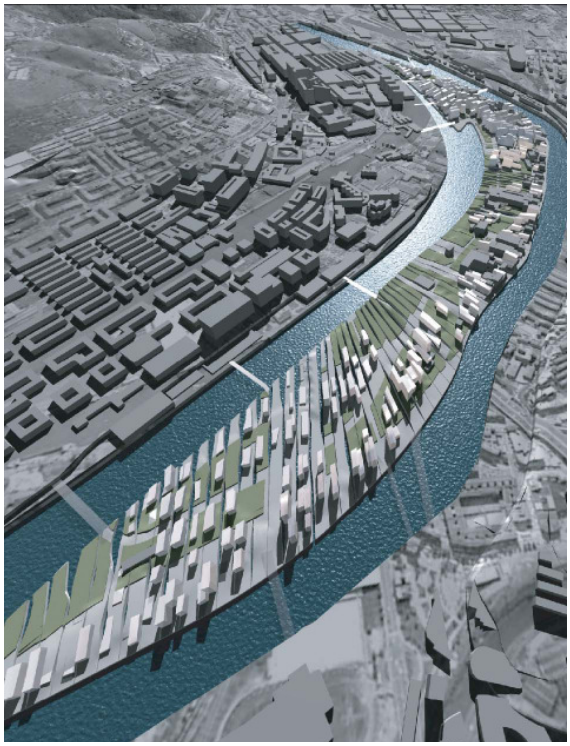


Table 3.24 Fact sheet of Temple Bar in Dublin

City / country

Dublin, Ireland

Project

Temple Bar - Dublin's cultural quarter

Situation before intervention

Deteriorated historical center

Original use

Mixed: residential, commercial, cultural

New use

Mixed: residential, commercial, cultural,

Type of project

Urban renaissance

Level of conversion of function

Low

Level of reutilization of existing structure

High

Scale of intervention

Large

Instruments / Strategies

- Increase of residents
- Upgrade into tourist attraction
- Repair and protection of historical buildings
- Improvement of public space
- Increase of identity
- Stregnthening of cultural character
- Filling of gaps between buildings
- Integration of the area with the rest of the city

Description

Temple Bar is an area located on the River Liffey in central Dublin. Its origins date back to 1600. In the 20th century it suffered from urban decay. The efforts carried out in the last two decades to revitalize the area have generated very positive results. Today it is the location for many cultural institutions and a major center for nightlife.

References

Powell, *Stadt im Umbau*, 2000

Information on the web

www.temple-bar.ie

Pictures and plans

3.6 Degree of reutilization of existing structures

Unlike in new urban developments, conversion presupposes a previously existing built up structure. This structure can be composed of buildings, streets and different types of infrastructure, depending on the nature of the previous function. Frequently, new uses allow the reutilization of abandoned structures to different extents. In some cases, conversion projects contemplate the demolition of all existing “witnesses” of the previous use. The level of reutilization is influenced by the following factors:

- Former function
- New function
- State and quality of remaining buildings
- Cost of renovation of remaining buildings
- Existence of landmarks or historical buildings

Three levels were determined as a way of systematically cataloguing projects according to the extent to which abandoned structures are used in conversion projects:

- High degree – 80 - 100 % of the existing structure is reutilized
- Medium degree - 20 - 80 % of the existing structure is reutilized
- Low degree - 0 - 20 % of the existing structure is reutilized

To illustrate the different levels of reutilization of existing structures, three examples were selected.

<u>- High degree of reutilization</u>

The **Baumwoll Spinnerei** in Leipzig is today one of Europe’s most important artistic centers. However, for more than a century it sheltered the 8-hectare compound of the largest cotton spinning mill on the continent. Since the dismantling of production in 1989, craftsmen, designers, architects and artists have settled in the 20 factory buildings of the mill, looking for affordable and atmospheric studios. Due to the new vocation of the area, the old factory, which remains intact, houses art galleries, art stores, restaurants, lofts, workshops and many other uses, which have adapted to the existing structure. This is an example of a high level of reutilization of existing structures in conversion.

<u>- Medium degree of reutilization</u>

Many conversion projects recycle only partially the existing structures. That is the case of the old port of **Ruoholahti in Helsinki**. Some of the old port buildings were kept and converted. Traces of the old port function are a reminder of the previous vocation of the new mixed

area. The result is a balanced mix of old and new buildings, styles and typologies, which enrich the urban landscape and strengthen the identity of the place.

- Low degree of reutilization

Bilbao has historically turned its back to its river. Ironically the River Nervión is not only the most influencing element for the city's structure but the fundament of its economical sustenance. The Industrial Revolution has influenced the character of this city for decades, but with Postindustrialization Bilbao has taken the chance of reinventing itself by recuperating the areas along the river and exploiting their potential. The introduction of the Guggenheim Museum is the most spectacular of a series of high quality urban and architectonical interventions along the Nervión. The area was however completely restructured. Very few constructions from the industrial past remained after the interventions. For this reason, the waterfront of Bilbao is an example of a low level of reutilization of existing structures in conversion.

Table 3.25 Fact sheet of the Baumwoll Spinnerei in Leipzig

City / country

Leipzig, Germany

Project

Baumwoll Spinnerei (Cotton spinning mills)

Situation before intervention

Mill ended activities, dismantling of production in 1989

Original use

Industrial: cotton mill

New use

Mixed: culture (exhibition halls, art production), commercial, handcraft, residential, offices

Type of project

Urban renaissance

Level of conversion of function

High

Level of reutilization of existing structure

High

Scale of intervention

Medium (8 ha, 20 buildings)

Instruments / Strategies

- Reutilization of existing buildings (100 %)
- Strong artisitic character
- Financial viability
- Mix of uses around art thematic

Description

In the last 12 years the formerly largest cotton spinning mill in Europe developed into one of the continent's most important artistic centers. With the dismantling of production, craftsmen and artists looking for affordable spaces settled the completely preserved constructions. Today the compound includes studios, exhibitions, art stores and other uses all related to art.

Information on the web

www.spinnerei.de

Pictures and plans

Table 3.26 Fact sheet of Ruoholahti in Helsinki

City / country

Heilsinki, Finland

Project

Ruoholahti

Situation before intervention

Relocation of port

Original use

Port

New use

Mixed: residential, commercial, cultural, office buildings

Type of project

Urban renaisance (waterfront)

Level of conversion of function

High

Level of reutilization of existing structure

Medium

Scale of intervention

Large

Instruments / Strategies

- Generation of new urban spaces in a mixed environment
- Conversion of existing buildings as remembrance of former use
- Improvement of urban space
- High quality architecture and infrastructure

Description

With the transformations in the economy of shipping, the docklands of Helsinki were redeveloped by introducing mixed uses, and by integrating them with the city. The area was reclaimed from the sea. Due to the new shipping standards, a new port was created outside the city. The quality of the public space and architecture enrich an area, which is quickly gaining in value. The original use is permanently reminded through remaining buildings of its industrial past.

References

Stadtplanungsamt Helsinki, *Städtebaulicher Guide*, 1996

Pictures and plans

Table 3.27 Fact sheet of the waterfront on the River Nervión in Bilbao

City / country	**Pictures and plans**
Bilbao, Spain	
Project	
Urban regeneration along the Nervión River	
Situation before intervention	
Lost its original function due to economic transformations	
Original use	
Port	
New use	
Mixed: cultural (museums), commercial, services	
Type of project	
Urban renaissance (waterfront), flagship project (museum), Infrastructure (bridges)	
Level of conversion of function	
High	
Level of reutilization of existing structure	
Low	
Scale of intervention	
Large	
Instruments / Strategies	
- Improvement of urban landscape - Improvement of public space (promenade) - Connection of the area with the rest of the city - Impulse through megaprojects (museum) - New masterplan with new distribution of uses - New infrastructure (bridges, avenues, etc.) - High quality architecture	
Description	
The project includes the regeneration of the areas along the river of this traditionally industrial city. However, the most impressive element is the Guggenheim Museum, which because of its dimensions and architectural style, becomes the heart of the redevelopment measures. Through the interventions the city turns toward the river and increases considerably the urban quality.	
Information on the web	
www.bilbao.net	

4. Case Study Stuttgart

Deine Zauber binden wieder
Was der Mode Schwert geteilt
Bettler werden Fürstenbrüder
Wo dein sanfter Flügel weilt

Friedrich Schiller **ODE AN DIE FREUDE**

Stuttgart has become in the last years an international paradigm in terms of urban renewal and urban regeneration. Not many cities in the world have confronted the negative effects of urban sprawl as aggressively as this city. The concept "*Innenentwicklung vor Außenentwicklung*" (inner development before outer development) is applied strictly in this city, to such an extent that no unsettled areas are made available to investors for new urban developments. In order to provide answers to the increasing demand for new urban space, the city has developed strategies and instruments to reuse previously existing urbanized areas.

The city of Stuttgart is without a doubt a pioneer and forerunner both in Germany and worldwide in the implementation of inner development measures. But the introduction of inner development in the city did not come overnight. Many factors have led Stuttgart to adopt strict urban development policies in the last years. External phenomena such as the economic crisis from the eighties, the increase on the oil prices and the increasing general concern about environment and ecology contributed to different extents to a deceleration of urbanization. However, it is the particularities of the city's topography and zoning, which have led to the dire necessity of generating creative solutions to the settlement issues. The climatologic problems generated from urbanizing green areas were already diagnosed in the seventies: the quality of the Stuttgart's air depends highly on its forests, agricultural areas and vineyards, due to its location within a valley and the circulation of air. The Stuttgarteans recognized the indispensable value of the city's green areas, and began in early stages to protect them from developers.

In other words, specific circumstances led Stuttgart to start developing itself internally instead of towards its periphery. In the early nineties it was clear that a quantitative growth of the city

was not any more sustainable[86]. In the *Land Use Plan of Stuttgart 2010*, which is legally effective since the year 2000, it was decided that any not urbanized area around Stuttgart was excluded for any future urbanization. This radical decision was the only way to guarantee a sustainable growth of the city in spite of the pressure imposed by the financial market of land, which is always anxious for finding cheap square meters in the peripheries. The lesson imparted by Stuttgart is that urban planning should not be regulated by the free market of land but it should be controled by strict development policies and legal instruments.

This chapter illustrates different strategies and instruments implemented in Stuttgart to strengthen and promote inner urban development. The case study is structured in four segments and it analyses the general framework in which conversion projects take place, emphasizing on historical, political and legal aspects of planning. The first segment intends to locate the city of Stuttgart in its historical and spatial context. The second describes the legal and political framework for inner development in Germany. The third segment analyses the different planning levels in Stuttgart emphasizing in the field of inner urban development. The fourth segment specifies on a series of concrete examples of instruments that the public administration possesses for application in the planning process. Finally, in the last section of the present chapter, three selected conversion projects in Stuttgart are analyzed more deeply. These projects are “Stuttgart 21”, planned on the grounds of the main train station; the new housing area “Im Raiser”, developed on a former military site; and the “Bosch Areal”, developed on a former industrial site.

Figure 4.1 Schloßplatz in Stuttgart

[86] According to Nicole Baumüller from the Office of Urban Planning and Urban Renewal from the City of Stuttgart

Figure 4.2 Map of Germany. Stuttgart is the capital of the Federal State of Baden-Württemberg, which is located at the southwest of the country.

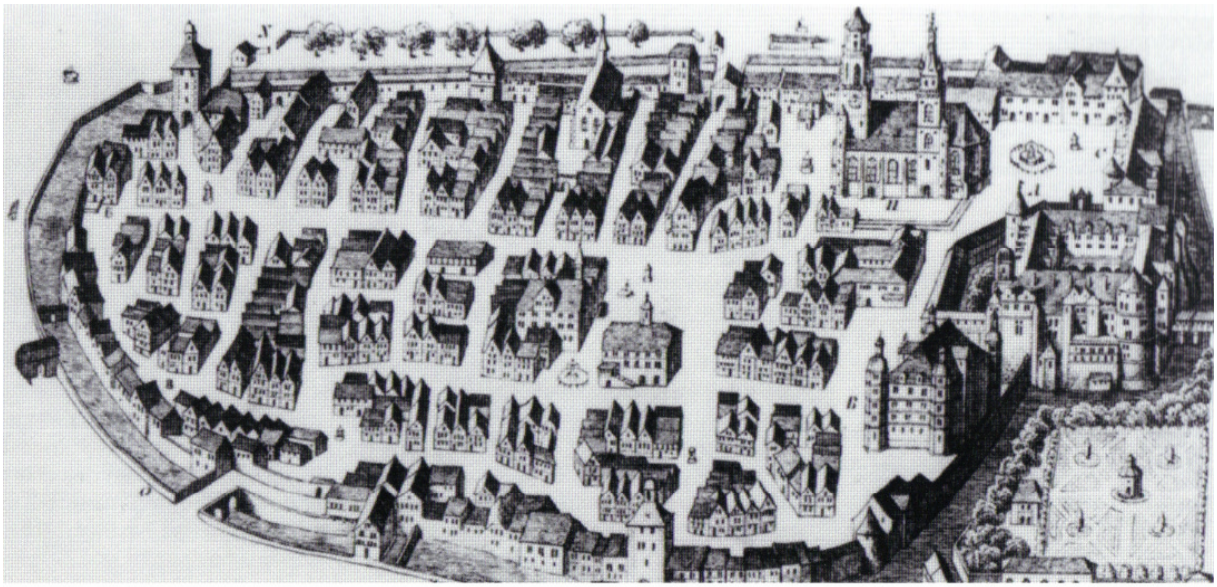
4.1 Stuttgart and the European city

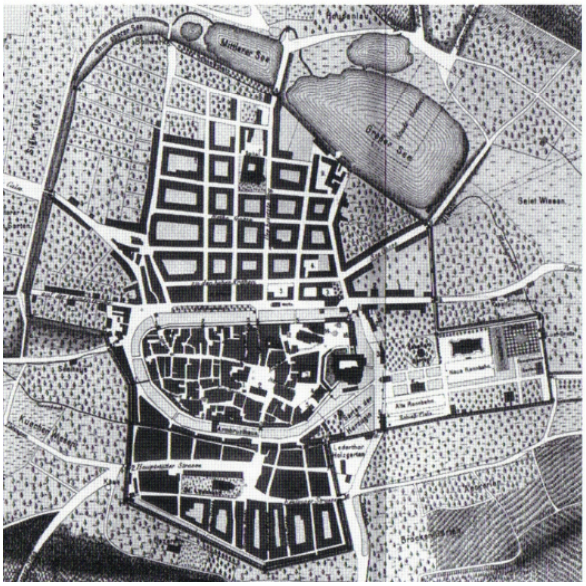
The city of Stuttgart has not been indifferent to the phenomena that have influenced the development of the European city throughout history. In fact, its urban morphology is a result of very specific historical and cultural determinants which are inherent to the evolution of the European culture. The city has its origins around the year 950 and approximately 350 years later it became the residence of the counts of Württemberg. The name Stuttgart is a modified version of the word "*Stutengarten*", which means mare or horse garden. Today, Stuttgart is the capital of the state of Baden-Württemberg and has a population of 591.528 inhabitants (April 2006). The city is also the center of a very densely populated region of 2.7 million inhabitants located in southeastern Germany.

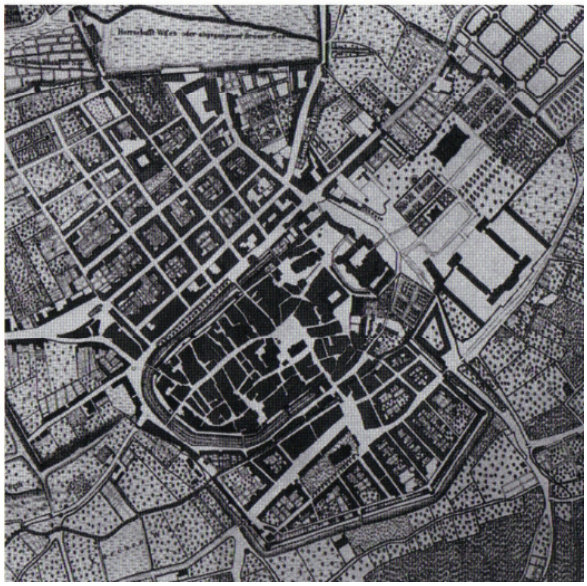
The city takes pride on its industrial character, on its high export capacity as well as on its high quality research and innovation facilities. Stuttgart owes its present wealth mainly to the fact that a wide number of internationally renowned companies and their affiliates are settled here. These include the automobile firms *Daimler* (Mercedes Benz) and *Porsche*, and the global supplier of automotive and industrial technology, *Bosch*.

The morphology of Stuttgart is strongly determined by the restrictions of its topography and by its derived limited accessibility. The mountainous relief of the city, as well as the vast extensions of cautiously preserved forests, gives the city a fragmented appearance: Stuttgart is composed of a variety of dense compact districts, which are separated from each other by spacious green bodies. The inner city or center is located in a valley. Unlike other cities worldwide, the inner city did not extend until it absorbed neighboring towns due mostly to the mentioned surrounding topography, but it remained compact only increasing its density.

Figures 4.3 Historical images of Stuttgart 1638, 1640 and 1743







The administrative annexation of surrounding towns took mostly place in the first half of the 20th century. In this process, the city extended its boundaries, increasing its area from 3.000 to 21.000 hectares. This process however did not alter the townscape of the city, which has maintained throughout the decades the character of a medium size town.

Stuttgart experienced the most radical changes on its urban morphology within the process of reconstruction of the city after the Second World War. 60 percent of the building fabric of the city center was destructed by a series of bombings. The economical boom in the postwar years brought an impulse to the citizen unfriendly modernism. Many urban “sins” were committed during the second half of the twentieth century, including the construction of expressways through the historical center and the demolition of architecturally valuable buildings. In the last decades the city has carried out efforts to amend the damages done in the past by implementing renewal measures that increase the living quality of the city, such as pedestrianization, transport calming and the improvement of public space. Additionally, urban friendly buildings are slowly mending the scars from the functionalistic reconstruction of the city.

Settlement structure

The population of Stuttgart reached its highest peak in 1962 with over 640.000 inhabitants. Today its approximately 590.000 inhabitants are distributed in the inner city and the 18 external districts. The area known as the *Stuttgart Region*, with its 2,6 million inhabitants, has become the most important of the 12 regions that conform the State of Baden-Württemberg, and constitutes one of the most economically strong regions of all Germany.

The Stuttgart Region is one of the densest city-regions in Europe and the third biggest in Germany. In its 3.654 m^2, which correspond to 10 percent of the area of the state, lives approximately 25 percent of its population.

The city has a markedly polycentric settlement structure. However, it is efficiently integrated in a complex system, which nevertheless allows the existance of a pronounced local identity. This particularity is explained by the historical growth of the city and the diversified topographical landscape. The city center is surrounded by a series of strong populous secondary centers such as Ludwigsburg, Esslingen, Sindelfingen, Böblingen, Leinfelden-Echterdingen, Filderstadt, Fellbach, Waiblingen and Leonberg. The integration of all this centers follows complex patterns and it is a guarantee for an economically, socially and culturally balanced functionality of the city. At the same time, this fragmented networked structure of the region generated an increasing suburbanization and sprawl of urban areas throughout the years.

Figure 4.4 Settlement development in Stuttgart from aprox. 1830 to 2000

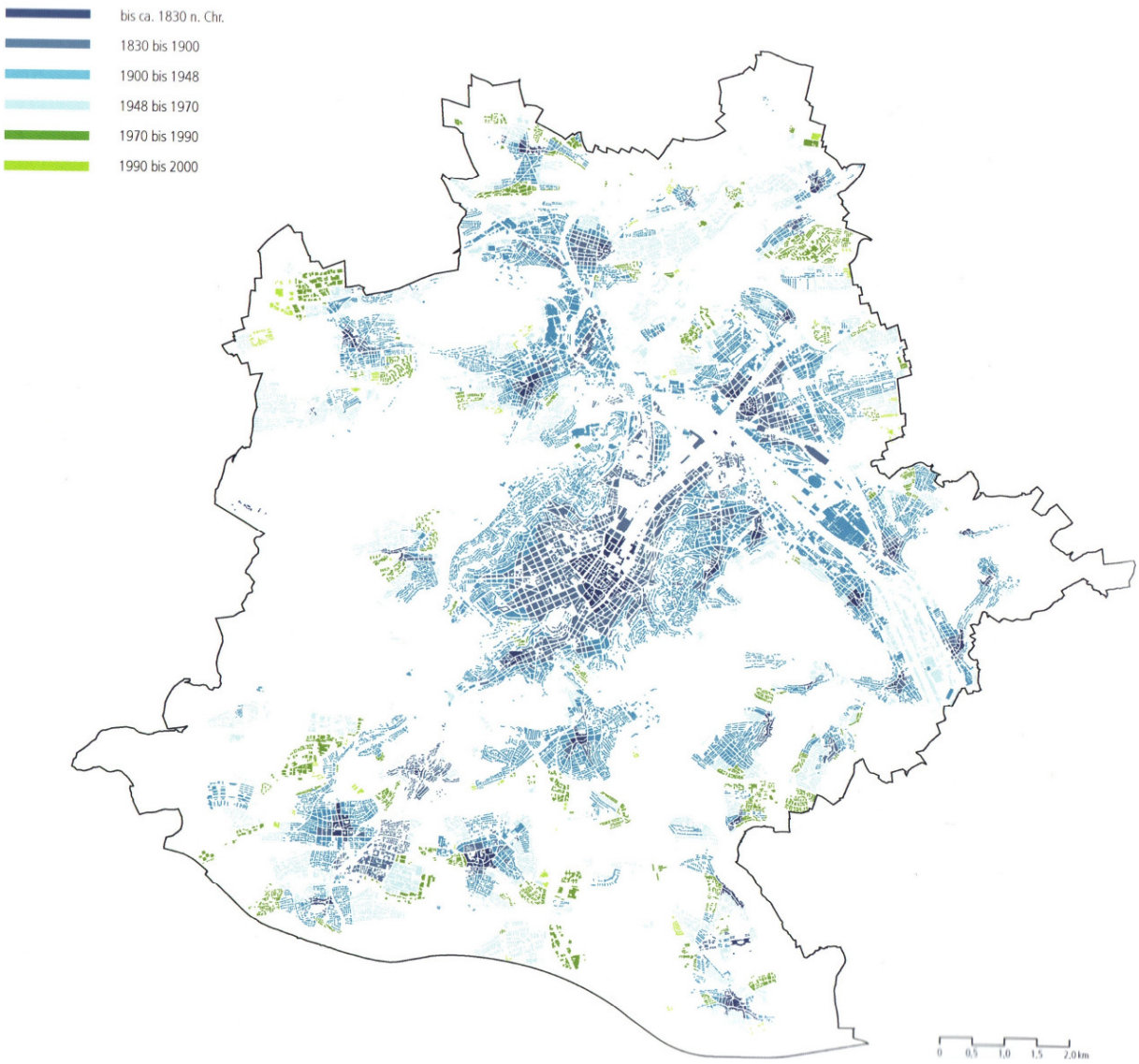
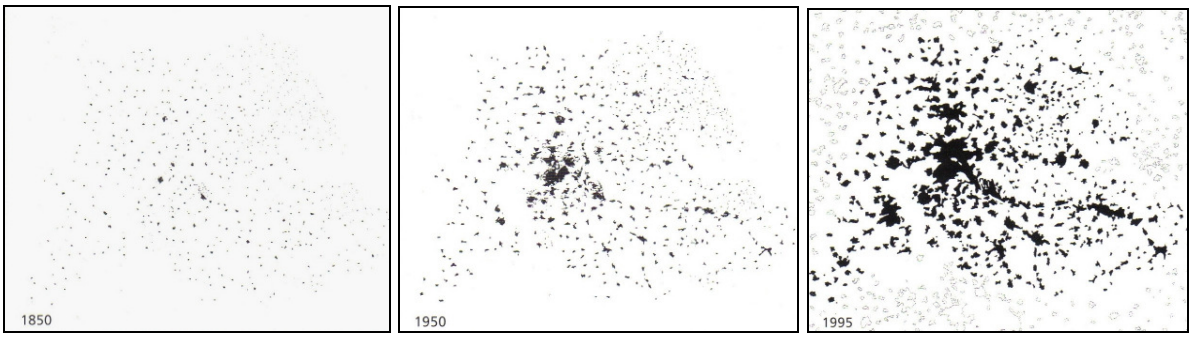
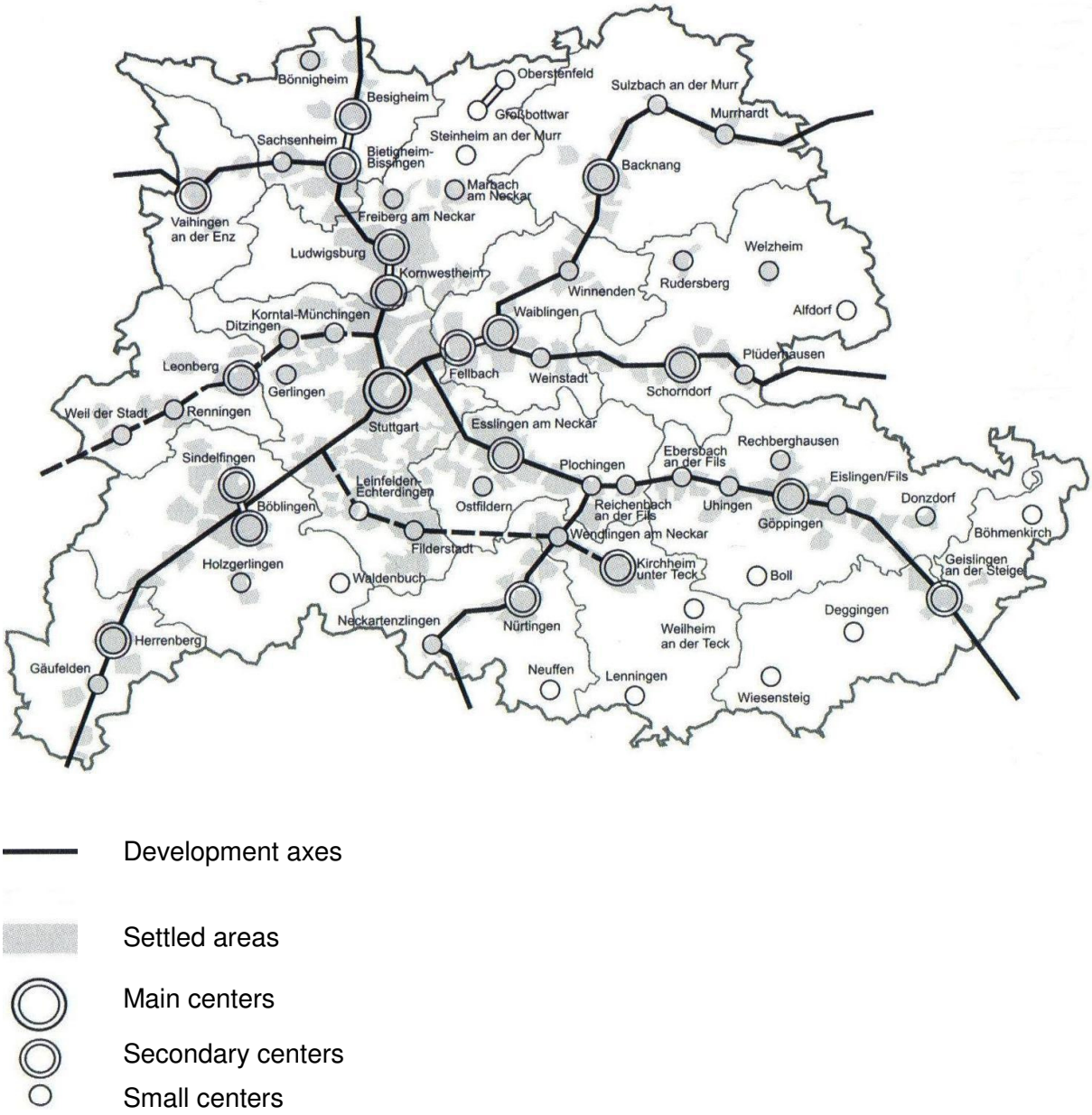


Figure 4.5 Settlement development in the Stuttgart Region from 1850 to 1995



The Stuttgart Region possesses a varied landscape, which is characterized by the mountainous relief and the existence of a development axe along the River Neckar. The proportion of forests (23,9 percent) within the demarcation of the city is remarkably high. 54,6 percent of the entire area of the city is covered by open or green spaces (parks, forests, water bodies and agricultural areas), making Stuttgart the second city in Germany with the largest not-urbanized area.

Figure 4.6 Hierarchy of centralities and development axes of the Stuttgart region



Development axes

Settled areas

Main centers

Secondary centers

Small centers

4.2 Legal and political framework for inner development in Germany

4.2.1 The Coalition Contract (Koalitionsvertrag) [87]

The Coalition Contract or Coalition Treaty (Koalitionsvertrag) is an agreement between two or more political parties that regulates middle and long term cooperation in a coalition during a legislation period[88]. The contract gives an overview on the government program and the concrete plans for the future government to be formed. Each partner of the coalition establishes its particular conditions and requirements, which must be contractually agreed upon between the parties, in order to form a solid and efficient coalition.

After none of the political parties obtained a majority to form a government in the Bundestag elections of 2005, the Christian Democratic Party (CDU), the Christian Social Union (CSU) and the German Social Party (SPD) agreed after 26 days of negotiations on a common Coalition Contract. The agreement was called "Together for Germany – Courage and humanity"[89] and is structured in seven sections:

1. More chances for innovation and work, prosperity and participation
2. Consolidation of national finances and taxes
3. Impulse to development in the Eastern part of Germany
4. Social security
5. Improvement of the operation capacity and modernization of the country
6. Strengthening of the family in society
7. Life quality in Germany

Relevant for this dissertation is chapter 6.7 "Urban development as future challenge"[90] from the first section of the Coalition Contract[91]. The Chapter establishes the agreement between the parties to support the reutilization of brownfields and residual areas inherited from the economic and military structural transformations.

The contract establishes also a compromise of the new government to reduce the demand for new urban land and to accelerate planning procedures, in order to reach a sustainable urban development. According to the document, this objective should be attained through the following measures:

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[87] CDU Deutschland et.al. *Gemeinsam für Deutschland. Mit Mut und Menschlichkeit.* Koalitionsvertrag von CDU, CSU und SPD. 11 November 2005
[88] de.wikipedia.org/wiki/Koalitionsvertrag
[89] In German: "*Gemeinsam für Deutschland. Mit Mut und Menschlichkeit*"
[90] In German: "*Stadtentwicklung als Zukunftsaufgabe*"
[91] CDU Deutschland. *op.cit.* p. 61-62

- Simplification of planning processes, especially in the fields working places, residential demand and infrastructure.

- Strengthening of inner urban development

- Acceleration of projects and plans

The fact that the topics “inner urban development”, “reduction of demand for new urban land”, “simplification of planning procedures” and “activation of sustainable plans and projects” are included in the governmental program of the German coalition is a clear prove that these are taken seriously in this country and that there is a general conscience on the need to establish development objectives in the political level. It also proves that urban development is an essential component of the political program of a government. This dissertation intends to demonstrate that a political will is prerequisite for a sustainable urban development based on concrete measures and objectives. The Coalition Contract is a compromise between parties, but also with the future generations.

Inner development should not be the result of punctual random projects. It should constitute a real development policy of national character. A sustainable urban development can only be attained if development objectives are established in general policies, equipped with the necessary legal instruments for its implementation. Otherwise, punctual intentions will only solve punctual problems.

4.2.2 National Strategy for Sustainability[92]

The “Strategies for Sustainability” are concepts for a sustainable development and for the implementation of the Agenda 21[93] of the United Nations at the local, regional and national levels. By signing the Agenda 21, each country commits itself to the creation of a National Strategy for Sustainability[94]. The National Strategy for Sustainability from Germany was issued by the German Government in 2002. It is structured in seven priorities and 21 indicators by which the degree of attained sustainability should be evaluated. The priorities are established as follows:

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[92] Bundesregierung. Perspektive für Deutschland – Unsere Strategie für eine nachhaltige Entwicklung. 2002, downloaded from www.bundesregierung.de/Webs/Breg/DE/Politikthemen/Umwelt/NachhaltigeEntwicklung/nachhaltige-entwicklung.html

[93] According to the website of the United Nations (www.un.org/esa/sustdev/documents/agenda21/index.htm), the Agenda 21 is a plan of action to be taken globally, nationally and locally by organizations in every area in which human impacts on the environment. The Agenda 21 was adopted along with the Rio Declaration on Environment and Development by more than 178 governments at the United Nations Conference on Environment and Development held In Rio de Janeiro in 1992.

[94] Bundesregierung. *op.cit.*

1. Efficient use of energy – Protection of the environment
2. Securing of mobility
3. Healthy production and nutrition
4. Shaping of the demographic change
5. Education reform
6. Innovation for sustainability
7. Reduction from demand of urban land

The seventh priority[95] establishes a strategy for a sustainable development of the settlement structures and their impacts on the increasing demand for new urban land through a quantitative and qualitative land management. Additionally, it determines measures and instruments implement the strategy. These instruments include the protection of unsettled suburban space, the settlement development in borders and inner development.

Regarding the sustainability indicators[96], the National Strategy for Sustainability determines 21 indicators with the objective of regularly establishing the advancements which are attained thanks to the application of the strategy, as well as to act efficiently applying measures where there is need for action. The fourth indicator in the document is "demand for new urban land"[97]. Today 130 hectares are urbanized daily in Germany as area for new settlement areas and circulation (road) space. Half of this area is constructed and the other half is sealed. This corresponds to the covering of one hundred football fields in one day. The demand for new urban land and the fragmentation of the landscape through roads is considered to be the most important cause for the loss of species in Central Europe.

For this reason, the document emphasizes on the importance of considerably reducing the consumption of the landscape, for example through the recycling of suboptimally used urban areas. The objective established in the Strategies is to reach a demand for new urban land from 130 hectares per day to a maximum of 30 hectares in the year 2020.

[95] Bundesregierung. op.cit. Pg. 287-298
[96] Bundesregierung. op.cit. Pg. 99-100
[97] In German: *Flächenineinspruchnahme*

4.2.3 The German Construction Law (Baugesetzbuch) [98]

The German Construction Law or Planning Law is the most important law regarding the legislation of planning in Germany. The law is included in the Planning Law Book (Baugesetzbuch or BauGB). Its regulations determine to a great extent the design, structure and development of the settled areas[99]. It defines the most important planning instruments for the local governments.

The BauGB has its origins in 1987 when the Federal Planning Law (Bundesbaugesetz) from 1960 and the Law for the promotion of urban planning (Städtebauförderungsgesetz) from 1971 were revised and compiled in one edition. Since then, the law has been amended in several occasions.

The BauGB is structured in four chapters:

1. General urban planning regulations
2. Special urban planning regulations
3. Other regulations
4. Transitional and concluding regulations

Relevant for this dissertation are the following paragraphs:

<u>Paragraph 13a - "Development plans for inner development"[100]</u>

According to this paragraph, the development plans for the reutilization of areas, densification or other measures for inner development can be implemented in accelerated processes of planning. The law seeks to facilitate, and this way to activate, the inner development of German cities by implementing a new efficient procedure under specific conditions[101] (specified ranges of floor area). The main characteristics of this procedure are:

- A concentrated participation of the public and the administration
- The elimination of the requirement to carry out the otherwise obligatory environmental audit (*Umweltprüfung*) and the compensatory ecological measures (*Ausgleichsmaßnahmen*)
- The possibility to modify the Land Use Plan for the sake of inner development
- The consideration of the interests of the investors

§ 13a was included in the BauGB in January 2007 as an amendment and its objective was to facilitate the planning procedures and implementation of projects for the inner development of cities. It stipulates the possibility of making exceptions to the law in order to eliminate

[98] Bundesrepublik Deutschland. *Baugesetzbuch – BauGB*. 2007
[99] de.wikipedia.org/wiki/Baugesetzbuch
[100] *Baugesetzbuch*. Paragraph 13a. p. 25
[101] *Baugesetzbuch*. Pg. XXV-XXVI

obstacles that slow down or even stop the realization of redevelopment projects. For the first time “inner development” is mentioned explicitly as part of the national law. This amendment to the BauGB is a demonstration that inner development is considered to be a priority in Germany.

Paragraph 171a – “Measures for urban reorganization”[102]

This paragraph establishes the possibility to carry out measures of urban reorganization[103] in urban districts, in which an efficient implementation reflects the public interest. The objective of these measures is to undertake the introduction of sustainable urban structures in areas that have experienced a loss of function. The measures for urban reorganization should contribute to the following objectives:

- Adaptation of settlement structures to the needs of population and economy
- Improvement of living and working conditions as well as the environment
- Strengthening of inner urban areas
- Assignation of new uses to suboptimally used areas
- Dismantling of facilities which are not compatible with the new uses
- Implementation of sustainable urban developments or of temporary uses to areas which stand empty
- Preservation of old or historical buildings

4.2.4 Support to sustainable development through research

A clear sign of Germany’s commitment to a sustainable development is the investment in research on the reduction of land consumption. Since 2006, the German Federal Ministry of Education and Research (BMBF) funds the program "Research for the Reduction of Land Consumption and for Sustainable Land Management" – REFINA[104] - as part of the German National Strategy for Sustainable Development. The German federal government has created the program with the goal of reducing land consumption for new settlement and transport-related areas (see 4.2.2). REFINA supports financially the development and testing of innovative concepts for the reduction of land consumption In order to provide a scientifically reliable basis for decisions and measures. It also establishes a platform that allows the linkage competence between many different actors, by funding 45 cooperation projects throughout Germany. The program REFINA is analyzed in more detail in 4.4.3 Cooperation projects.

[102] *Baugesetzbuch*. Paragraph 171a. p. 108-109
[103] In German: *Stadtumbaumaßnahmen*
[104] REFINA. In: www.refina-info.de

4.3 Levels of spatial planning in Stuttgart

The city of Stuttgart sets a high value on the implementation of urban planning that responds to the contemporary demands and requirements of this specific moment in history[105]. Planning in Stuttgart today emphasizes on inner urban development, revitalization of unused or suboptimally used areas and reactivation of potentials in urbanized areas. Urban planning is Stuttgart is understood as the regulated development of urban areas in different levels and scales, ranging from the development plans for the entire Federal State to local or specific plans. The following are the most relevant plans[106]:

Regional plan *(Regionalplan)*

This plan defines the main features related to the organization and development of the settlement structure, in coordination with the transportation and supply networks. An important characteristic of this plan is the concept of development axes and of centralities. It aims at concentrating the development of settlements along the more efficient and productive transport infrastructure. It also aims at the interchange between centralities and the surrounding areas. The essential part of the Regional Plan is the land use map with a scale of 1 : 50.000.

Urban development strategie *(Stadtentwicklunsplan)*

This plan deals with all long term practices for the analysis, information, coordination and control of the planning challenges of the city and it groups the urban, economic, ecological and social aspects. The Urban development plan is included in the "Urban development concept for Stuttgart" (*STEK - Stadtentwicklungskonzept*), which emphasizes on the fields of living, culture, education, leisure, sport, social aspects, landscape, mobility and transport. The Concept for urban development will be dealt with in the subchapter 4.3.1.

Land Use Plan *(Flächennutzungsplan)*

This is the first step of the development plan, which has the objective of organizing and controlling the constructional land uses, according to the requirements of the Construction Code. The period of planning amounts normally to 15 years. This plans needs to be adapted to the objectives of the general plans, and it presents the projected types of land use of all the areas of the city; especially for housing, commercial and industrial uses, space for circulation, greenery and forests. The scale of the plan is 1 : 10.000 and its development is responsibility of the City of Stuttgart. This plan is analyzed in more detail in the subchapter 4.3.2.

[105] Amt für Stadtplanung und Stadterneuerung. *Stufen der räumlichen Planung in Stuttgart*. 2006
[106] The translations of the official terms and names from the plans are obtained from: Urban Planning Department of Stuttgart "*Levels of spatial planning in Stuttgart*". 2006

Figure 4.7 Land use plan of Stuttgart (segment)

Local Development Plan *(Bebauungsplan)*

The Local Development Plan, also known as B-Plan, is developed accordingly to the Land Use Plan. Its objective is to ensure a sustainable urban development and a socially balanced use of land, which responds to the welfare of the generality. While the land use plan fixes the general development intentions of the municipality, the B-plan concretizes the legally binding forms for each parcel of land. The B-plans are established as bylaws. The scales of the master plan are normally 1 : 500 and 1 : 1.000.

Other plans

The public authorities of the State of Baden-Württemberg manage other plans which are not relevant for the dissertation. Among them are:

- State Development Plan (Landesentwicklungsplan)
- Landscape Plan (Landschaftsplan)
- Urban Framework Plan (Städtebaulicher Rahmenplan)
- Local Green Structure Plan (Grünordnungsplan)
- Local Design Plan (Gestaltungsplan)

4.3.1 The Development Concept for Stuttgart (STEK)

The objective behind the “Urban development concept for Stuttgart”, also known as the STEK (*Stadtentwicklungskonzept*) was to elaborate a long-term, sustainable plan for the city. The document, which was presented to the public in 2004, focuses on different fields of action and strategies for living space, economy, society, transportation, culture, leisure and sport. The main objectives of the concept are structured in guidelines and emphasize on lead projects for the different areas that compose the city. The STEK aims at

- the balance between economic, ecological and social aspects
- the implementation of the recognizable trends of the demographic and economic development
- the strengthening of the role of the inner city for the region
- the clarification of synergies between the numerous programs and projects
- the promotion of a public dialogues on the future urban challenges

The STEK can be considered as an “informal plan” that offers the chance of confronting different topics and to present development perspectives for the city and the region. The STEK is relevant for the present work because it allows the regulation and definition of the relation between inner development and urban extension. This includes the recycling of

areas that have the potential of becoming high-quality locations for business and living in central spaces.

The contribution of planning is to recognize the trends of the city as clear as possible, and this way, to be able to forecast future development. Stuttgart is not different than any other city, where dramatic structural changes are currently taking place. These include the changes in the population structure, the economical transformations (industry and services), the modernization processes and the increase in the demand for citizen service. Additionally, in a globalized world, cities face an aggressive competition for investments and qualified human resources. The urban development policies are looking for ways to position Stuttgart as a strong and attractive location for the economical sectors, and a qualitative living space for its citizens.

The STEK proposes the accentuation of four lead projects (*Leitprojekte*), which have been named as follows:

- "Living in urban areas and the renaissance of public space" – Lead project that concentrates on the revitalization of the city center
- "Industrial locations in transformation" – Lead project that concentrates on the industrial sites in the north of Stuttgart
- "River landscape of the future" – Lead project that concentrates on the developing areas along the River Neckar
- "New scientific landscape" – Lead project that concentrates on the districts of Vaihingen and the Filder, where a series of academic and research facilities are located

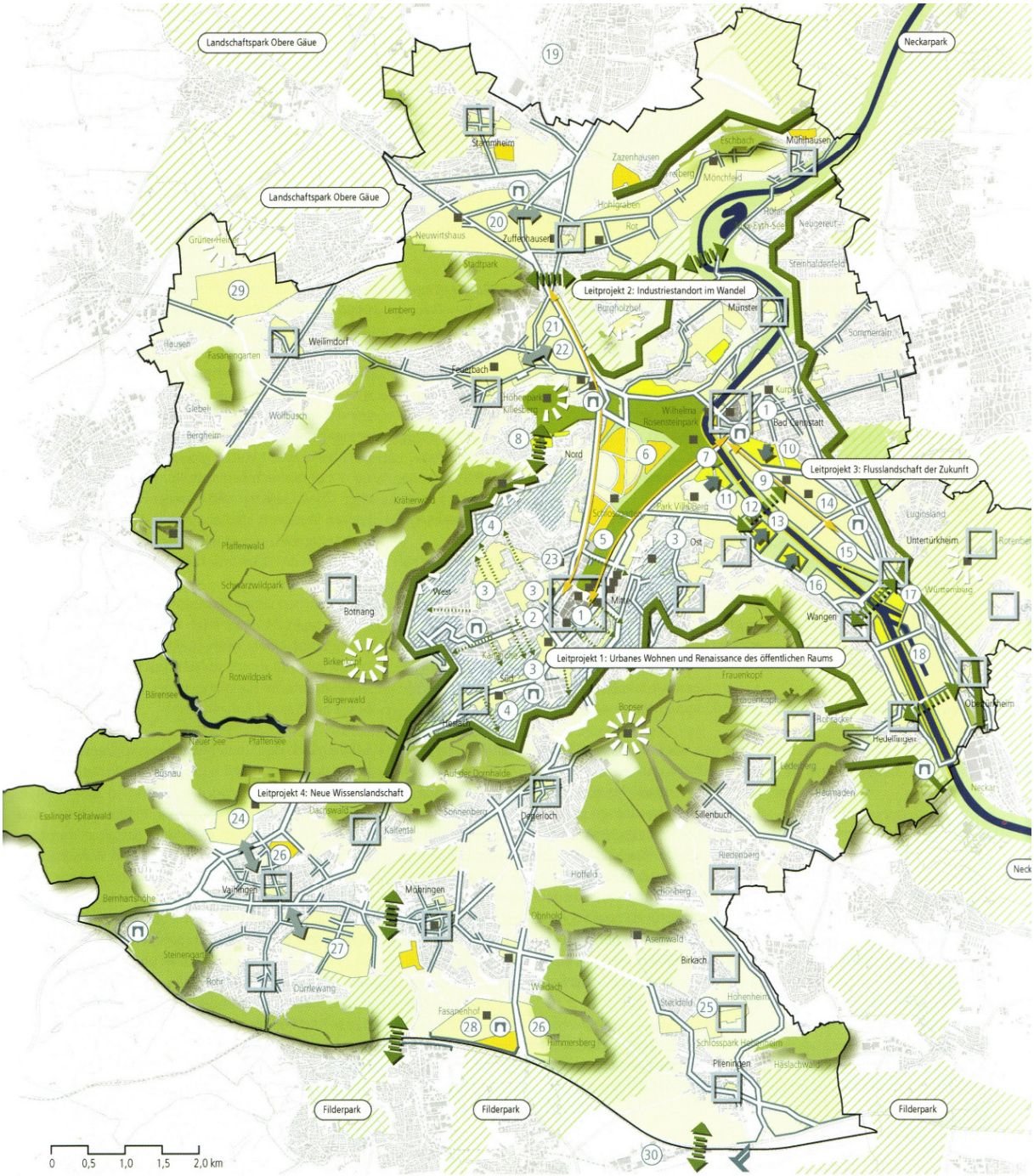
The Concept for urban development does not have a legal character, but it is considered as an overall concept for the city development for the next 15 to 20 years.

4.3.2 Land Use Plan 2010 of Stuttgart (Flächennutzungsplan 2010)[107]

The Land Use Plan of Stuttgart 2010 (FNP 2010) describes the projected development of the city until the year 2010. It is the result of a long planning process of 15 years (1996 to 2000) from the political and technical fields. The contents of the Plan are based on the regulations defined in the paragraph 5 of the Planning Law Book[108] (BauGB). The FNP 2010 establishes the intended types of land use for the entire municipal area, according to the needs of the commune.

[107] Landeshauptstadt Stuttgart – Amt für Stadtplanung und Stadterneuerung. *Flächennutzungsplan 2010 Landeshauptstadt Stuttgart*. 2004
[108] *Baugesetzbuch.* Paragraph 5 "Content of the Land Use Plan". p. 14-15

Figure 4.8 General plan of the Development Concept of Stuttgart (STEK)



The Land Use Plan does not have a direct legal application for citizens, but it is rather an instrument for the public authorities that establishes binding indications on the approval of projects or on the contents of the master or development plans[109]. For this reason, the FNP 2010 is considered legally effective or operative (rechtswirksam) and not legally binding (rechtsverbindlich). The approval of the Plan by the City and the Regional Councils[110] was preceded by a long process of discussions, that were closely followed by the general public. The civil participation was an important factor in the development of the Plan, which was approved and published in the official paper in the year 2000.

The "mission" of the FNP 2010 of Stuttgart was to reach a sustainable and environmental development for the city in consideration with the Agenda 21[111]. According to the document, the concept "sustainability" relates to an economic, socially fair and environmental development. The Land Use Plan contributes therefore to a sustainable and environmentally friendly urban development.

One of the most important contributions of the FNP 2010 is the prioritization of inner development over the urban sprawl. The Plan goes as far as to abstain from establishing new settlement areas. The boundaries of growth of settlement areas have been reached. Today, approximately 50% of the 207 km^2 of municipal area is settled area. That means that the city of Stuttgart can only grow to its inside, mobilizing the development potentials to the already existing urban fabrics and not to the surrounding land. The most important task of the urban development in Stuttgart is therefore to recycle and densify already existing residential and industrial areas. A new use should rapidly be implemented in areas that lost their original use because of economic changes. Densification, mixed uses and multiple centralities should be encouraged.

[109] In German: *Bebauungsplan*
[110] In German: *Gemeinderat and Regierungspräsidium*
[111] Landeshauptstadt Stuttgart. *op.cit.* p. 17-18

4.4 Instruments for inner urban planning

The city of Stuttgart has developed in the last two decades a series of instruments that enable a sustainable and efficient reactivation of brownfields and suboptimally used inner urban areas. Additionally, there are a series of national and international projects that financially support, promote and strengthen the general objective of slowing down the urban sprawl with all its negative consequences. This section deals with such instruments, which can be regarded as transferable models for cities that are dealing with redevelopment.

4.4.1 Sustainable management of urban areas - NBS

Since its implementation in the year 2001, the system called "Sustainable management of urban areas" has done a great contribution for the inner development of the city of Stuttgart. It started as a project promoted by a state research program, and it has established itself as the most important instrument for the different departments of the Municipality of Stuttgart for the sustainable development of the city. The main objective of the system is the implementation of strategies and tools to activate all areas with development potential (brownfields, conversion areas) and to make them marketable. The general objective is the reduction of demand for new urban areas by reusing deteriorated and abandoned sites within the city fabrics, and this way guarantee optimal urban densities, mixed uses, centrality and accessibility. The project has three basic components:

1. The creation of a catalogue of existing potential developing areas (especially for the development of housing and industrial uses). The most important characteristics of these areas are typified and summarized in a "pass" or dossier with most important information about each site. Areas with development potential include brownfields, gaps between buildings, suboptimally used areas, conversion areas and new areas throughout the city. Today there are more than 400 areas catalogued in NBS, representing more than 500 hectares of land and a potential of more than 5,5 million m^2 of gross floor area. The big majority of areas are smaller than 5 hectares.
2. The construction of an information platform (GIS and databanks), which can be permanently updated and presented on the internet[112]. The most important information of each area is acquired graphically and numerically and included in a databank. The result is a "pass" for the area, in which the most important characteristics are described. The internet is the base for the information platform because it allows an easy access to the linked information. Planers and experts in the Urban Planning Department and other

[112] On: www.stuttgart-bauflaechen.de

municipal departments have access to the information on the passes and are able to update it easily according to the development process of each area. The passes include all kinds of information including photos, plans, maps and videos. Additionally, the general public and possible investors have access to information regarding the areas through the internet. The internet surfer can acquire important facts about the potential areas according to the different districts of the city, the size of the plots or the land use.

3. The formulation of strategies and concepts for the activation of potential developing areas (mainly private) and the presentation of options for future action within the municipality. The objective is to accelerate the construction processes by correcting infrastructural deficits, creating the necessary legal framework and by investigating possible contamination. Five “fields of action” were determined for this component: organization, communication/marketing, urban planning, management of areas and contamination. The strategies aim at an optimization of efficiency in the planning process by integrating all the actors that participate in its different phases. The correct management of inner urban areas leads to making development more attractive and simple for investors. In the end, the city and its citizens benefit from these measures.

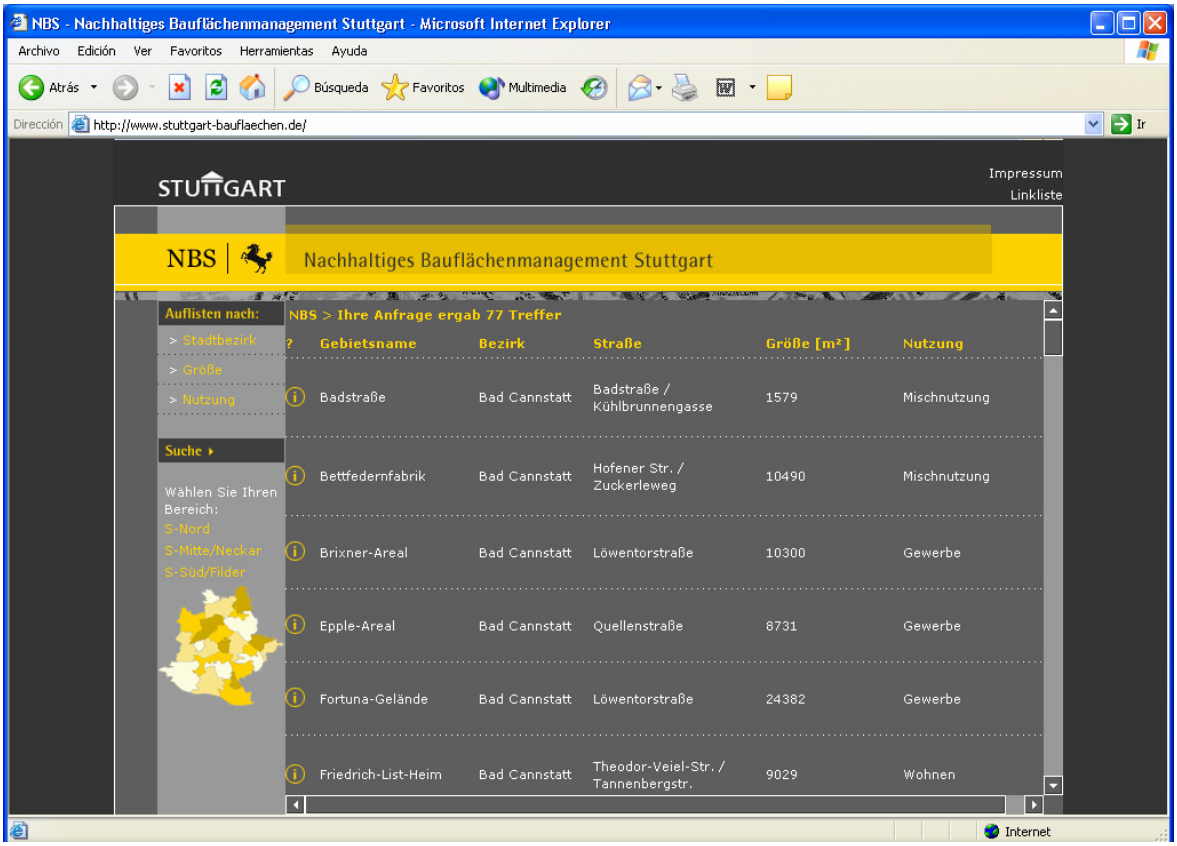
The management of the NBS system is a permanent challenge, since the city is constantly changing. As a planning instrument, it has become indispensable for the urban development of the Municipality of Stuttgart.

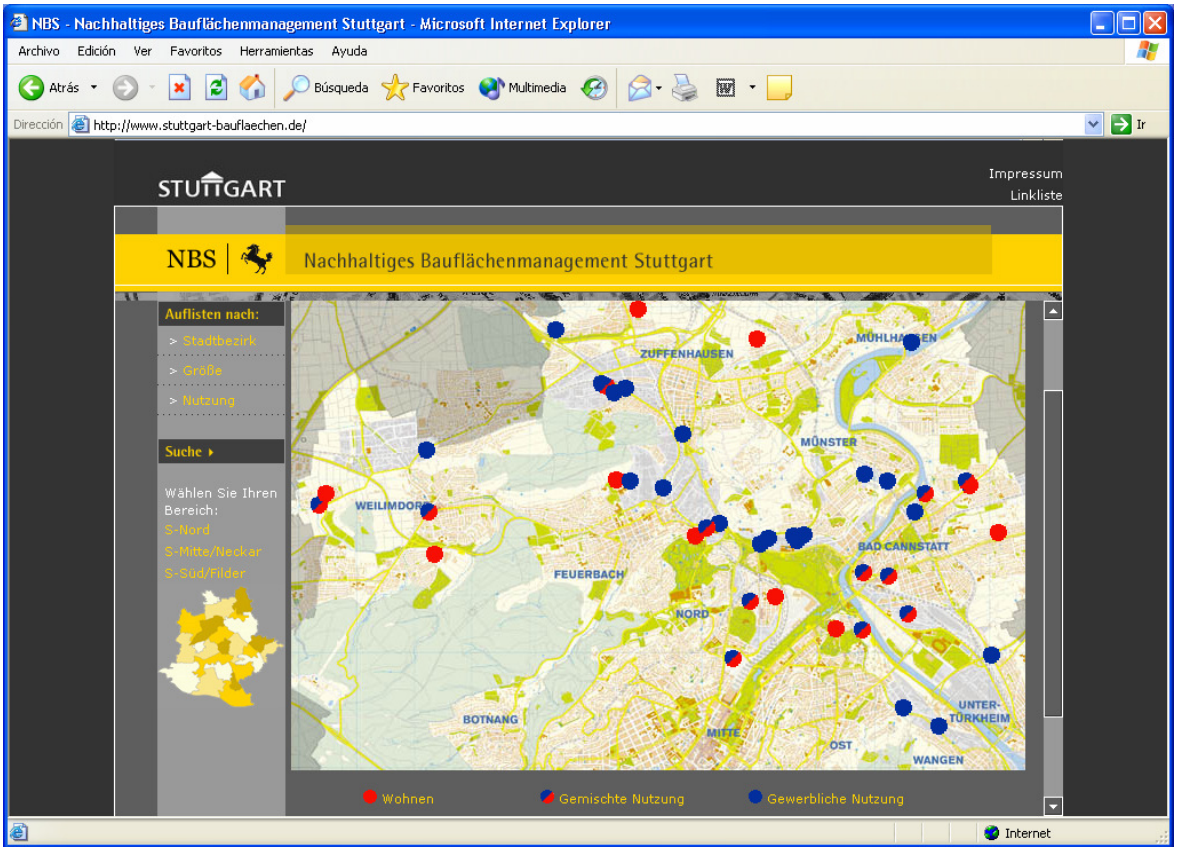
4.4.2 SIAS – Municipal management of contaminated urban areas

One of the most successful contributions of the Municipality of Stuttgart is the procedure for management of contaminated sites. The strategy for sustainable brownfield revitalization arose in close cooperation between the municipal departments of Urban development, Environmental protection, Real estate management and Economic promotion.

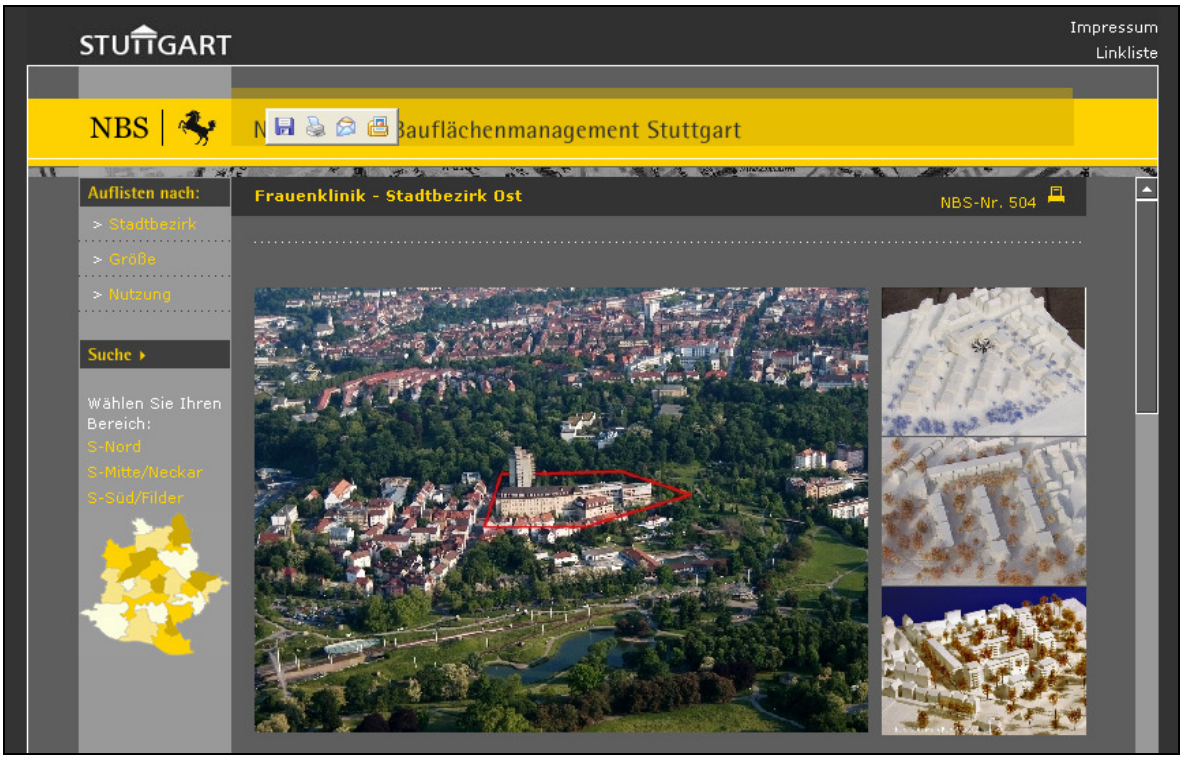
In the 1980s, existing contamination in inner urban areas of Stuttgart generated considerable financial losses in the purchase and sale of plots of land. Since 1992 the city has developed and implemented a systematic management of contaminated areas called SIAS. Thanks to the systematic registration of all areas suspected to be contaminated, it is possible to know today exactly which sites are expected to contain harmful substances. This way, experts on contaminated areas can develop adequate solutions in early stages of redevelopment, which guarantee both the required environmental remediation and a sustainable, efficient, and economic realization of brownfields revitalization projects. Thanks to SIAS it could be proven that very often the required environmental remediation is successful in interaction with urban regeneration measures.

Figures 4.9 Sustainable management of urban areas - NBS. Snapshots of the catalogue of inner development areas on *www.stuttgart-bauflaechen.de* according to district and land use





Figures 4.10 Sustainable management of urban areas - NBS. Snapshots of the fact sheet of a specific inner development area in Stuttgart



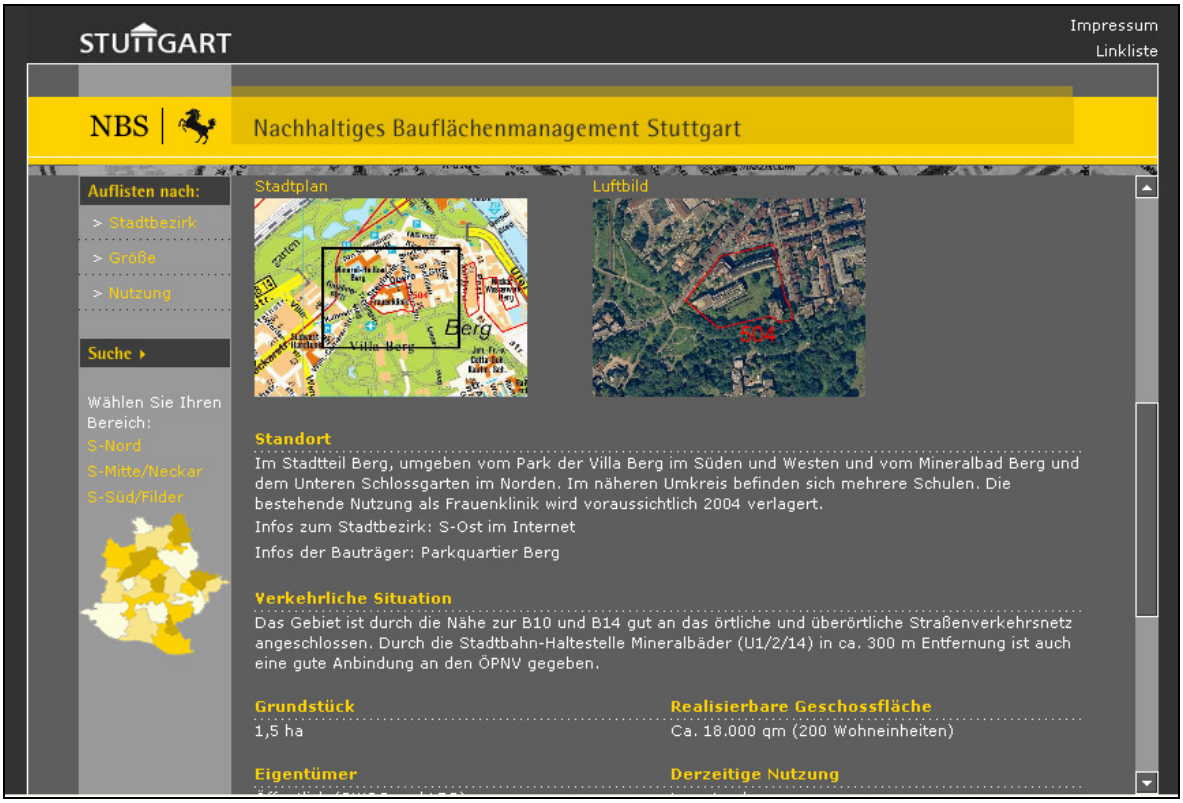
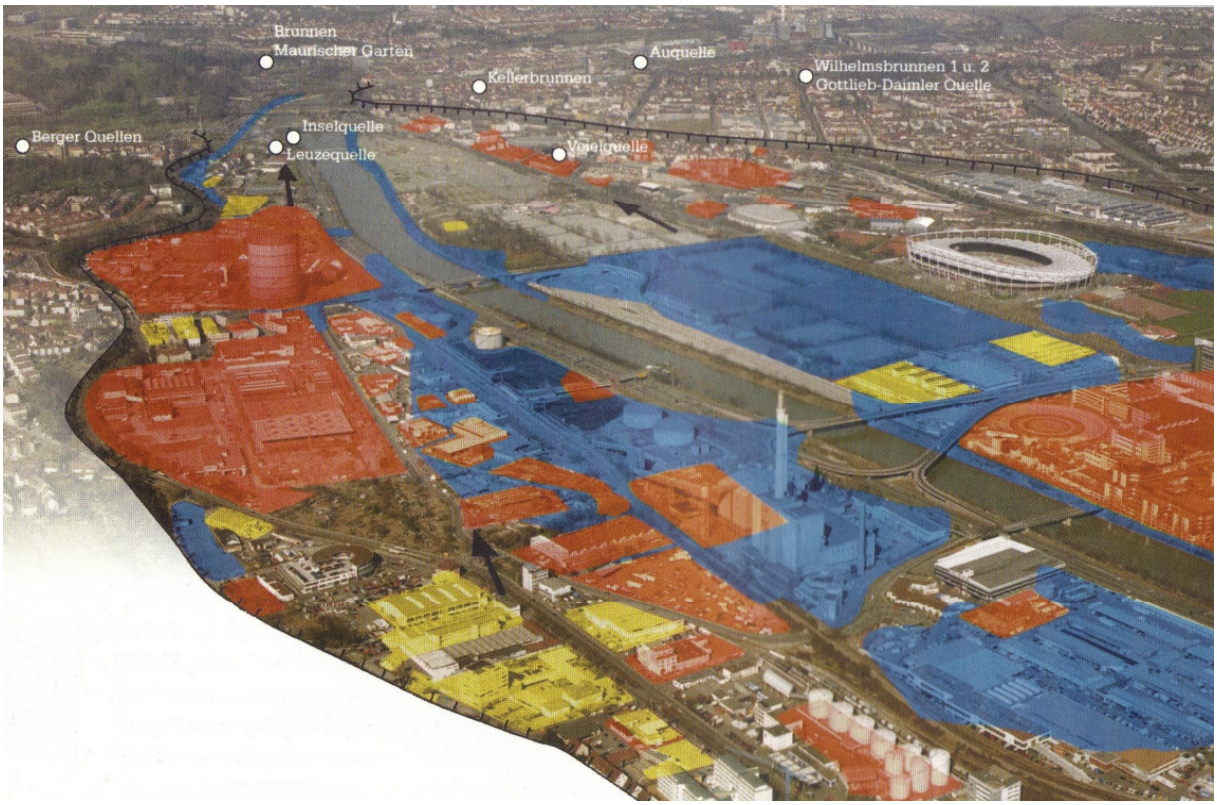


Figure 4.11 Contaminated urban areas in the Valley of the River Neckar according to the Information System of contaminated sites of Stuttgart (SIAS)



Old deposit
Abandoned industrial site (brownfield)
Areas expected to be contaminated

Figure 4.12 Images of contaminated soils in brownfields in Stuttgart

4.4.3 Cooperation projects

The Municipality of Stuttgart, encouraged by promotional programs of the European Union and national institutions such as federal ministries, has participated in a variety of national and international projects in previous years. In these projects specific measures for the improvement of urban quality are carried out exemplarily within a defined time and financial framework. These projects count with the participation of different partners, mostly of different cities and countries, creating networks of exchange and support. The main objective of such projects is to work for common goals by implementing concepts in different situations and with different stakeholders. The interchange of knowledge and expertise, as well as the creation of networks, has proven to be an effective way of cooperation between different cities. These activities impart experts a good insight in the experiences and methodologies of other partners. The development of common projects produces even higher benefits, since these demand the additional adaptation and implementation of new work methods in the specific areas of the different partners.

There is a wide spectrum of projects within the European Union. Often the projects are financially supported in order to strengthen integration, close gaps and improve the conditions in less developed regions and countries within the EU. This is for example the case of the new member states of the EU. Urban revitalization is one important theme of projects. The center of attention is the redevelopment of brownfields and deteriorated areas in inner urban space. This is of course closely connected with postindustrial sites, mostly former fabrics and ports.

In order for projects to take place in is necessary to support them financially and logistically by institutions and financing programs. Projects are often promoted within networks of cities or strategic partners. Important international networks that handle revitalization topics are:

- The European Commission – Program URB-AL[113] (Urbanization Europe-Latin America)
URB-AL is a regional aid program of the European Union that encourages experience exchange between local authorities, territorial representatives and technicians of Europe and Latin America. The objective of the URB-AL program is to develop networks of decentralised cooperation between local authorities on concrete topics and problems of urban local development. The program was launched in 1995 and it plays a leading role in the strengthening of the relations between the members of the European Union and the 18 Latin America countries. 13 subject networks coordinate more than 2500 local authorities, associations, NGOs, universities and other types of entities. More than 180 projects emerged for a total amount of several millions of euros.

[113] On: ec.europa.eu/europeaid/projects/urbal/index_en.htm

The projects range from the fields of urban planning to more social-politic oriented fields. The Municipality of Stuttgart has participated actively as coordinator or partner in a series of projects funded through the Program URB-AL. Relevant for this dissertation are specially the projects on urban revitalization, remediation of contaminated soils and sustainable development. Two of these international cooperation projects are:

- REDESC[114] - Rehabilitation of contaminated areas for sustainable inner development
- INTEGRATION – Project proposal that aims at the integration of the public, private consulting, political and research sectors within the topics of rehabilitation of contaminated areas and revitalization. More experienced partners from Europe and Latin America will transfer their knowledge to less experienced cities in Latin America.

The Network CABERNET[115]

CABERNET (Concerted Action on Brownfield and Economic Regeneration Network) is a multidisciplinary network established in 2002 that aims to facilitate new practical solutions for urban brownfields. The Network seeks to enhance the rehabilitation of brownfield sites within the context of sustainable development of European cities, by sharing experiences from across Europe, providing new management strategies, innovative tools, and a framework for coordinated research activities. For this purpose, CABERNET provides an intellectual framework for coordinated research and development of tools. The network focuses on 4 "key objectives":

- A better awareness and shared understanding of brownfield issues
- A conceptual model for brownfield issues to identify common goals and to integrate different issues and perspectives
- Coordinated research activities across different sectors and countries
- Identification of best practice approaches and other tools

The European Union

The European Union has created "community initiatives such as INTERREG with the objective of stimulating interregional cooperation within its territory[116]. The territory of the EU is divided in international regions, were projects take place. Stuttgart participates in projects from the regions CADSES[117] (Central European, Adriatic, Danubian, south-Eastern European Space) and the North-West Europe Program[118]. The following is a selection of projects in the field of sustainable urban development:

[114] On: www.redesc.de
[115] On: www.cabernet.org.uk
[116] On: www.interreg.euregio.de
[117] On: www.cadses.net
[118] On: www.nweurope.org

- PROSIDE[119] – Project for the promotion of sustainable inner urban development
- REVIT[120] (Revitalizing industrial sites) - Within North-West Europe six partners have come together to improve regenerating their brownfield sites by sharing experience and developing new concepts and innovative approaches.
- REGENTIF[121] - Innovation in regenerating old industrial facilities

The German Program REFINA

In Germany, the Federal Ministry of Education and Research[122] launched in 2006 a funding program for the field of inner development called REFINA[123], which stands for "Research for the reduction of the demand of land and a sustainable management of urban areas". This Program is part of the National Strategy for Sustainability[124] of the Federal Government. The strategy focuses on an efficient management of grounds and soils. The objective to be attained is a reduction of the demand for new settlement areas to 30 hectares a day, as well as a preferential inner development to a proportion from inner to outer development of 3:1.

The Ministry supports this objective by funding projects that encourage an efficient management of land uses. These projects develop innovative approaches and strategies for the reduction of the demand of urban land and for a sustainable land management. For this purpose the approaches and strategies are tested and applied in pilot projects by implementing new instruments and procedures. 45 projects are financed from the Federal Ministry through the program REFINA throughout Germany. Stuttgart participates in REFINA as coordinator of the project "KMU entwickeln KMF"[125], which stands for "Small and medium companies develop small and medium areas". The project's objectives are:

- Reduction of demand for urban land by reutilization of brownfields smaller than 5 hectares

- Development and establishment of area management strategies for municipalities and small and medium companies

- An integrated cooperative procedure[126] for the generation of ideas for future urban developments with the participation of a wide variety of stakeholders

- Measures for a transparent development of the project

- Development and demonstration of communication concepts between the public authorities, investors and developers, as well as land owners

[119] On: www.proside.info
[120] On: www.revit-nweurope.org
[121] On: www.regentif.org
[122] Bundesministerium für Bildung und Forschung. On: www.bmbf.de
[123] In German: *Förderschwerpunkt "Forschung für die Reduzierung der Flächeninanspruchnahme und ein nachhaltiges Flächenmanagement.* On: www.refina-info.de
[124] Described in the chapter 4.3.2
[125] "Kleine und mittlere Unternehmen entwickeln kleine und mittlere Flächen"
[126] In German: *Kooperatives Planungsverfahren*

- Development of a funding program that enables the activation of inner development by making small and medium areas attractive for investors

To conclude, the knowledge-transfer offers an important fundament for the improvement of the revitalization of Brownfields. However, it is important to take into account that even within countries there are considerable differences concerning legal, organizational and conceptual aspects. This applies to both urban planning and environmental protection. For this reason, common international projects are an effective way of interchanging successful strategies and adapting them abroad, within a framework of reciprocal support based on existing networks. Clearly defined projects, with previously stipulated measures and objectives, contribute considerably to a fructuous interdisciplinary cooperation. The realization of projects is an adequate way of guaranteeing the necessary adaptation of concepts to the specific legal and organizational conditions in the partner cities.

In such projects scientific transfer and the implementation of measures take place, according to the specific case of each partner. This has proved to be an important component for the improvement of brownfield revitalization. Especially interesting are the concepts concerning urban planning, environmental protection and financing. Above all, international projects are an efficient way of generating general consciousness on the importance of cautiously handling limited resources and on a sustainable development of urban areas.

4.4.4 Financial promotion of inner development projects [127]

The German state as well as the federal states (*Länder*) has given a strong impulse to the reduction of the demand for urban land through tax relieves, subventions and promotion programs. The financial support from the government is invested in specific measures, which follow targeted purposes. The main objectives of urban development promotion are the strengthening of inner urban areas and centralities, the reuse of brownfields and the elimination of social deficiencies. The mostly promoted program field is therefore redevelopment. In the year 2001, approximately 425 Euro were allocated by the state for urban development promotion. This amount is distributed and administered by each federal state. In Germany there are three special programs with national or regional character:

<u>Program “Soziale Stadt”</u>
Special program created to counteract the social polarisation in areas with a special development need.

[127] Jörissen, Coenen. *TA-Projekt Reduzierung der Flächeninanspruchnahme*. 2006

Program “Stadtumbau Ost”

Special program created to counteract the effects of the structural transformations and the problems regarding shrinking cities. This program emphasizes on the new German *Länder* or the former German Democratic Republic.

Program “Stadtumbau West”

Special program created to counteract the demographic and economic developments in the old German *Länder* (Federal Republic of Germany). These developments include urban shrinking, unequal population development, increase in the percentage of old people and all the consequences from these phenomena.

The federal state of Baden-Württemberg has its own programs for urban development promotion. Among them are the following programs:

Redevelopment program (Sanierungs- und Entwicklungsprogramm)

Program fort the redevelopment of specific urban areas, by modernizing and restoring the built up structure.

Programs for the environmental rehabilitation of contaminated areas

Program that financially supports the investigations and remediation of contaminated areas.

Programs from the Stuttgart Region

Program that finances part of the costs for project analysis and feasibility studies, as well as for project management and subsidies over interests.

The different modalities of financing programs for urban redevelopment from the national, regional and local governments strengthen the attractiveness for the private investors. They are a way of targeting and activating the redevelopment of special problem areas, which in other case would not be of interest for investment from the private sector. In other words, governmental funds also attract private investment and enable authorities to implement their plans and targets, and aim for a more equal and balanced society.

In this context, urban financial promotion is a practical instrument for the reduction of the demand for urban land. The different programs allow the sustainable maintenance of the constructed structure, the redevelopment and reuse of brownfields, the implementation of functional mixed uses and the revitalization of city centers. Urban promotion aims at the inner urban development and contributes to making “living in the city” more attractive. Urban recycling boosts the potentialities of the city and this way it reduces the demand for land in rural areas.

4.5 Practical examples of conversion

Three practical examples of inner urban development through conversion in Stuttgart were selected for this case study. They represent three different types of reutilization of post-industrial areas according to three main types of conversion[128]. The projects are:

1. Stuttgart 21 – Infrastructure project on the grounds of the main station of Stuttgart
2. Im Raiser – Housing area constructed on a former military site
3. Bosch Areal – Area for services and leisure on the grounds of a traditional industrial site

The criteria for the selection of the three projects follow on the one hand practical reasons, but on the other hand all three represent excellent examples of inner development. While "Im Raiser" and the "Bosch Areal" were concluded in the first half of this decade, the project "Stuttgart 21" is due to begin in 2008 and will be developed in different sections until 2015 due to its proportions. The analysis of the examples corroborates and complements the theoretical basis, which was described in the first segments of this chapter.

4.5.1 Stuttgart 21 - Conversion of railroads into a new urban quarter [129]

The project "Stuttgart 21" is considered to be one of the most important and innovative transportation and urban projects of the 21st century[130]. Its repercussions are so extensive that it transcends the local and regional levels to gain a national and even a European importance. This explains the complexity of the project, since there are many actors involved in the implementation process.

The central points of the project consist of three parts: urban planning, transport planning and environmental planning. By completely reorganizing the railway node system of Stuttgart, from the existing terminal station to a modern "through station", the long distance and regional railway transportation becomes more efficient. The traveling times for trains are considerably shortened. Thanks to the direct connection with the airport and the new fair the entire region will be quickly accessible.

To attain this objective it is necessary to construct a complex system of tunnels and to reorganize the existent urban landscape. The removal of the railroad lines generates extensive space (134 hectares) for the development of internal urban areas and the extension of parks and green areas. This way, Stuttgart 21 becomes a major recycling

[128] See Chapter 3
[129] TurmForum Stuttgart 21. **Das Projekt Stuttgart 21**. 2005
[130] Powell. Stadt im Umbau. 2002. p. 168-173

project. By reusing former railroad areas by giving them a new use, Stuttgart has the chance of reorganizing its city center and of avoiding the urbanization of suburban areas.

On the other hand, through Stuttgart 21 an impact on the environment cannot be avoided. The construction of tunnels affects the natural displacement of underground water currents, especially of mineral and thermal waters. Additionally, the soils, which lie underneath the released railway lines, present high levels of contamination.

Financing

Considering the dimensions of this project in terms of size and costs, there are many actors involved of the private and public sectors. 60% of the costs of the entire investment will come from the Deutsche Bahn (the German railroad company, which is a private company owned by the State). By selling the grounds to the city of Stuttgart, Die Bahn regains 50% of the investment. The refinancing guarantees the positive managerial aspects of the project: on the one side, the operational and maintenance costs sink, and on the other hand, revenues increase thanks to more passengers.

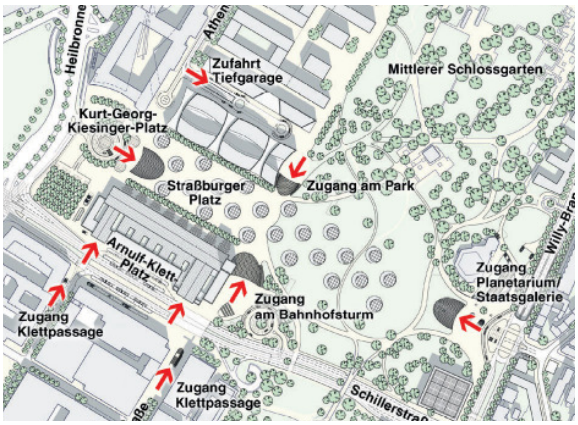
The remaining 40% is financed by the public sector as investment for the future of the region. The private limited company Flughafen Stuttgart (Stuttgart airport) participates in this 40%.

Investor	Costs (in mill. EURO)
Deutsche Bahn	**1.543**
Public sector and third parties	**1.051**
German State	453
Federal State	537
Stuttgart Airport	51
City of Stuttgart	10
Total	**2.594**

Table 4.1 Distribution of costs of the project Stuttgart 21

Figures 4.13 Aerial photo and master plan of Stuttgart 21

Figures 4.14 Plan and model of the through-station



4.5.2 Grenadierkaserne – Conversion of a military area into the housing quarter

The first settlement in the area, today called “Im Raiser“, dates back to 1936. In this year the German armed forces established in the eight-hectare site in the north of Stuttgart, constructing a complex of buildings known as the *Grenadierkaserne* (Grenadier Barracks). The German army occupied this area until 1945 as well as other military sites in the proximity, including the more extensive quarter *Burgholzhof*. After the Second World War, the United States Army took over the site and established itself in the existing buildings.

With the end of the Cold War the United States army, which remained in German territory since the Second World War, reduced considerably the number of its personnel in the country. This meant also the closing down of many of its army bases, among them several military locations in and around Stuttgart. In the year 1993, the Grenadierkaserne was officially given back to the Federal Republic Germany.

During its utilization as a military area, the site consisted mainly of approximately a dozen buildings of a marked military typology: austere longitudinal constructions of four to five floors arranged next to one another in a strict pattern. With the progressive extension of the city of Stuttgart towards the north and of the district of Zuffenhausen to the south, the Grenadierkaserne slowly became an unintegrated impenetrable island surrounded by consolidated residential urban areas. After the site of the Grenadierkaserne was given back to Germany by the US Army, the urban renewal problem began being considered. An innovative solution to this particular case had to be proposed and developed by the responsible authorities. The process demanded intense discussions and investments. The result is a unique example of urban redevelopment of a deteriorated area.

The city of Stuttgart took advantage of this situation and began developing concepts for the integration of the former military areas in their urban context. The site “Im Raiser” demonstrated high potential of conversion and its redevelopment soon became priority to the local authorities, who at that time began focusing on inner urban development. In contrast to suburban areas, the former military site had the advantage of being already equipped with necessary technical and social infrastructure, and to be situated in a strategic location with respect to the other urban areas in the northern district of Stuttgart-Zuffenhausen. The development of the project Im Raiser took place in 5 phases:

- Phase I – Political decision making process; legal and planning framework

Between 1993 and 1998, the city of Stuttgart developed an urban reorganization concept for the former military areas of the Grenadierkaserne and Burgholzhof in the north of Stuttgart. A master plan for the urban development was decided. This concept conceived the conversion of the sites into a residential area for young families as the main target group. On that basis the legally binding land-use plan was elaborated.

Figure 4.15 Aerial photo of the housing development “Im Raiser” in 2004

Figure 4.16 Aerial photo of the former military area “Grenadierkaserne” before the intervention

Figure 4.17 Housing area “Im Raiser” today

- Phase II - Development of concepts

Stuttgart conducted two competitions. The first one in 1997 looked for ideas for the regulation of the typologies for “family friendly housing buildings”. The winning design combined ideal land use qualities with the fundamentals of constructing in a cost-saving, ecological manner. An international competition for investors was carried out between 2000 and 2001 to select the constructing companies that would develop and construct the site. Four teams (consisting of one architecture firm and one developer) were selected to develop and implement different building housing concepts.

- Phase III – Purchase and construction planning

After closing the purchase contract between the Federal Republic of Germany (owner of the site) and the Municipality of Stuttgart in 1999, the conversion process developed very quickly. With an already existing urban development concept, the first legal and constructive measures were carried out in order to begin the construction of the housing blocks by the different developers. An international competition for investors was carried out between the years 2000 and 2001 to select the constructing companies that would develop the site. The winners were commissioned with the construction of the new housing complex.

- Phase IV - Preparation of the grounds

The rehabilitation of the area turned out to be more complicated and expensive than originally expected. Extensive pollution was found in the grounds after carrying out several investigations on the quality of the soils. This pollution was partly originated from oil and gas tanks as well as from other mechanical works facilities, which were in service during the use as military ground. Moreover, other pollutants were found in soils and groundwater. In order to adequate the area for the introduction of the new use as a residential area with a high proportion of children, 95.000 tons of contaminated soils had to be removed and disposed.

The new urban concept conceived the construction of new housing blocks throughout the area, following the typology established in the competition. This meant that the existing building fabric, consisting mainly of barracks, had to be demolished. All but one barrack were demolished between 2000 and 2001. The remaining barrack was renovated and today is used as a public office building. With its sober and austere appearance, this building is the only lasting witness of the original vocation of the new urban space.

- Phase V – Construction and landscape

In the year 2002, after completing the preparation measures (the legal aspects, the removal of the contaminated soils and the demolition of the existing buildings), the construction of the first 190 housing units and a kindergarten began. This first construction phase was completed in the summer 2003, along with the streets and general landscape works. The

construction of entire housing complex, with 240 new flats and approximately 900 inhabitants, should be completed in 2006.

Having established this specific target group, measures had to be designed so that this particular population could have a realistic access to owning a home in the new housing complex. To attain the objective of supplying young families with accessible quality housing, the city realized that it was necessary to find solutions to the financial questions. It became clear that the public sector would have to support the project financially in its different phases, by subsidizing prices of land, construction costs and the purchase of homes.

4.5.3 Bosch Areal – Conversion of a traditional industrial area of Stuttgart into a vital urban space [131]

The area which today is called the "Bosch Areal" was bought by the inventor and entrepreneur Robert Bosch in 1899, with the objective of accommodating on it the company which he founded 15 years back[132]. At the time the name of the company was still *Workshop for Precision Mechanics and Electrical Engineering*. Today Robert Bosch GmbH is one of the world's top manufacturers of automobile components, vehicle audio equipment (Blaupunkt) and hydraulic, electric and pneumatic machinery. Additionally Bosch is a leading global supplier of automotive and industrial technology and of consumer goods and building technology. The *Bosch Group* has extended continuously since its foundation and today it comprises around 280 subsidiary companies.

The Bosch Areal is a 1,4-hectare site located in a central and strategic area in the inner Stuttgart. The first constructions to occupy the "areal" were 6 story high buildings that conformed for decades an impermeable industrial complex: a "city within the city". Paradoxically, in contrast to the surrounding housing quarters, the site survived the inclement bombings from July and September 1944, which turned the most part of the city into a carpet of destruction.

As a survivor of the Second World War, the Bosch Areal became for the *stuttgarters* one of the few remaining witnesses of a lost past: a landmark for the collective memory. However, as heritage from the Industrial Revolution, the site became with the pass of time obsolete and the Robert Bosch GmbH settled in new locations around the city. In the following years the Bosch Areal sheltered different temporary uses such as public offices and academic facilities. These were however temporary solutions to the utilization of the site. The discussions on the permanent uses of the Bosch Areal aimed at a friendly urban development with urban flair and vitality. The first proposals came from culturally and

[131] Ostertag (ed). *Das Bosch Areal*. 2004
[132] On: www.bosch-areal.de

Figures 4.18 Aerial photos of the Bosch Areal. The former industrial area is integrated with a hotel (top) and concert halls (*Liederhalle* on the right)

politically engaged citizens of Stuttgart, which imagined the Bosch Areal converted into a cultural and leisure center. This conception opposed radically with the ideas of the private investors who desired for the site a Shopping Center. The Architect Helmut Jahn proposed for the site the construction of a 130 meter high-rise building that was finally rejected since it implied the demolition of the remaining buildings, which were meant for conservation.

In the end, the definite use for the Areal was determined by the high investments needed to remediate the buildings; investments that left no space for the cultural and social townscape desired by the public opinion. Today the site presents itself as a densely occupied area composed mainly of converted industrial buildings and a series of annexes. These old and new buildings shelter an integrated shopping and entertainment center in which supermarkets, movie theaters, gastronomy, offices and some flats are mixed together. Additionally, the Literature House of Stuttgart established in one of the old industrial buildings, introducing cultural activities to the primarily commercial space.

From an urban point of view, the revitalized Bosch Areal has gained a general acceptance from the public, especially from the young generations. After revitalization, the space that once sheltered the origins of the electro-technical industry of Germany has gained a unique character thanks to the special flair obtained by the mix of historical buildings and the skilful interventions of the modern proposal. For a long period of time the Bosch Areal was closed to the normal citizen. The new intervention has made it possible to integrate the area with the surrounding quarters by opening it to the public space network, enriching considerably the urban landscape of the quarter[133].

The Bosch Areal can be considered as a successful pilot project for Stuttgart, which should be taken as an example for future developments in and outside Germany. After many years of discussions, it was possible to preserve an important testimony of the industrial history of the city. An important contribution to the success of the intervention was made by active citizen participation. The intervention has also generated new alternatives for leisure activities directly in the city opposed to the tendency of transferring these activities to the periphery.

[133] Pesch. *Urbane Transformation – Das Bosch-Areal als Beispiel eines neuen Stadtquartiers*. In: Ostertag. *op.cit.*

Figure 4.19 Bosch Areal. Exterior and interior impressions

III. Strategy for urban conversion in Bogotá

5. Case Study Bogotá

Und die Stadt ist viereckig angelegt,
und ihre Länge ist so groß wie die Breite.
Und er maß die Stadt mit dem Rohr: zwölftausend Stadien.
Die Länge und die Breite und die Höhe der Stadt sind gleich.
Und er maß ihre Mauer: hundertvierundvierzig Ellen
nach Menschenmaß, gleich dem Maß der Engel.

OFFENBARUNG 21, 16-17

5.1 Introduction [134]

Compared to other cities in Latin America, the capital of the Republic of Colombia has played in its history a rather modest role in the international scene. Evidently, the city does not have the international reputation and prestige that other more popular cities such as Mexico City, Rio de Janeiro, La Havana or Buenos Aires have. This is due to a great extent to decade-lasting protectionist policies, which isolated Colombia from the rest of the world, and to the profound and complex conflicts that the entire country has experienced throughout its history. Furthermore, the lack of a big pre-Hispanic culture in its territory and the comparatively low immigration of Europeans, have placed Bogotá's in disadvantage with other neighboring capital cities in terms of international recognition. In this context, Bogotá is a relatively unknown city that is quickly and unfairly misjudged. What very few know today is that the capital of Colombia has become an international paradigm for innovative urbanism, to such an extent that it was awarded in 2006 the Golden Lion in the Architecture Biennale of Venice for its successful transformation through good public management and civic culture promotion[135]. Bogotá has turned in the last decade into a successful managerial model, thanks to the positive results obtained by efficient public administrations and the implementation of measures, especially in the areas of mobility, security, public space, public transport, education, civic pedagogy and democracy.

Bogotá today can be considered a mega city. With its over 7 million inhabitants, it is one of the largest Latin American urban conglomerations and an important economical center for

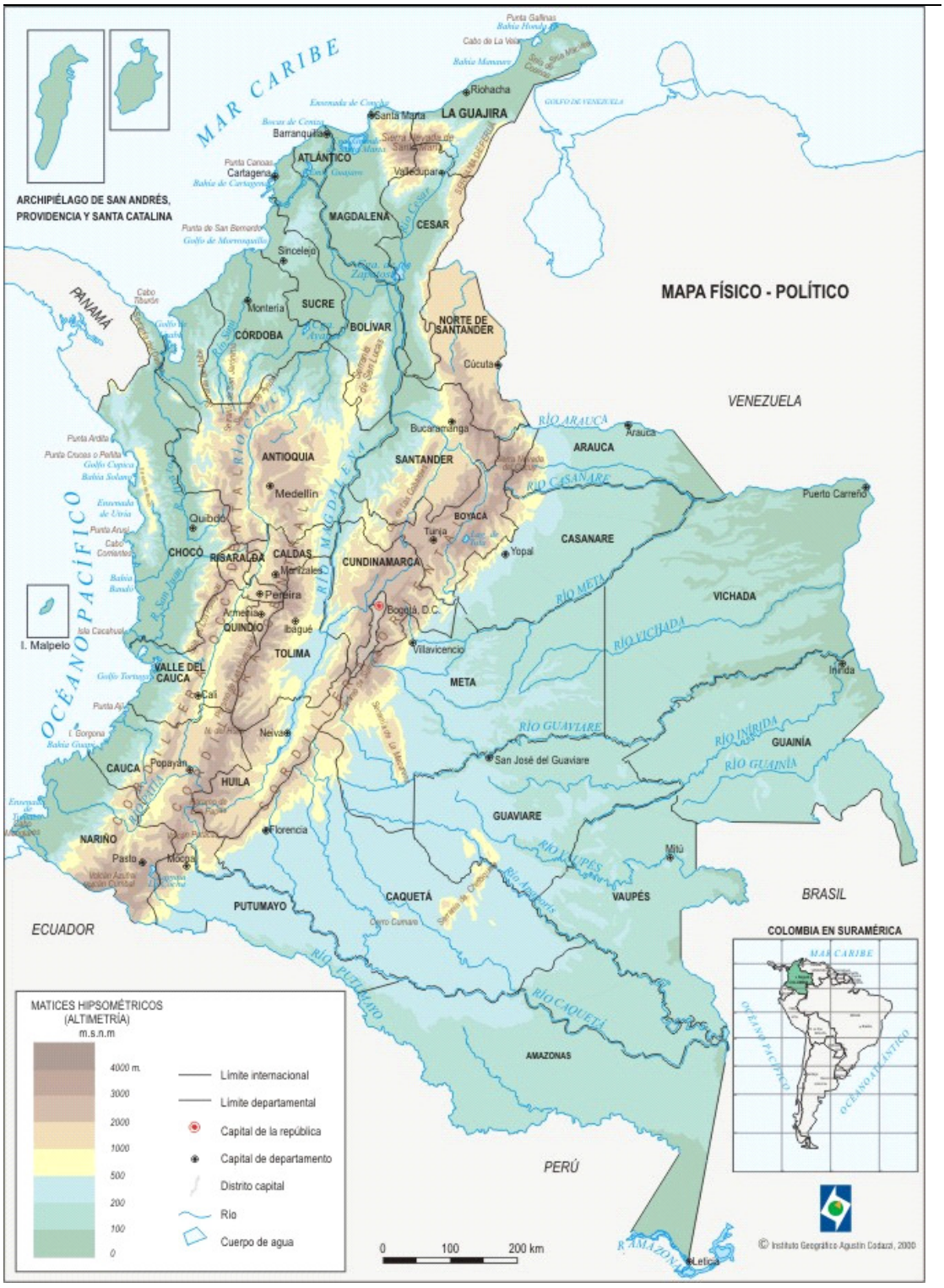
[134] This chapter is partially based on a previous study from the author: *The approach to urban renewal in Germany and Colombia*
[135] Architecture Biennale of Venice. On: www.labiennale.org/it/architettura/premi/. November 2007.

the entire North-Andean region. Due to its size, the city is a metropolis which starts to show characteristics of a megalopolis[136]. With great difficulties and innumerable obstacles, Bogotá struggles between extreme poles of underdevelopment and progress, poverty and richness, deterioration and renovation, neglect and good intentions. If eventually the city and the country should overcome their many problems, there is no doubt that it will earn the international acceptance it deserves within the world community.

Figure 5.1 Panoramic view of the District *Centro Internacional* in Bogotá

[136] United Nations Development Plan. *Informe de desarrollo humano 2008 – Bogotá, una apuesta por Colombia*. 2008. p. 69

Figure 5.2 Map of Colombia. Bogotá is the country's capital and it is located at its geographical center



5.2 The European legacy in the New World

Like in every other city in the world, architecture and urban development in Colombia are strongly influenced by many different factors such as climate, society and economy, which are the causes for the great variety of typologies existent throughout the country[137]. Colombia is the northernmost country of South America, and Bogotá, the capital, is situated at its geographical center, on top of a vast plateau of the Andes Mountains, 1.280 kilometers distant from the Equator and 2.600 meters above the sea level. The city's geographical location determines its particular climate, and therefore its typologies of construction.

Bogotá's spring-like weather throughout the year (between 10 and 22°C), the fertility of its soils and the abundance of precious metals, attracted many Spanish conquerors in the sixteenth century. In the year 1538, Gonzalo Jiménez de Quesada, the first Spaniard to reach the plateau, founded the city with the name of Santa Fe de Bogotá, in an area inhabited by an important pre-Hispanic culture called the *Muiscas*.

Immediately after foundation, the streets and blocks of the city were traced in a *cuadrícula* pattern[138]. The *cuadrícula* is a rigid grid pattern, in which streets and blocks are laid out with regular precision, regardless of topography or water bodies that affect the area. This repetitive planning model is structured in a hierarchical manner, having as a focal point an empty block in the center of the pattern, called the plaza mayor or main square, where the town market would periodically take place, and around which the most important buildings of the towns would be located (the cathedral and the public buildings). Between the sixteenth and the nineteenth centuries, the *cuadrícula* became an essential element in the organization of territories in all Spanish colonies in America and Asia. It was adopted as a standard form for the planning of cities and characterizes all town planning projects carried out by the Spanish colonizers in the "New World".

The Spanish introduced the colonial style in architecture in America as soon as they began building the first constructions (in the case of Bogotá, a small church and twelve huts). The colonial architecture was the result of the mix of styles imported from Spain, applied with local constructive techniques. Architecture in Spain had however a very strong Islamic influence. Until the fifteenth century, Christians, Jews and Muslims shared a common space in the Iberian Peninsula. The *mudéjar* style introduced in the American colonies has its origins in the 8-century-long Arab occupation of what today is Spain, and combined elements of Christian and Islamic architecture. Although most of the Arabs were expelled from the

[137] From the paper from the author *Housing in Bogotá – Heterogeneity and contrast*, written for the Seminar on Housing. Center for Infrastructure planning. Universität Stuttgart. 2003.
[138] Benevolo. *op.cit*. p. 675.

Figure 5.3 Drawing of Santa Fe de Bogotá from 1781 by D. Esquiaqui, where the *cuadrícula* (grid pattern) can be clearly seen.

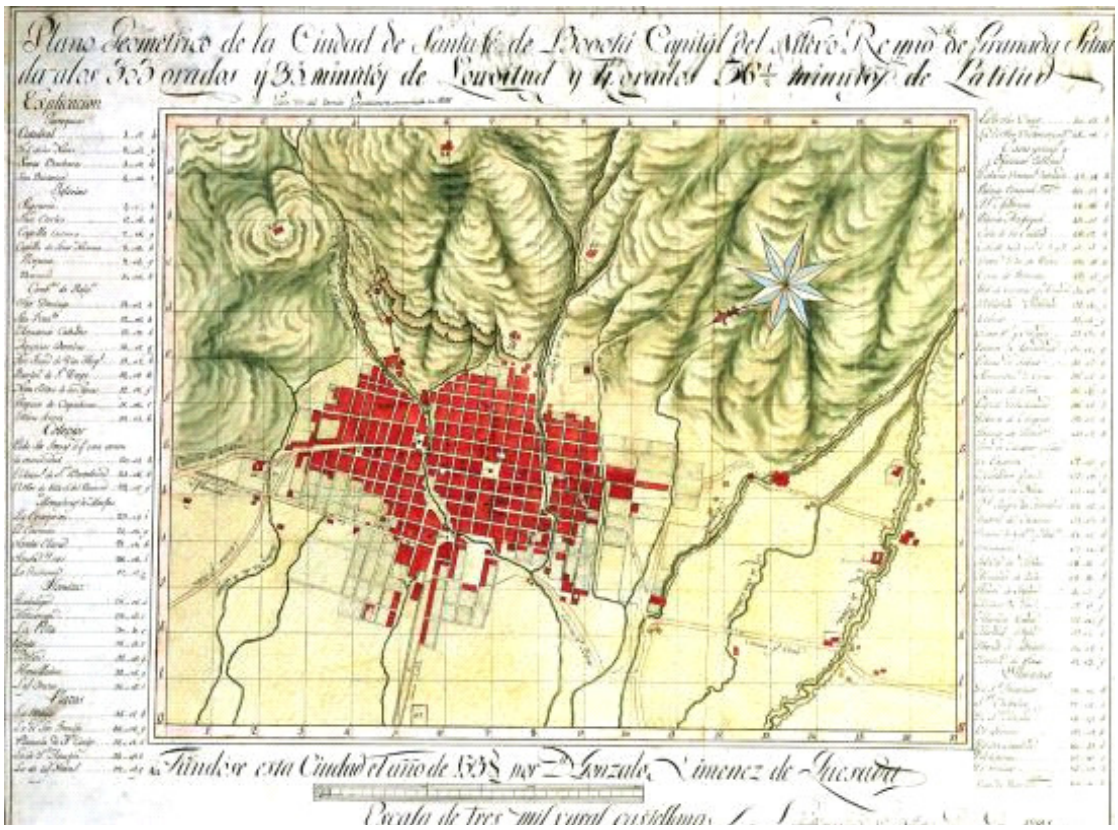
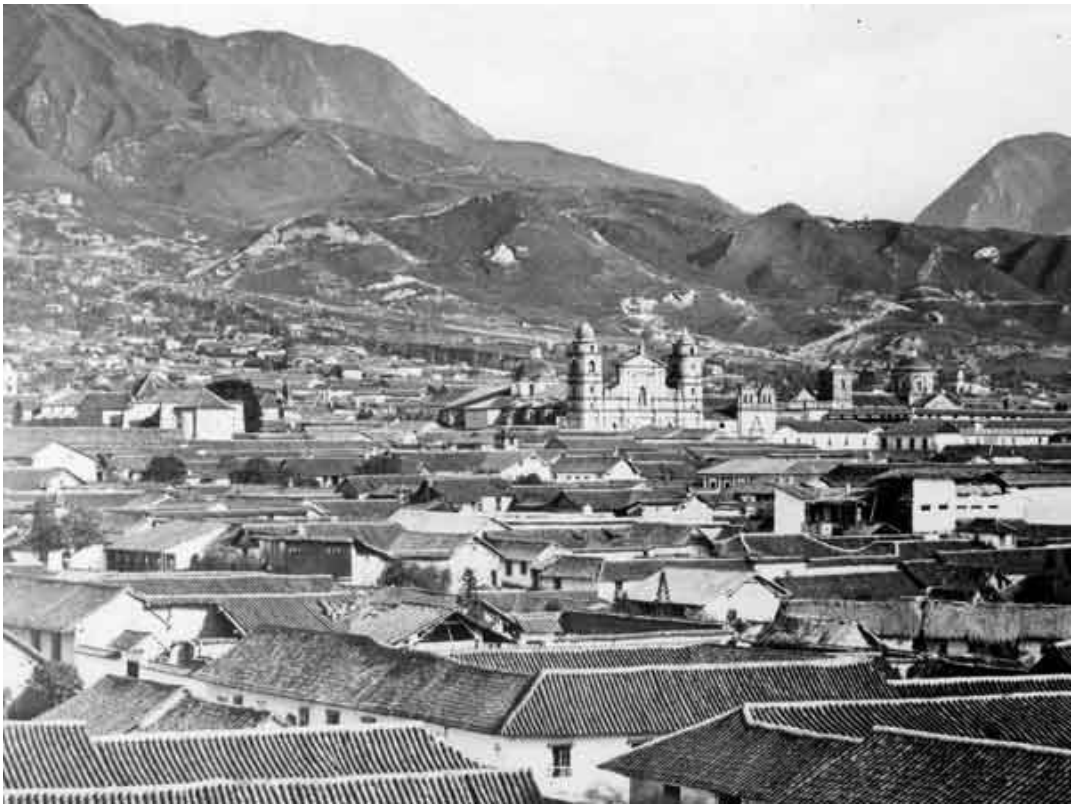


Figure 5.4 Photograph of Bogotá at the beginning of the nineteenth century. The provincial character of the city is evident in the time when the demographic explosion hat still not occurred.



peninsula before the discovery of America in 1492, their living style had already influenced architecture. This rich architectural typology was introduced by the Spanish colonists and rigorously applied in cities like Bogotá during more that three centuries of colonial period. Its main characteristic was the patio or courtyard, which is a private open space, usually with a fountain in the center, surrounded by columnar arcades. This multifunctional space articulated the different rooms of the house. In contrast to the decorated interiors, the exteriors of the constructions were simple. Decoration on exteriors was only adopted on the main entrance gates. Simple dark-green balconies are found on the white facades. Clay tiles covered the saddleback roofs. This typological description depicts the image of the Traditional Center of Bogotá, which is today one of the focal points of the renewal efforts being carried out in the city.

Until the independence of Colombia from Spain in the year 1810, this uniform and somehow repetitive architectonical style dominated the entire city. The same housing typologies were adopted in every building throughout the urban area, regardless of the social group or the function it sheltered. Hierarchy was expressed through house size and quality of construction.

It was only in the second half of the nineteenth century and the first decades of the twentieth century that new housing styles began to emerge, influenced mainly from styles imported from European countries (especially France and England). This new style was called Republican Architecture[139], because its appearance occurred simultaneously with the formation of the Republic. In contrast to the colonial architecture, this new style adopted plenty of decorative elements in the facades and interiors. The Republican house emerged like a scream of independence in a society thirsty for sensibility and romanticism after centuries of foreign dominance.

5.3. The city today - General facts

Colombia has a population today of 45 million inhabitants (estimated after the 2005 census); 69% of whom live in urban areas and 20% in the capital, Bogotá. The Capital District of Bogotá is not only the administrative capital of Colombia, but it is also its economical capital. The metropolitan city generates approximately one fourth of the national GNP and concentrates 35% of the work places. Bogotá is also the principal center of international transactions of the country and recent tendencies of the city's economical behavior show a favorable tendency.

[139] La casa republicana. On: www.villegaseditores.com. 2003.

Figure 5.5 Aerial view of Bogotá 2008. The eastern side of the city is limited by the mountain chain (top of the picture), while the western part offers hardly any obstacle to the urban sprawl.

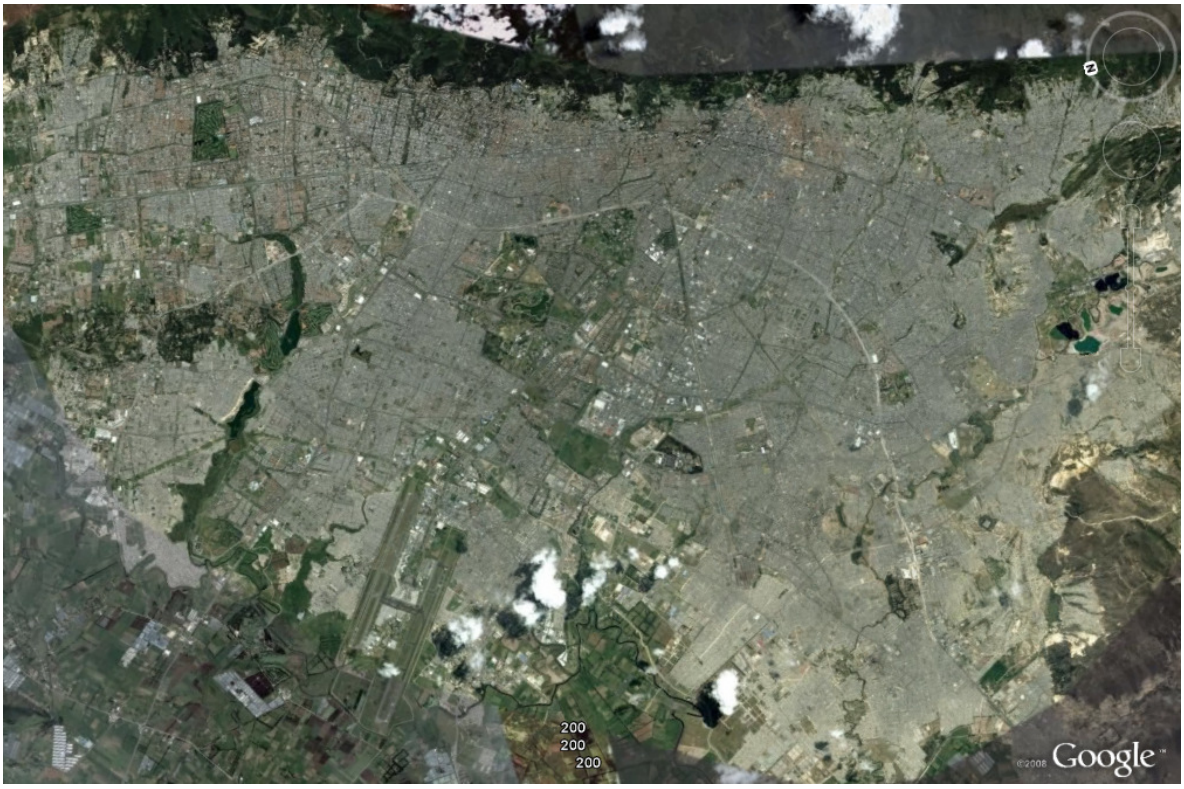
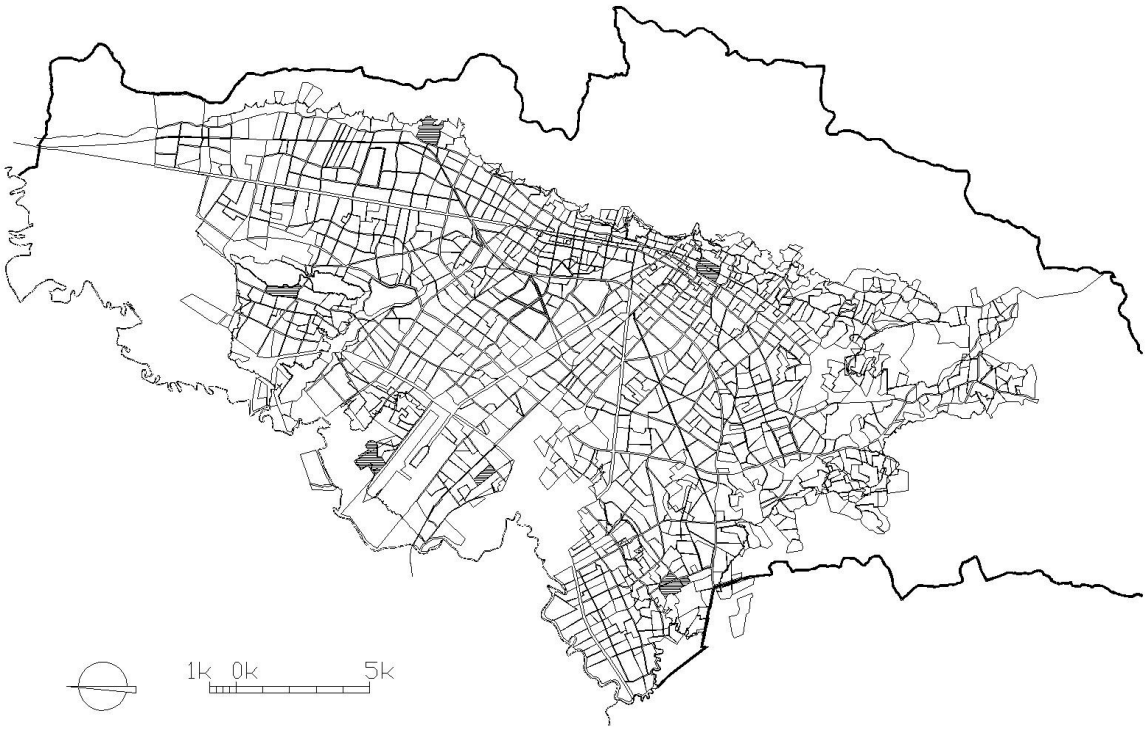


Figure 5.6 Map of Bogotá 2002



Bogotá's physiognomy suffered a radical change in the last century. During four centuries since its foundation by the Spaniards, the colonial city had maintained a compact nuclear character, which simultaneously combined residential areas with commercial, institutional and recreational activities. The growth of this nucleus occurred around the central core by peripheral aggregations to the original orthogonal pattern of the *cuadrícula*.

At the beginning of the 20th century the city begins its lineal growth on the north-south axis, connecting a series of nucleus along the regional line that leads to the northern city of Tunja. The other important determinant for the longitudinal development of the city is the high mountain chain (Cordillera Occidental) on the eastern side of the city, which acts as a natural boundary on the eastern side of the city, forcing Bogotá to expand to the north and to the west. As the city expanded, many smaller towns in its periphery were rapidly absorbed by it, eventually losing their autonomy. Bogotá today has an urban area of 31.000 hectares, a length of 30 kilometers and a width of 16 kilometers. Vertical growth has balanced its density to approximately 22.600[140] inhabitants per km^2.

Around the year 1900 Bogotá has a population of 100 thousand inhabitants. The first population explosion occurred in the 1940's, when the growth rate of the city accelerated to such an extent that the population doubled its number in only twelve years. Today, Bogotá has a growth rate above 3%, which makes it the fastest growing city of the country, and one of the most rapidly growing cities in Latin America.

One of the most determining factors that influence Bogotá's growth is the high rate of immigration from rural areas and from other cities of the country. Thousands of immigrants enter the city looking for better job opportunities, a better future for their families or in many cases, escaping from rural violence. The phenomenon of immigration has contributed to the polarization of an already existing heterogeneous society. Bogotá's urban area has been divided in rich neighborhoods in the north and poor neighborhoods in the south. Nevertheless, it is not rare to find extreme cases of richness and poorness coexisting next to each other. Bogotá has an extreme mixture of prosperity and poverty.

[140] Bogotá. On: es.wikipedia.org/wiki/Bogot%C3%A1#cite_note-0

Figures 5.7 and 5.8 Northern neighborhoods of Bogotá in the Districts of Usaquén and Suba. The picture shows the recent extension of the city, which has taken place mainly in the last three decades.

5.4 What Bogotá loses with every urbanized square meter

Every square meter of new urbanized land represents for Bogotá an immense loss in terms of environmental quality for the city and its surroundings. The urban sprawl has caused devastation in a region characterized by its valuable habitats and diverse ecosystems. The city's geographical situation, the quality and properties of its soils and the richness of its biodiversity are some of the factors to be taken into account in the assessment of the city's ecology.

5.4.1 Soils

As stated previously, the city of Bogotá is situated in a very extensive humid and fertile high plateau, at 2.600 meters above see level. Due to the relative short distance to the Equator (approx. 450 km), the city is not affected by yearly seasons, however it enjoys a rather mild climate of 14℃ in average throughout the year. In prehistoric times the entire area of the Savannah of Bogotá was covered by water, underneath an extensive lake. With the decrease of the water level and the eventual disappearance of the lake approximately 30.000 years ago, the valley of the Bogotá River was formed, and constitutes today the *Savannah of Bogotá*, which is in fact the result of many layers of lake sediments[141].

The particular temperature of Bogotá, due to its height and location on the globe, as well as the properties of the soil such as humidity and richness, make this habitat especially fertile for agriculture. This advantage was already discovered by the *Muiscas* (the prehispanic culture that occupied the area as the Spanish colonizers arrived). With Bogotá's growth, the fertile soils of the Savannah are being gradually sealed, losing their properties.

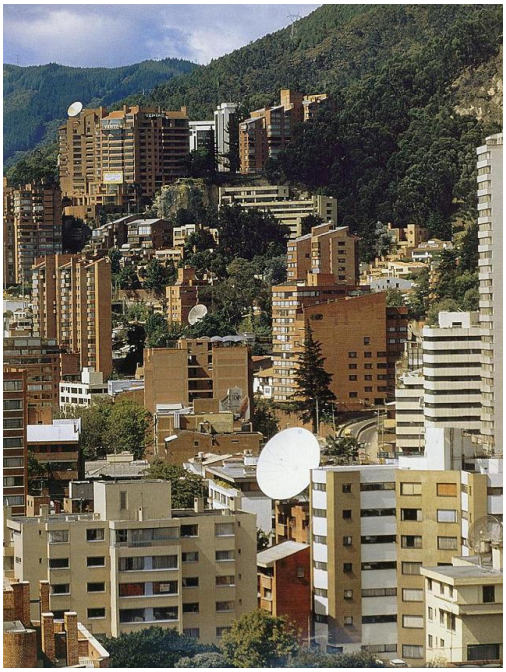
5.4.2 Mountains and air flow

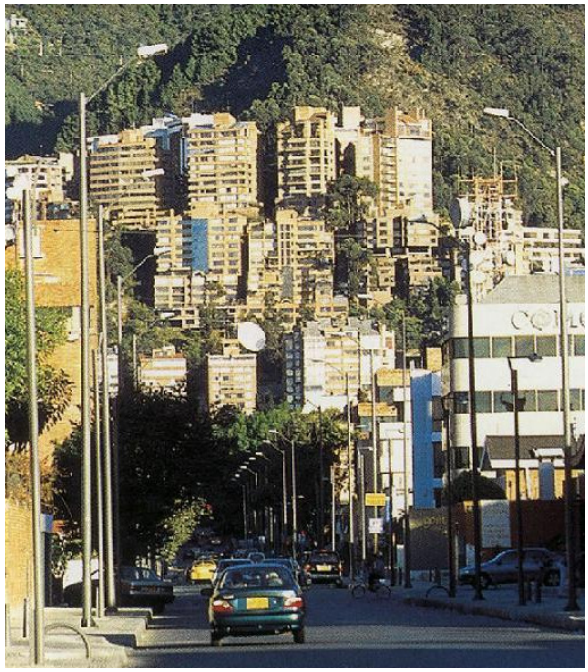
The mountain range on the eastern side of Bogotá is considered to be one of the city's main landmarks and the most helpful element for orientation within the city thanks to its north-south direction. Additionally, it is one of the principal sources of fresh air, since the wind currents generally flow from the eastern highlands to the city. Bogotá's mountains have experienced a very aggressive urbanization, which is responsible for the destruction of valuable ecosystems, affecting at the same time the natural circulation of air.

[141] Cerros de Bogotá. On: www.villegaseditores.com/loslibros/9589393845/entorno_txt.html. August 2008

Figure 5.9 The mountains on the east are a source of clean air and air exchange

Figures 5.10, 5.11, 5.12 The mountains have suffered the results of urban extension by rich and poor





The eastern mountains of Bogotá (*Cerros Orientales*) belong to an orographic system on the north of the Andes Mountain Range[142]. The Savannah of Bogotá is the most extensive of a series of high plateaus, which are found in the north Andes. With heights between 2.800 and 3.600 meters above sea level, the *Cerros Orientales* border the savannah on its eastern side. These mountains play an important role for the city, since they are essential as a natural reservoir, a cultural landscape and the source of clean air.

However, the eastern mountains have always been threatened by the human hand. Their systematic deforestation began with the arrival of the Spanish conquerors. Wood was obtained from its slopes for cooking and for the construction of buildings and furniture. In the 20th century, the biggest threat for the mountains came from the opening of quarries for the extraction of construction materials.

One additional factor for the deterioration of the mountains is urban sprawl, which is gradually invading the mountain slopes. An interesting phenomenon is that the appropriation of the mountain slopes for the construction of settlements is done by different social groups, ranging from irregular or informal settlements to the richest neighborhoods. The urbanization of mountain slopes is especially negative for the circulation of clean air currents, which generally come from the mountain towards the city. These winds are blocked by buildings, reducing considerably their speed and affecting the interchange of air in the city[143]. The mountains are a determining factor for the regulation of the climate of Bogotá. These guarantee aeration and this way, the reduction of contamination of the air[144].

The result of these human interventions is the almost total deterioration of the natural forests and its biodiversity. The strategic function of the *Cerros Orientales* is emphasized by the fact that these determine the regime of winds, regulate rains and capture CO_2, converting the eastern mountains into a climatic regulator or green lung to the city[145]. Their conservation and restoration is therefore essential for Bogotá.

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[142] Cerros de Bogotá. On: www.villegaseditores.com/loslibros/9589393845/entorno_txt.html. August 2008
[143] Kaule. *Ecollogically oriented planning*. 2000. p. 125
[144] Verband Region Stuttgart. *Klimaatlas Region Stuttgart*. 2008. p. 22. From: www.stadtklima-stuttgart.de
[145] Cerros Orientales de Bogotá. On: www.secretariadeambiente.gov.co/sda/libreria/pdf/PMA_alcaldia.pdf. August 2008

5.4.3 Surface water [146]

Wetlands

The wetlands (*humedales*) on the high plains of Bogotá are ecosystems in which water and land converge. Their main characteristic is a high degree of saturation of the soils. Due to their capacity of absorbing water, the wetlands act like sponges that retain water in rainy seasons, and this way they maintain water reserves in dry seasons and help avoid floods. This particularity makes them into an important reserve of flora and fauna for the city, since its singularity makes them appropriate for the development of a high degree of biodiversity[147].

The destruction of wetlands began with the arrival of the Spanish conquerors in the Savannah of Bogotá (*Sabana de Bogotá*) and the founding of the city in 1538[148]. Urbanization started affecting the wetlands through deforestation and by the discharge of waste waters. It is estimated that in the beginning of the 20th century at least 50.000 hectares of the area which forms the Savannah were occupied by wetlands. Until today, this extension has been reduced to 2%, approximately 800 hectares, mainly due to fillings and urbanization. The reason for the accelerated reduction of wetlands of Bogotá in the last 50 years is the urban sprawl. The construction of avenues, highways, the airport, infrastructure facilities and urbanization in general are mostly responsible for the disappearance of the most part of such valuable ecosystems.

Only until the nineties the city administration finally started applying measures to stop wetlands from completely disappearing[149]. In spite of this, the wetlands continue to fulfil their function as regulators of water movements in the high plain of Bogotá[150] and should be protected from further loss by urbanization.

Rivers

The Savannah of Bogotá is acts as basin for the Bogotá River. An innumerable amount of smaller rivers and creeks discharge their water into it. Actually, the city of Bogotá was founded in 1538 in an area between two small affluents to the Bogotá River (the rivers San Francisco and San Agustín). Bogotá's urban sprawl has affected the regions hydrology in many ways. This is specially reflected in the negative situation of the Bogotá and Tunjuelo

[146] Empresa de Acueducto y Alcantarillado de Bogotá. *El agua en la historia de Bogotá*. 2003
[147] Humedales (wetlands). On the website: bogowiki.org/humedales. August 2008
[148] Empresa de Acueducto y Alcantarillado de Bogotá. From a PowerPoint presentation held at the event: I Foro Internacional de humedales urbanos. Bogotá 2003
[149] Acueducto de Bogotá. *Los humedales de Bogotá y la Sabana*. 2003
[150] Parques humedales. On: www.bogotaturismo.gov.co/atractivos/parques/humedales.php. August 2008

Figures 5.13 and 5.14 Wetlands in Bogotá (Humedal Santa María del Lago) have suffered from the consequences of urbanization

Figure 5.15 To protect wetlands, the city is integrating them to the city

Rivers. Due to the loss of the hydraulic capacity of soils many neighborhoods, especially in poor districts, suffer periodically from flooding[151].

The **Bogotá River** is one of the most important rivers in the central region of Colombia. It crosses the Cundinamarca Department from the northeast to the southwest and passing along the western limits of Bogotá[152]. The basin of the Bogotá River shelters a population of around nine million inhabitants, including the population of the city. The large population of Bogotá and the industrial activities have resulted in extremely severe contamination problems for the river. When the river reaches Bogotá the stream receives the most part of the contaminating waste in liquid and solid form, converting it into a waterway of extremely polluted black waters and one of the most contaminated rivers on the planet[153]. In fact, in its pass through the city, the Bogotá River is a "dead river" since it does not shelter any type of macrobiotic life in it and contains no oxygen. The main causes for the river's contamination are the biologic and industrial waste disposed by over 8 million people from the capital city and its neighboring towns.

The **Tunjuelo River** is a main affluent of the Bogotá River. The basin of the river is especially important for the inhabitants of Bogotá due to its location within the city and region and its environmental properties. However the river has suffered under the effects of urbanization. Many districts in the south of the city obtain water from this waterway. The basin of the river has also been used for the extraction of construction materials, the disposal of waste through extensive landfills and mostly, for the construction of formal and informal urbanization. It is estimated that approximately 2,5 million people are distributed along the river, from which a high proportion lives in poverty and segregate conditions. The river floods in rainy seasons and therefore represents a permanent threat for the population along its waterway.

[151] Empresa de Acueducto y Alcantarillado de Bogotá. *op.cit.*
[152] Bogotá River. On: en.wikipedia.org/wiki/Bogota_River. August 2008
[153] Río Bogotá. On: //es.wikipedia.org/wiki/R%C3%ADo_Bogot%C3%A1. August 2008

Figures 5.16 and 5.17 Rivers in Bogotá present high amounts of contamination and deterioration

Figure 5.18 Floods - Consequences of the loss of the hydraulic capacity of the soils

5.5 The rebirth of planning in Colombia

5.5.1 History of planning in Colombia

Urban Renewal in Colombia has experienced a boom in recent years [154]. Planning, as an indispensable instrument for organizing the growth and functionality of the cities, has undergone an unprecedented impulse, after long periods of neglect from the state. This phenomenon has pushed the government to accept its responsibility and to generate and adopt mechanisms in form of national laws that force all the municipalities of the country to rethink and reorganize their territories.

The first half of the twentieth century was characterized by a drastic increase in the growth rates of the Colombian cities. The first urban plans were adopted as a solution to this uncontrolled growth, and are comparable to the enlargements applied in the European cities in the nineteenth century. These first urban plans were carried out to organize the growth of the cities through the extension of the existing regular grids, as well as to regulate the construction of the architecture that would occupy it. In addition to that, town planning departments where created for the municipalities, having as a result that big sectors of the city were consolidated.

In the late thirties, the Austrian town planner Karl Brunner introduced in Colombia elements of the European town planning, which had not yet been applied in the country[155]. Invited by the City Administration in the occasion of the 400 years of the city, he designed and directed a number of works that answered to the spirit of the time. This is an important period for town planning, because for the first time, proposals about the planning of the cities were consolidated, and because it was the city administration that managed them.

An economic and political boom characterized the period after World War II in Colombia. A new urban culture was born with the arrival of the modern urbanism, strongly influenced by the international planning currents. It was in this period that the Pilot Plan for Bogotá was elaborated under the direction of Le Corbusier (1947). If his plan had been carried out, the architectural patrimony of Bogotá would have been torn down, to be replaced by modernistic buildings. The sixties proved to be crucial for the development of town planning and urban architecture. The approach to urbanism in this period conceived a clear management of the cities and the construction of public buildings and infrastructure. Urban plans from the past were retaken, and new planning instruments were developed.

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[154] This section is based on the *Plan de Ordenamiento Territorial (POT) Santa Fe de Bogotá*. 2000, and the article *Arquitectura Urbana en Colombia – El renacimiento de la planeación*. From 8arquitecturas (Magazine). 2001.

[155] *Arquitectura Urbana en Colombia – El renacimiento de la planeación* (Article). From 8arquitecturas (Magazine). 2001.

But a new obstacle to planning was still to come. The application of international models in Colombia, such as the Economic Planning Model[156], had as a consequence that the State no longer participated in the solution of the urban problems, but rather concentrated itself in the development of the agricultural sector. The State no longer considered the urban planning and urban renewal as one of its responsibilities.

For this reason, in the decade of the seventies very little urban architecture was produced, and the cities reached their lowest point. The government stopped constructing public buildings, developing infrastructure projects or rehabilitating deteriorated areas, as it had done until then. Only individual architectural projects were carried out in urban areas. However, the developers, worried only about the profit obtained from the construction business, were indifferent to the city they were building. Great urbanizations and closed housing complexes became the new big scale modality of construction. In most cases, such interventions harmed considerably the public space, by changing dramatically the urban forms, limiting the mobility within the city and ignoring the public space. Urban Planning was no longer an instrument for transforming and improving the city, but a group of norms, whose only function was to regulate construction.

The decline of planning in Colombia forced town planners to begin searching for examples of models of intervention in other parts of the world. The European experience of the eighties played a strong influence in urbanism. Measures, such as the conservation of the city centers and the recovery of the public space[157] started to be implemented. This way, Urbanism and architecture became constructors of the contemporary city. These new ideas slowed down the process of deterioration of big areas of the Colombian cities.

But without a general development plan, it was the individual projects of the private town planners that modified the cities. They became managers of their own work, and their task was to propose new urban projects and to invite international town planners, who would fill up the empty spaces left by the lack of a planning administration. From this moment on, the idea of intervening on the public space, not through the government, but through the private sector, was materialized.

As a consequence of this new modality of constructing the urban space, different groups throughout the country started discussing the necessity of returning to the planning of the cities, having as an aim an immediate and effective action against the disintegration and deterioration of the city, with the participation of both, the public and private sectors. City

[156] This model is based on the premise that the government must intervene in the orientation of the economic development of the country. That means that the only purpose of planning is the development of the economy.

[157] Based on the morphological and typological analysis of the Italian school and on the experience of countries such as Germany, Spain and England in this fields.

reorganizing plans were recovered, and the State created housing policies that reestablished the interest of the community to participate in the urban development.

Until then, the notion of development, restricted to subdividing land and authorizing the construction of urbanizations, had reduced the functions of planning and public management to the expedition of norms and codes. More important aspects of the urban development were not included under this notion, like the regional integration, the environmental problems, the improvement of the life quality, the reduction of poverty and the social coexistence.

5.5.2 The Law 388 of 1997

The Colombian Law 388 of 1997 sets the legal framework for municipalities in the fields of urban development and organization of territories. The Law has its origins in the Political Constitution of Colombia, created by the Constitutional Assembly in 1991. The Constitution, in its "Title XI Chapter 3", determines the responsibilities of each municipality in terms of territorial organization. The Law expresses clearly that the municipalities are entitled to regulate, organize and control all planning activities in their territory, including land uses and construction activities[158]. This can be regarded not as a right or a privilege but rather as an obligation of each municipality. To legally regulate the mandate of the Constitution, the Congress of Colombia passed in 1997 the Law 388.

The main objectives of the Law 388 are:

1. the establishment of mechanisms that allow the municipality to promote the organization of its territory, the equitable and rational use of its land, the defense of the ecological and cultural patrimony and the prevention of disasters through the execution of efficient urban actions[159].

2. the guarantee that the utilization of land by its owners is in accordance with the social objectives of the property

3. the watch over the creation and defense of public space, as well as the protection of the environment.

4. the facilitation of the execution of integral urban actions.

The organization of the territory is based on the "social and ecological function of the property", the prevalence of the general interest over the particular and the equitable distribution of "loads y benefits". The "loads" are urban obligations which must be assumed by the owners of the land to be urbanized according to the public function of planning. These

[158] Republica de Colombia. *Constitución Política de Colombia 1991*. Título XI "De la organización territorial", Capítulo 3 "Del régimen municipal", Artículo 313 "Corresponde a los consejos".
[159] Republica de Colombia. *Ley 388 de 1997*. Article 1° „Objetivos".

are all components of public space that have to be adopted and constructed by the owners, such as streets, cessions, adjustment of land for public green zones and facilities. The costs for these urbanistic obligations are determined according to the square meters of construction of each part of the action. The “Benefits” are rights of the owners determined by the potentiality of development, derived from the assignation of urban utilization, quantified in square meters of construction, according to the land uses defined for the area.

The Law establishes the figure of the “organization of municipal territory”, in which all planning strategies for land use, occupation and management of land must be defined in function of the economic, social, urbanistic and environmental objectives of a specific territory. The “urbanistic actions” required by the Law include:

1. The classification of the territory in urban, rural and urban expansion

2. The localization and establishment of characteristics of infrastructure for transport, public services and social infrastructure.

3. The establishment of zoning plans, localization of uses, use intensities, percentages of occupation, classes, green areas, among other determinants.

4. The identification and establishment of areas as object of priority development

5. The expropriation of areas that are considered of public utility or social interest.

6. The identification of ecosystems

The Territorial Organization Plans (POTs), described in the third chapter of the Law, are the basic instrument for the development of processes of organization of the municipal territories. They are defined as the group of objectives, guidelines, policies, strategies, goals, programs, actions and norms which must be adopted to guide and manage the physical development of the territory and the utilization of land. Each municipality in Colombia has, according to the Law, the obligation of developing its own POT. By doing this, the government has promoted the appropriation of planning objectives by each municipality, independent from its size. The POTs can be considered to be the incentive for the rebirth of urban planning in Colombia.

An interesting feature included in the Law 388 in its Chapter VI establishes instruments for the development of priority areas. This section determines that plots of land that do not fulfill their social function are object of alienation. These plots include for example areas that are classified as urban land and have not been constructed. The fixation of priority areas is an instrument for a sustainable and more socially-oriented planning. However the Law does not mention specifically the prioritization of conversion areas but rather of empty lots within the urban fabrics.

5.5.3 The Territorial Organization Plans (POTs)

The new interest of the State on the urban topics was clearly stated in the Political Constitution of Colombia, written in 1991, and the application of the Law 388 of 1997 that followed, which forced all the municipalities of the country to develop Territorial Organization Plans – POTs (*Planes de Ordenamiento Territorial*). The objective of this law was the generation of long-term urban projects that consider the incorporation of the territory as a developing factor, by integrating the economic, social and ecological levels of planning. Town planning switched from rigid schemes to a more operative and strategic urbanism, where short, medium and long-term objectives have to be attained. It is not only a new city, but also a new society, which had to be constructed.

But to build this new society, architects, town planners and the community in general have to participate more actively in all the processes that influence the urban form and the collective space. The State has an undeniable responsibility in the consolidation and organization of the territories. It also has the difficult task of finding the mechanisms that allow the materialization of the projects.

The Territorial Organization Plans are the basic instrument for communities to develop the process of reorganizing the municipal areas. They contain a group of objectives, policies, strategies, programs and norms that should be adopted to guide and manage the physical development of the territory and its land use. The plans determine the level of development that the municipalities pretend to reach, according to its physical possibilities, its resources and the capacity of its population. They gave municipalities in Colombia the opportunity to reach agreements and strengthen weaknesses, in order to become more competitive and to generate the suitable institutional spaces that allow a higher participation of the community in the decisions that affect their living space.

According to the Law 388 from 1997, the creation of the POTs has an obligatory character. It was mandatory for each and every municipality in Colombia to formulate and adopt its own POT within a transition period of 18 months[160]. This meant a great challenge for every municipality in the country. The plans were to be consolidated via democratic participation and through agreements between the municipal administration and other institutions. The town council of each municipality had to approve the plan in order for it to be valid. As a way of encouraging the town administrations to accelerate the process, only those municipalities, which had adopted its plan, were able to grant construction and urbanization licenses. On the

[160] The 18-month period began on the date of the expedition of the Law that defines the Territorial Reorganization Plans (Law 388 from 1997).

other hand, no public or private agent can carry out an urban project that doesn't adjust to the contents of the POTs.

Every POT has three components:

- A general component which defines the long term structural objectives and strategies.

- An urban component which comprises the policies, actions, programs and norms that channel and manage physical urban development. This is an instrument for the administrations of development and occupation of the physical space, classified in urban land and land for urban expansion. In this component, the urban space of municipalities must be delimited, and the strategies for growth and reorganization must be clearly defined by establishing priorities.

- A rural component which comprises the policies, actions, programs and norms to guide and guarantee an adequate interaction of rural settlements as well as the sustainable utilization of land.

The POTs have eight long-term objectives. These cover every aspect of planning in an integrated manner and establish a set of policies required for reaching its goals:

1. Regional Objective

Construction of a regional sustainable model. To attain this objective the following long-term policies should be adopted:

- Convert the region in a planning unity recognized nationally. That means, an economic cell where productivity is high and the quality of life is suitable for every citizen.
- Establish mechanisms that allow the municipalities to set and reach agreements with the neighboring towns in terms of ecological management.
- Construct and maintain the transport, water supply, sewerage and power supply systems, and promote the projects where there is a common interest within the regions.

2. Environmental Objective

Promotion of a sustainable territorial model by making good use of the natural resources. This objective can be reached by adopting the following policies:

- Integrate the ecosystems of the rural area with those of the urban area, to create ecological corridors that improve the environmental quality of the towns, cities and of the regions in general.
- Protect the environmentally vulnerable territories from the informal developments and other activities, which may be incompatible.

- Support the regeneration and recovery of the forests and riverbeds, in order to improve the quality of the soil and the biodiversity.

3. Rural Objective

Strengthening of the rural territory and integration of the towns and the region in a functional manner, preserving its natural richness. The following policies are adopted for the fulfillment of this objective:

- Maintain and protect the resources and the natural potential of the territory, considering the strategic ecosystems as organizing elements.
- Strengthen the programs of rural promotion and develop the areas with high agricultural potential for production purposes.

4. Economical Objective

Reorganization of the territory to reach a higher competitiveness. Adopting the following policies can attain this objective:

- Create spaces for a rational localization of commerce, industry and infrastructure, as well as administrative centers inside the urban areas. Consolidate the infrastructure and the road networks of the town and the region, to guarantee an exporting platform.
- Modernize the industry, taking into account the economical specialization and its environmental impact. Foment the industries based on new technologies by creating industrial and technological parks.
- Organize the industrial corridors of the city into hierarchies and strengthen the urban centralities to increase the capacity of supporting new economical activities that generate employment.
- Improve the physical and environmental conditions of the public space to help increase quality of life in urban areas, and to make the city more attractive to tourism.

5. Social Objective

Promotion of territorial equity to guarantee the supply of goods and services to each citizen. To attain this objective the following long-term policies should be adopted:

- Decrease the factors that generate poverty. Prioritize public investment in the zones where the most vulnerable groups are found.
- Determine the most suitable areas for the development of social housing in order to decrease the informal market.
- Construct a system of massive public transport to guarantee the accessibility and mobility within the towns and cities and with the rest of the region.
- Resettle the families whose houses are located in high-risk zones.

6. Physical Objective

Guidance of public and private investment towards attaining the objectives of ecological sustainability, social equity, economical efficiency and social coexistence. This objective can be reached by adopting the following policies:

- Recover the value of the public space, as the principal guideline for the construction of the city.
- Redefine the distribution of the population in the territory, and foresee the infrastructure needed in the new development zones. Promote projects in the empty spaces of the urban area to generate housing and infrastructure, revitalizing the constructed city. Determine the areas for expansion.
- Improve the environmental quality of the urban areas by creating new leisure spaces and by giving pedestrians the priority.
- Strengthen the metropolitan city centers by renovating its urban structure and locating appropriate hierarchical activities. Consolidate and create centralities by improving the commercial zones, to bring employment and services closer to the community.
- Consolidate the existing urban structure, protecting the neighborhoods as the basic social cells.

7. Citizen Participation Objective

Fomentation of an urban culture in the citizens. This objective can be reached by adopting the following policies:

- Facilitate the participation of the community in controlling of the fulfillment of the urban plans, norms and projects.
- Establish mechanisms to inform the citizenship about the advances made in the application of the POTs.

8. Objective of Harmonization of the development plans

Guarantee of the execution of the plans, by prioritizing projects according to the needs of the towns. The following policies should be adopted:

- Program the execution of the projects in short, medium or long-term.
- Establish the periods of time in which the projects have to be carried out.

A century of planning in Colombia has proved that towns and cities need the State support in order to create the indispensable instruments to organize their growth, renovate its structure

and guarantee their functionality. During the decades in which the State ignored its responsibility, the Colombian cities started lagging behind in development.

The main goals of urban development are a regional cooperation, a sustainable environment, the improvement of the quality of life and the reduction of poverty and inequality. Therefore, planning cannot be reduced to the regulation of land and construction. The Territory Organization Plans, introduced in the Colombian law in 1997, have proved to be a good instrument to the fulfillment of these goals, because they define the territory as the essential space for development, in an integrated approach. But to fully attain the objectives set in the POTs the entire community has to commit itself to the construction of a new urbanity. The POTs give every citizen the opportunity to participate in an active way in the processes that lead to development. A more difficult challenge is the carrying out of the plans and projects included in the POTs. If the proposals are not materialized, all the efforts made until now would be in vain.

5.5.4 Urban conversion and inner development in the POT of Bogotá

In spite of the extension of Bogotá's POT (almost 300 pages) the concepts of *urban recycling*, *conversion* or *inner development* are hardly mentioned throughout the text. Taking into account the importance of this document for the future development of the city, it is clearly discouraging to discover more policies on urban extension than on a sustainable urbanism. If the POT establishes the binding policies for planning, it certainly goes in contradiction to the development tendencies in the European countries, where cities tend to develop on abandoned or suboptimally utilized areas. The deficit of such policies is especially explicit in the chapters on urban and environmental policies.

5.6 Parque Central Bavaria - Inner development in conversion areas

Parque Central Bavaria can be considered an isolated example of urban conversion and recycling of buildings in an inner urban area in Bogotá. The development stands in an area where until the second half of the twentieth century the most traditional brewery of Colombia had its main production facilities. The brewery was founded in 1889 as the *Deutsche Brauerei Bavaria* in what was then the outskirts of Bogotá, in a time when the city had not experienced its first population explosion. Some consider the foundation of this brewery as the origin of industrialization in Colombia[161].

Not long after the brewery had constructed its facilities and had established itself outside the city, Bogotá started growing. The brewery facilities soon became an industrial island in the limits of the city center, and they should stay that way for many decades to come. The growth of Bavaria and its need for more modern production facilities forced the company to give up its location in the limits of today's city center.

Parque Central Bavaria was both an urban and an architectonical project on an area of 15.000 m^2. In many aspects the project was revolutionary for Bogotá, since it was the first time in a period of more than 50 years that a new public space was created in the city center, other than the remediation of the already existing traffic axes or recuperation of degraded squares[162]. The urbanistic plan of the project contemplated a new public space that articulates this sector of the city center. Due to its location in a business area, the new public space should have both a civic and an environmental character.

Additionally, the project contemplated a series of buildings around the new public spaces. The project *Parque Central Bavaria* aimed at readopting of the original mixed character of the inner city[163]. This was done by assigning commercial uses in the ground floors, offices on the middle floors and residential uses on the top floors. The mix of uses guarantees different kinds of activities at all hours in a traditionally business district. The urban implementation of the complex responds to the public space, which is the main feature of the project: the buildings are organized around two public squares of different dimensions.

From an architectonic point of view, the volumes and facades of the new implanted buildings respond to the typology of the only two recycled buildings of the original brewery, which are considered today as historical patrimony of the city. The new buildings maintain the heights and the red clay bricks of the "*Cavas*" and *Falcas*".

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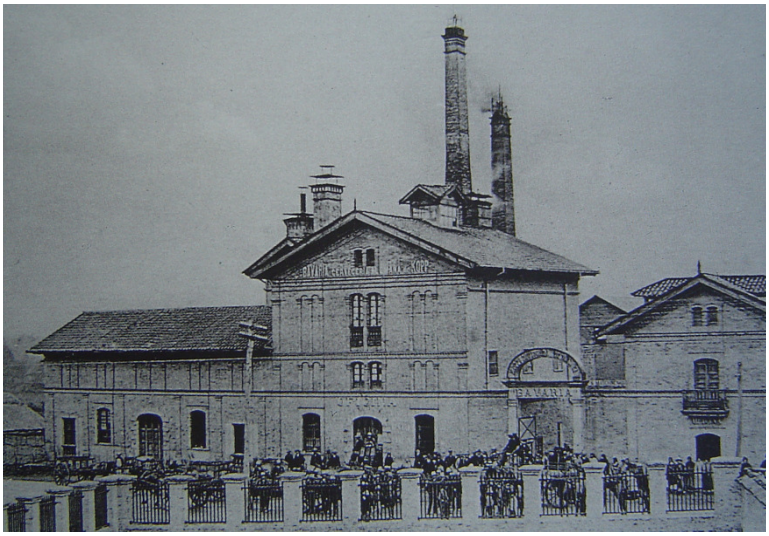
[161] Cervecería Bavaria. On: www.historiacocina.com/historia/cerveza/colombia1.htm. January 2007
[162] Article Parque Central Bavaria. From the magazine: Revista Escala. Number 155. 1991
[163] Revista PROA

Figures 5.19 - 5.22 Images of Parque Central Bavaria - One of the most representative examples of urban conversion in Bogotá. The mixed area was developed on the grounds of a former brewery.

Figures 5.23 - 5.25 Images of the old brewery where today Parque Central Bavaria stands



5.7 Ciudad Salitre - Inner urban development in a vast empty lot

The case of Ciudad Salitre in Bogotá is not an example of urban conversion; however it can be considered a Best Practice example in the field of inner development in extensive urban areas. It is considered to be the most important urban project ever to be carried out in Colombia and even in Latin America[164]. The area of el Salitre was a vast lot of urban land which remained empty for more than three decades, becoming a development obstacle towards the western part of the city, forcing it to grow around it. The original plot of land was originally a hacienda (Hacienda El Salitre) of 1.400 hectares which was donated to the State (*Departamento*) of Cundinamarca in 1936 by its owner[165].

The first efforts to urbanize the area date back to 1967. In the next three decades a series of plans and projects were proposed for the area but none of them was materialized. Only in 1987 the first concrete actions were taken, after the plot of land had been reduced to 240 hectares due to unplanned urbanization. It is on this year when the development of this inner urban area received the political support, which it needed to start. To carry out a project of such magnitude, an agreement had to be signed between the Nation, the State, the city and other financial institutions, which provided the institutional mechanisms and established the specific functions of each of the participating parties.

The actual project was based on previous studies and projects which also laid the conceptual, legal and urban framework for the development of the area of the old hacienda. The main objective of the final project was to obtain self-sufficiency by creating spaces for the generation of employment within the site, as well as spaces for housing, commerce, recreation, culture, greenery, etc. Additionally, the project should increase the density in the area through a concept of spatial occupation, public spaces and social infrastructure. The conversion of an empty plot of land into urban space was only possible by making it attractive for private investors, that otherwise would invest in projects in the outskirts of the city. The project envisioned the generation of 20.000 housing units and a series of economic and administrative activities that would generate no less than 100.000 employments.

Ciudad Salitre consolidated the fragmented metropolitan area, becoming an element of articulation between the city center and other important employment poles and recreational and cultural locations such as the National Administrative Center (CAN) and the Metropolitan Park Simón Bolívar. Ciudad Salitre has improved the connections and mobility at the metropolitan level. It is also a gravitational point for many activities of Bogotá, since the most important infrastructural facilities of Bogotá (airport and bus terminal) attain confluence there.

[164] Ciudad Salitre: On: es.wikipedia.org/wiki/Ciudad_Salitre. June 2008
[165] Article on Ciudad Salitre. In the magazine: Revista Escala. Number 154. 1991

Figure 5.26 Aerial view of Ciudad Salitre in Bogotá. The area was empty for dacades.

Figure 5.27 Image of Ciudad Salitre

The development of the 240 hectares of land at once was the chance of urbanizing the area in an organized way under the premises of the modern urbanism, by introducing functional elements of the contemporary city[166]. Special emphasis was made in the layout of streets, avenues and public space. The mix of uses is evident; the area gathers housing, offices, institutions, commerce and recreation. Today the area has two malls, a church, a school, two embassies (Germany and USA), a considerable number of firms, a science and technology museum, hotels and other facilities and institutions. On the residential side, the area has today 15 quarters which accommodate a middle class population. The success of the Ciudad Salitre project can be measured by the increase in valorization of between 9,5 and 12 % in the year 2005[167].

5.8 Urban conversion in other Latin American countries [168]

Planners and local governments in urban industrialized regions in Latin America are becoming increasingly aware of the opportunities concerning the reutilization and management of suboptimally used spaces and brownfields in inner urban areas. However, this phenomenon is exclusive from countries with rather advanced legal and institutional frameworks such as Mexico and Brazil. Urban centers like Mexico City and Sao Paulo already execute brownfield redevelopment, while most other countries do not yet fully recognize the development potentials or are not aware of the hidden risks of pollution.

Latin American cities like European cities are facing the consequences of the strong impacts on urban, social and environmental levels due mainly to the industrial production, a strong demographic concentration and poverty. Industrialization during and after the World War II, intensive mining exploitation as well as enhanced industrial growth left its fingerprints in the urban structures and on the environment. Legislation on solid waste management and licensing of pollutant industry is rather recent in Latin American countries. In the late 80's and early 90's a new cycle of economic reorientation led to the exodus of heavy industries, as happened in Europe around two decades earlier. Urban planners became aware of the problems regarding the resulting derelict land, but only in the last years these issues are gaining more importance as far as the legal frameworks and more sustainable urban development strategies are concerned.

A common characteristic of all Latin American countries is the lack of a specific legislation, appropriate institutional structures, financial resources and a general awareness concerning

[166] Article on Ciudad Salitre on the magazine: Revista Escala. Number 155. 1991
[167] Magazine: Revista Habitar, November 2005.
[168] This section is based on the document *Contaminated site management and brownfield redevelopment in Latin America* from A. Marker and A. Nieters, found in the Proceedings of the 2nd International Conference on Managing Urban Land. 2007. p 467 -479.

the urban and environmental issues. Regulation and politics for site reutilization are not yet solved, even in the countries where the issues regarding urban recycling is most advanced. For example, the reutilization of contaminated land depends on the establishment of standards and regulations for soil use and the close cooperation between the local environmental and planning authorities. Without the adequate instruments it is very difficult to consider urban conversion and brownfields as a real alternative for development.

In order to activate conversion as an indispensable requisite for a sustainable urban development, it is very important to implement public policies and awaken the awareness, trying to reduce the urban sprawl and to slow down social and environmental degradation. As said before, many Latin American metropolises have already recognized the potential of redevelopment and revitalization of brownfields and suboptimally used sites in inner urban areas. Such examples are however not the rule and can be considered as exception in a continent with 8 megacities with more than 5 million inhabitants and over 562 million people[169]. The following are the most important of the scarce examples of urban recycling projects that have been carried out or are in the planning process in Latin America:

Parque Fundidora in Monterrey, México[170]

The Fundidora Park is a public park of 120 hectares located east of Monterrey inside the former Monterrey Steel Foundry property. The Foundry operated from 1900 until its bankruptcy in 1986. Today the park contains several industrial buildings from the old foundry, making the park a famous archeological industrial site in Mexico. It also contains extensive walking tracks, an artificial lake, playgrounds for children and a road course. The Park also includes a convention center, a hotel, a museum, an auditorium, and other buildings and facilities with cultural venues. This is a good example of a brownfield in which a cultural symbol of industrialization is turned into a huge recreation and cultural area

National Railway workshops in Aguascalientes, Mexico

The 89 hectare site is occupied with more than 100 year old installations, which were transferred from the former National Railway Company to the state government. At present, a combined commercial, administrative and recreation area is under construction. The innovation of the project is enhanced by innovative remediation technologies, soil management and soil re-usage strategies.

[169] Latin America. On: en.wikipedia.org/wiki/Latin_america
[170] Parque fundidora. On: www.parquefundidora.org

Figures 5.28 and 5.29 Parque Fundidora - Former industrial site in Monterrey. Many of the old industrial structures were preserved.

Ciudad Parque Bicentenario in Santiago, Chile[171]

This is an example of the conversion of a former airport. The project is expected to be concluded in 2010 and envisions 15.000 housing units (50.000 inh.), commerce, small industry, parks and cultural and leisure facilities. The participation of the private sector was essential for the realization of this project. Chile has not yet legislation on contaminated sites; however, two further major redevelopment projects are being planned for the near future: the former industrial district of *El Salto* and the contaminated fuel deposit *Las Salinas* in Viña del Mar.

Puerto Madero in Buenos Aires, Argentina[172]

Puerto Madero is a district of Buenos Aires, which occupies a significant portion of the Río de la Plata riverbank and it represents the latest architectural trend in the city. In the 1990s, local and foreign investment lead in a massive regeneration effort, recycling and refurbishing the west side warehouses into lofts, exclusive restaurants, cinemas, theaters, cultural centers, educational facilities, five stars hotels and office and corporate buildings mostly in the east side. Puerto Madero represents the largest wide-scale urban project for the city of Buenos Aires that has undergone an impressive revival in a few short years, and is one of the most successful waterfront renewal projects around the world. Other important waterfront projects in Latin America are the harbors of Belem and Rio de Janeiro in Brazil.

Urban Operation "Diagonal Sul" in Sao Paulo, Brazil[173]

The site is an area of 2.000 hectares spread along the Tamanduatehy Valley and an important railway axis. Due to its location in the metropolitan area and its morphological characteristics, the former industrial region has strong social and economic determinants. The region represents one of the main industrial districts of Sao Paulo: nowadays in clear decadence and extensive brownfields, with high levels of contamination. The main goals of redevelopment are the implementation of urban infrastructure, the modernization of the railroad, the recovery and revalorization of the industrial patrimony, management of contaminated sites and the generation of housing and greenery[174].The future uses and plans that will be allocated in the area are still to be defined. The complexity of the project demands an immense effort from the local government, which lacks of legal instruments and experience. The Brazilian cities are finding support from European institutions such as the German Technical Cooperation (GTZ), to establish the best strategies for the implementation of redevelopment projects.

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[171] Ciudad Parque Bicentenario. On: www.ciudadparquebicentenario.cl

[172] Puerto Madero. On: www.puertomadero.com and en.wikipedia.org/wiki/Puerto_Madero

[173] *Urban Operation "Diagonal Sul" – a Sao Paulo contemporaneous city project* by Magalhaes Junior and Rivaben de Sales, found in the Proceedings of the 2nd International Conference on Managing Urban Land. 2007. p. 461-466.

[174] Marker, Nieters. *op.cit.*p. 476

Figures 5.30 and 5.31 Ciudad Parque Bicentenario in Santiago de Chile. The project is expected to conclude in 2010

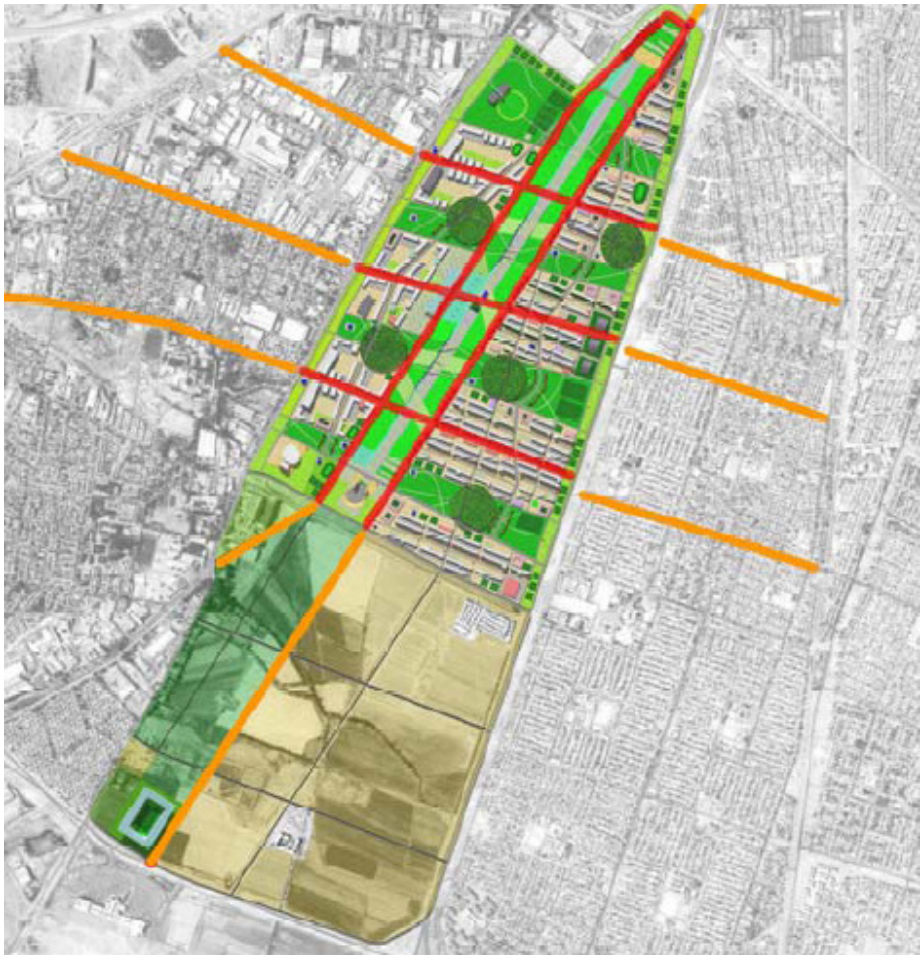


Figure 5.32 Puerto Madero in Buenos Aires – Conversion site of a former port

Figure 5.33 Master plan of Puerto Madero

Figure 5.34 Map of São Paulo with development axes for urban operations

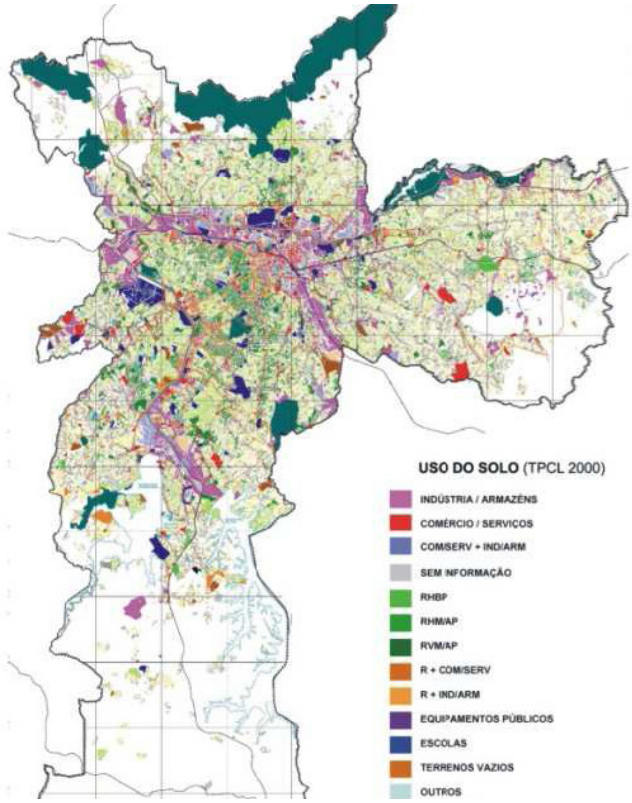
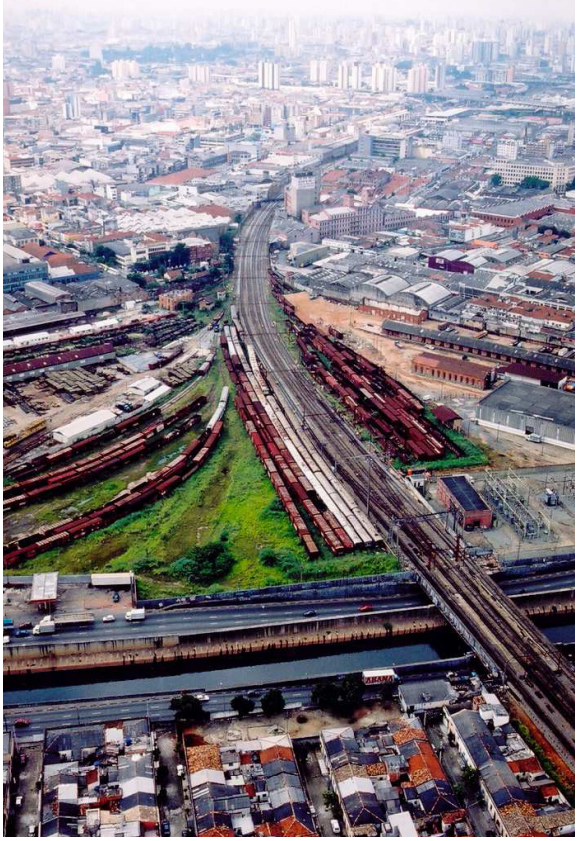


Figure 5.35 Diagonal Sul – Underused railway sites



6. Potentials of urban conversion in Bogotá

Die Stadt gibt es, und sie hat ein einfaches Geheimnis:
sie kennt nur eine Abfahrt, kein Wiederkehr.

Italo Calvino **DIE UNSICHTBAREN STÄDTE**

The first five chapters of this dissertation have deepened into the topic urban conversion as a means for inner development. They form the basis for the proposal of a strategy for the activation of redevelopment measures in the city of Bogotá. Conversion, understood as the reutilization of a brownfield or a suboptimally used urban site through conferment of a new use, has been analyzed under the theoretical and practical perspectives throughout this work.

Furthermore, two case studies have been carried out in order to establish the main characteristics and approaches in the planning processes of two very different cities that face similar problems. Both case studies confirm the following eight theses:

1. The prioritization of the development of inner urban areas is a requirement for sustainability.

2. Urban conversion is an effective means for strengthening and facilitating inner urban development.

3. In order to implement inner development strategies it is necessary for decision makers to create a solid basis for action.

4. The city of Stuttgart has identified the challenge of planning in a sustainable manner. This is corroborated in the legal framework that regulates the planning procedures.

5. Stuttgart has developed efficient instruments to implement inner development. Conversion projects have become routine in the planning processes of the city.

6. Inner development or urban conversion are not considered priorities in a city like Bogotá. On the one hand, the legal framework for planning ignores these concepts. On the other hand, the number of conversion projects is marginal.

7. Cities like Bogotá can and should regard planning procedures from cities like Stuttgart, with the aim of reaching a more sustainable urban development.

8. The transfer of concepts and ideas is subject to adaptation to the local situation.

This last chapter intends to propose a strategy for inner development for the city of Bogotá. The bases of this proposal are the planning strategies of the city of Stuttgart towards a sustainable urban development, which have been identified in the case study of the fourth chapter. The first step is to establish a series of strategies and instruments for a new planning procedure for Bogotá. The approach intends to make a real proposal based on real examples in the city. This way the dissertation does not remain at the theoretical level, but it aims at a practical application.

In order to attain this objective, a series of potentially convertible areas were identified throughout the city as the first step to establish a planning strategy for Bogotá. Three of these identified areas were selected and analyzed with more depth in this chapter.

6.1 Definition of criteria for the implantation of new uses

The three selected potential sites were analyzed under historical, physical and functional points of view. A special emphasis was made in the criteria that determine the potentiality of the areas:

<u>Physical criteria</u>

- Size and form (regularity of the form) of the site
- Constructability
- Actual physical condition of the site
- Condition of existing buildings - extent to which existing buildings can be recycled
- Existing connection to public services (water, sewage, energy, gas)

<u>Accessibility</u>

- Internal accessibility within the site (inner streets depending on the size of the site)
- Extern accessibility to the site (extent of easiness to reach it)
- Accessibility to public transport

<u>Surroundings</u>

- Land uses surrounding the site
- Level of settlement and consolidation around the site
- Types and quality of land uses around the site

<u>Centrality</u>

- Physical relation or distance to centers or subcenters
- Distance to commercial centers, social infrastructure, leisure areas

<u>Environment</u>

- Quality of soils, ground water and air
- Level of contamination (related to previous uses)
- Location of the site with regard to focuses of noise emissions

Feasibility of conversion

- Intentions of land owner / Willingness to sell of land owner

Quality of land use

- Possible future uses on the site
- Negative impact of the present use on the surroundings

Identity

- Significance to the people / Collective memory

For each of the three selected sites a *fact sheet*[175] is produced. This fact sheet is comparable to the ones generated from the NBS System in Stuttgart for the management of inner urban areas (see chapter 4). It contains the most important features of the sites (general information, pictures, planning milestones, etc.) and should be able to summarize their planning history. Similar fact sheets were utilized in chapter three in order to systematically catalogue a series of projects. The passes for the three selected areas will contain more information and present it in more detail.

Conversion implies transformation and therefore the chapter includes a proposal for possible future uses for the selected sites. The proposal is based on an analysis of each area and its potentials.

6.2 Identification of potential conversion sites

Which criteria determine if a specific area has a certain level of potential for conversion? The answer to this question lies both inside and outside of the area itself. An area has a high potential of conversion if:

- it is a brownfield
- it is not optimally used
- its actual use produces negative effects on its surroundings
- it opposes to the positive tendencies or policies of urbanization in its surroundings
- it devaluates the sector

Accordingly, an urban area has also a high potential of conversion if:

- it has a high level of accessibility
- it has a good connection to public transport
- it possesses no contamination
- it possesses contamination but the costs of remediation are reasonable
- it is close to urban centers or subcenters for the supply of goods
- it possesses historical or architecturally valuable buildings
- it is valuable for the collective memory of citizens

[175] In German: *Flächenpass*

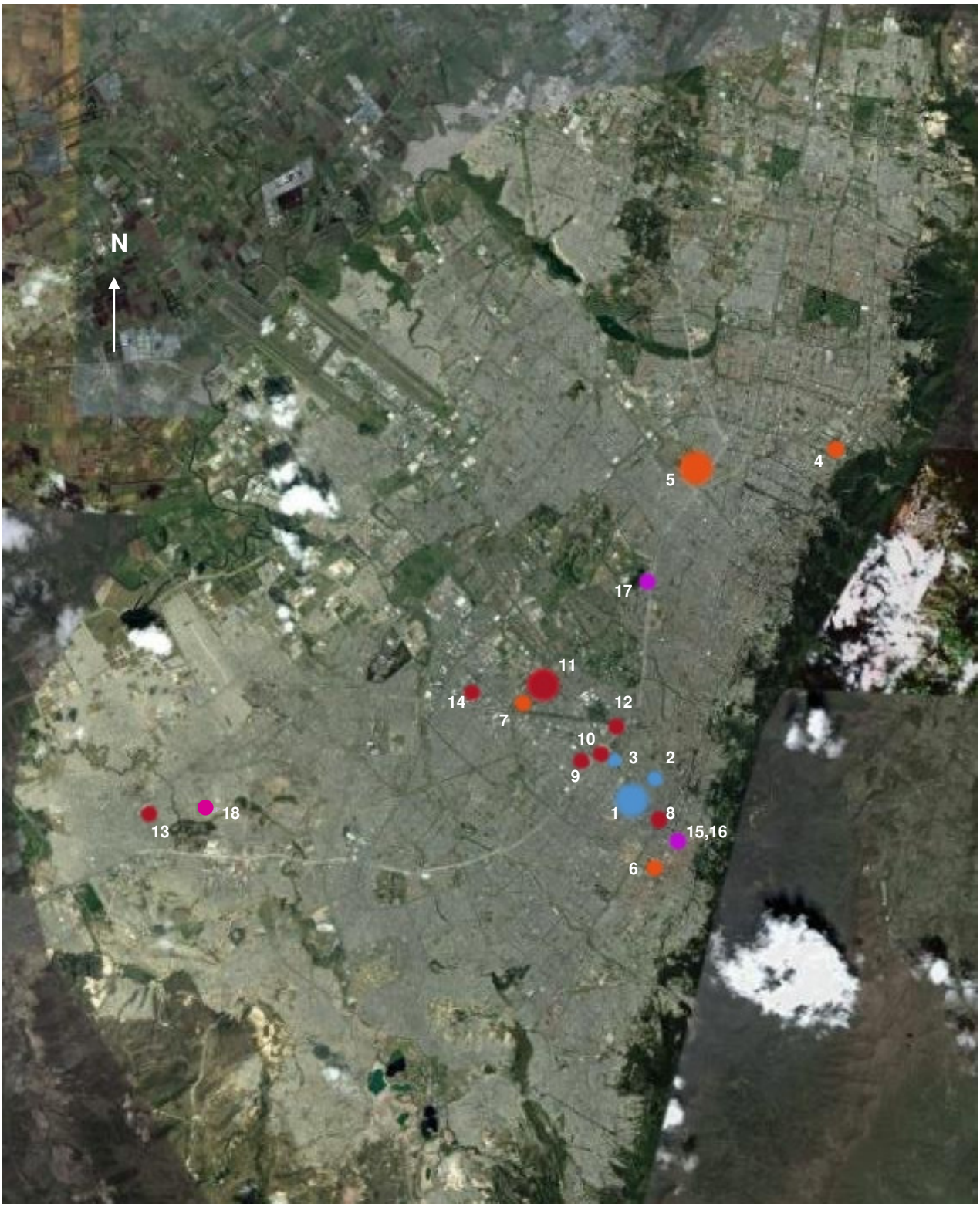
As ascertained in the case study on Bogotá, the capital of Colombia like most cities in the world has not escaped to the phenomena linked to *deindustrialization*. Due to this, the city shelters a wide variety of areas of all sizes, types and qualities, which have a high potential for conversion. The following list is a reduced inventory of selected areas, considered to posses this potential[176]. These areas were cataloged under the main types of conversion, according to their original function[177] as listed below:

Nr.	Site	Original use	Actual situation	Location	Approx. Area (ha)
Railways / infrastructure •					
1	*Estación de la Sabana* former main train station	Train station	Brownfield – suboptimally used	13th St.	8,5 ha
2	Former railway area by the *Sans Façon School*	Railways	Suboptimally used	19th St.	1,5 ha
3	Former railway area in the district Paloquemao	Railways, empty lots	Brownfield	Along 19th St.	8,2 ha
Military areas •					
4	*Cantón Norte* military base	Military	In use	7th Av.	68 ha
5	Military Academy *José María Córdova*	Military	In use	80th St.	40 ha
6	*Guardia Presidencial* Army Base	Military	In use	7th St. Hist. Center	2 ha
7	Military Club in district Puente Aranda	Military	In use	Américas Av.	8,2 ha
Industrial areas •					
8	Garages for car mechanics and small industry	Small industry, mixed use	Partially in use	Along 13th St.	Multiple lots
9	*Matadero Municipal*	Slaughterhouse	Brownfield	13th St.	2,5 ha
10	Brownfields on the NQS	Industry, empty lots	Brownfields	Crossing 19th St. / NQS Av.	13 ha
11	Gasoline tanks in Puente Aranda	Heavy industry	In use	Dist. Puente Aranda	37 ha
12	Former *Cervecería Andina*	Industry (brewery)	Brownfield	NQS Av.	3 ha
13	*Matadero San Martín*	Slaughterhouse	Brownfield	Dist. Ciudad Bolívar	__
14	*Matadero Guadalupe*	Slaughterhouse	Brownfield	Dist. Puente Aranda	__
Others •					
15	Low quality handicraft markets - Historical Center	Commerce	In use	Dist. La Candelaria	Multiple lots
16	Parking lots - Historical Center	Service	In use	Dist. La Candelaria	Multiple lots
17	*Parque de los Novios* "triangle"	Small industry, mixed use	In use	63rd St. / NQS Av.	7 ha
18	Tanneries	Leather industry	In use	Dist. Ciudad Bolívar	__

These areas can be seen in figure 6.1 (next page). Each color represents the actual or previous use. The bigger circles represent the three areas, which will be analyzed in more detail further in this chapter.

[176] The list was elaborated with the helpful support of the architects/planners Rafael Obregón, Pedro Pablo Morcillo and Daniel Cerón (Municipal Planning Department of Bogotá). The interviews were carried out in Bogotá in May 2005.
[177] See Chapter 3.2 "Original functions"

Figure 6.1 Map of Bogotá with identified potential conversion areas



• Infrastructure areas • Military areas • Industrial areas • Others

6.3 Selection of potentially convertible sites

Three of the sites from the previous list were selected for a more detailed analysis, according to the same conversion types as in the three examples from the Case Study Stuttgart:

- An infrastructural area (old railway station): Estación de la Sabana
- A military area: Escuela Militar José María Córdova
- An industrial area: Gasoline tanks in Puente Aranda

The last two sites are still in operation, while the first one is partly abandoned, partly suboptimally used. All three sites are located in different districts of the city, with three different social and economical structures. The objective of this analysis is to establish the level of potentiality of the areas and to suggest future compatible uses, regardless of the intention of the present owner of giving them up or not.

6.3.1 Estación de la Sabana

Historical context and current situation

The *Estación de la Sabana* or *Estación de Ferrocarriles Nacionales* was the main train station of Bogotá. The railway infrastructure emerged in the city in the last decade of the 19th Century. Its main building was constructed in neoclassic style between 1913 and 1917[178], and was designed to be the center of the railway system of the country. For this reason, the station was to become a symbol of development. From the Estación de la Sabana trains would part to surrounding towns (some of which are today incorporated in the Capital District) such as Fontibón, Soacha, La Caro, Facatativá, Zipaquirá, and would extend along the Magdalena River to the city of Santa Marta in the north of Colombia. The extension of the railway system reached its peak in 1953.

The importance of the railway system in Colombia is not comparable to that of Europe. However, the intermediary stations along the rail lines determined to a great extent the direction in which Bogotá developed and grew. This means that railway transport influenced directly the morphological development of the city. However, mobilization by train started gradually to lose its importance as the towns connected by it started being incorporated in the urban area of Bogotá and could be reached by other means of transport. Additionally, the modernization of the trains resulted extremely expensive: these were slow, non efficient and the railways were too narrow. These limitations as well as serious financial problems led to the dissolution of the train company *Ferrocarriles Nacionales de Colombia* in 1991. The railways stopped operating normally that year. The main neoclassical building, which had been declared National Monument in 1984, began experiencing deterioration. Today the lines are used sporadically by freight and tourist trains.

[178] Estación de la Sabana. From: es.wikipedia.org/wiki/Estaci%C3%B3n_de_la_Sabana. 11 April 2008

Figure 6.2 First maps of Bogotá showing the Estación de la Sabana (circle) – 1891, 1906 and today

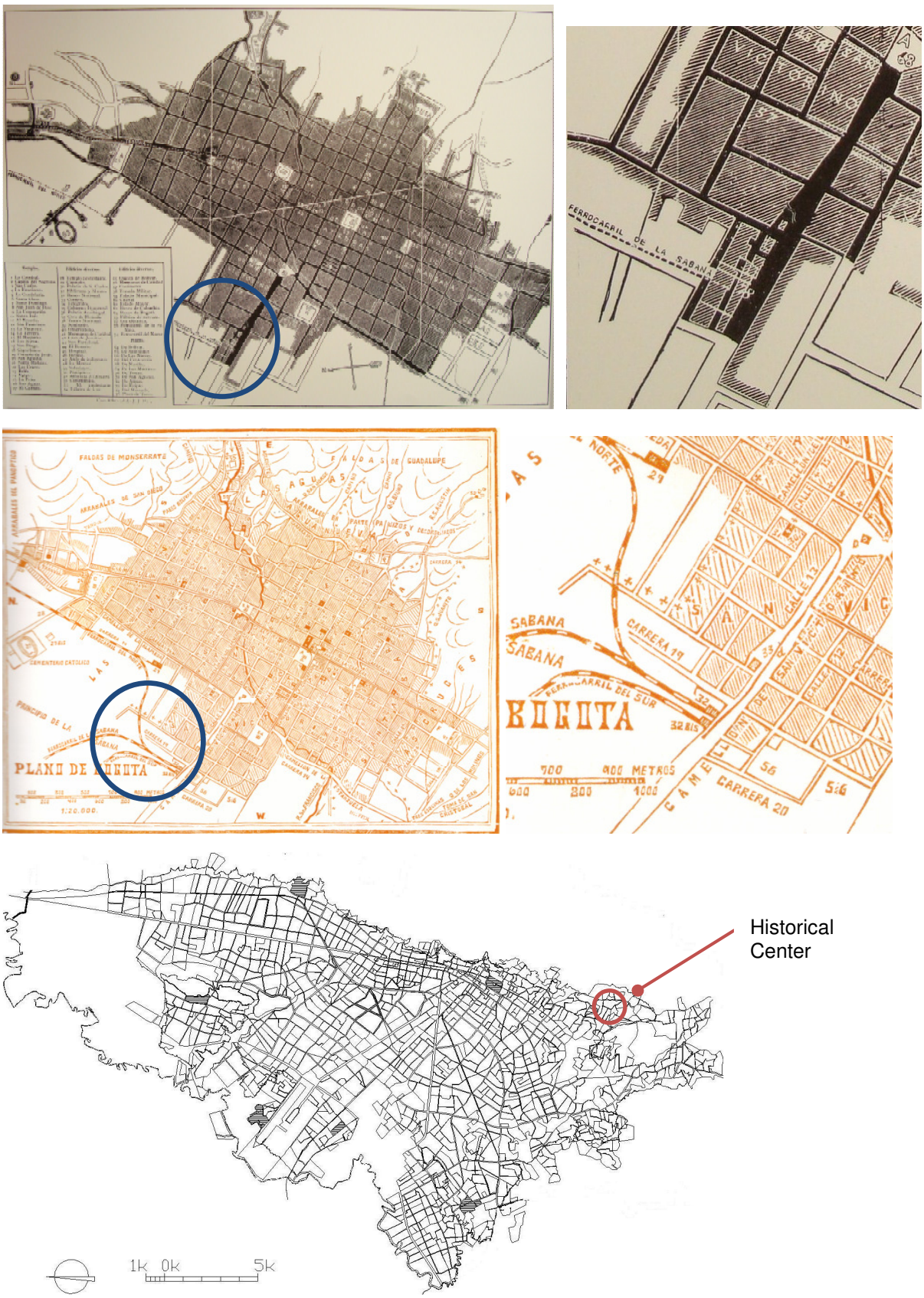
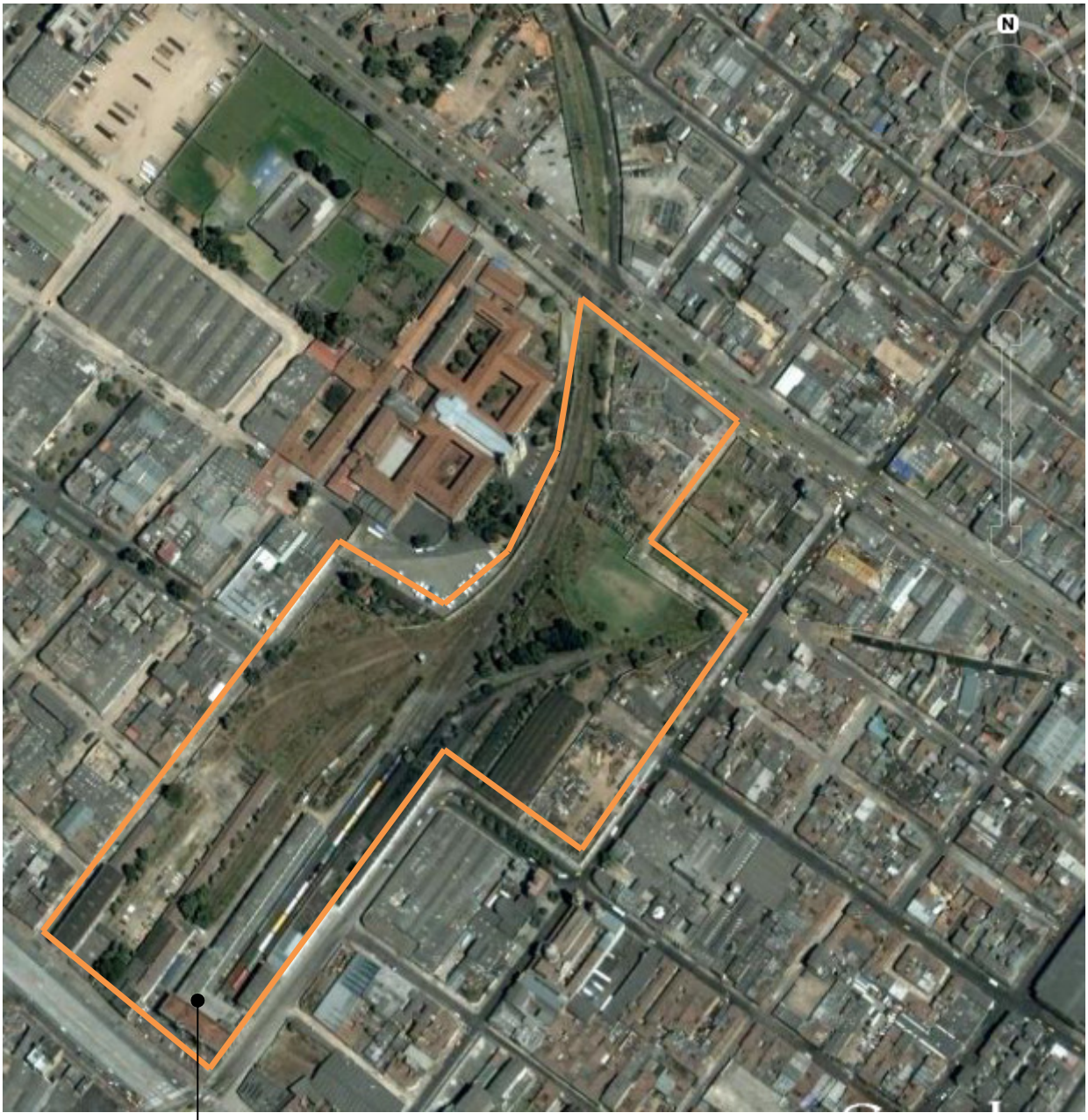


Figure 6.3 Aerial photo of the site of the Estación de la Sabana



Main building of the train station

Figure 6.4 Main building of the Estación de la Sabana (former train station). Images from the beginning of the 19th century and today. The deterioration of the building is clearly visible in the second picture.

Location with regards to the city at its origins

The first maps of Bogotá showing the train station date back to 1891 (see figure 6.2). At the time, the railway lines of the *Ferrocarril de la Sabana* clearly ended in the western outskirts of the city (the main station building would be built two decades later). The 13th Street (also known as the *Avenida Centenario or Colón*)[179], on which the main station building is found, belonged to the suburbia of the city and was considered to be the "golden door to the Bogotá". The area of the station was absorbed by the growth of the city around 1910. Today, it is part of the city center.

Location with respect to strategic places

The strategic location and high potentiality of the Estación de la Sabana is the main reason to have selected the site for this analysis. The former train station is located in close vicinity to the historical center of Bogotá (1,1 km), which contains a great variety of important administrative, social, commercial, cultural and leisure facilities. Close to the site is also the "International Center" (1 km), which is an important node of the city. Another subcenter is found westwards, on the intersection of Carrera 30 and Calle 13. The area is supplied with department stores and shopping possibilities.

Accessibility

The buildings of the train station and its rails are located directly between two important (and traditional) traffic arteries of Bogotá:

- Calle 13 – Avenida Colón (main buildings of the former station)
- Avenida 19 - Ciudad de Lima

Additionally, the area is located at walking distance to other main traffic arteries of the city:

- Avenida Caracas (0,5 km)
- Cr. 30 – NQS (1,1 km)

Location with respect to public transport

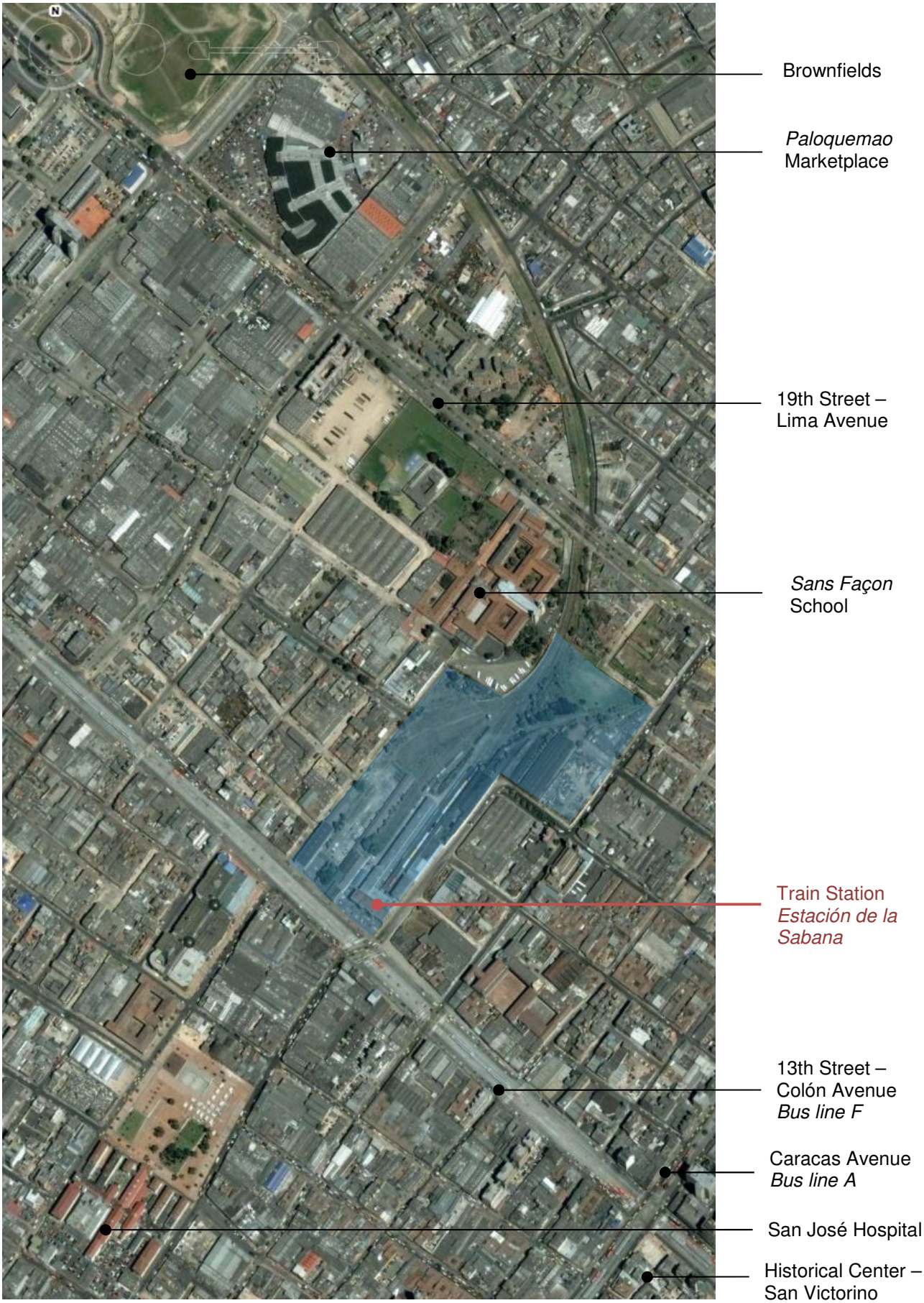
The line F of the bus rapid transit system *TransMilenio* runs directly in front of the main building of the former train station. Additionally the site is served by bus lines on the Avenida Caracas (Line A) and on the Carrera 30 – NQS (Line E). The accessibility of the selected area and its closeness to massive public transport endow the site of the Estación de la Sabana with a special attractiveness and a high potential for quality urbanization.

Level of contamination

There is a probability that contaminating substances have reached soils and groundwater underneath the railway lines. However, it is not expected that these will hinder a future redevelopment project.

[179] Streets in Bogotá are classified as *calles* (streets), which run perpendicular to the mountains, with numbers increasing towards the north and the south; and *carreras*, which run parallel to the hills, with numbering increasing as one travels to the west. Some of Bogota's main roads also go by a proper name in addition to a number.

Figure 6.5 Aerial photograph of area around the Estación de la Sabana train station



Development tendencies in the urban context

The previous analysis confirms the high potentiality for conversion of the former train station. Its strategic location within the city (especially with regard to the city center) as well as its high accessibility, would allow a high quality urbanity which has not yet been fully acknowledged. Additionally, there are three further aspects which should be taken into account that speak in favor of a conversion of the site:

1. The historical importance of the site to the city and to the collective memory is an incentive for its revitalization.
2. The surrounding areas which have suffered a strong deterioration in the last decades would profit from the redevelopment of the railway site. This can bring an impulse to the revitalization of the entire sector.
3. Many public administrations of the city have suggested a rebirth of the train system in Bogotá by constructing a new modern commuter railway system. Even though none of these plans have been realized until now, it is highly possible that the Estación de la Sabana could be upgraded in the long term. This would only incentivize the revitalization of the entire sector and would accentuate the need of redeveloping the area in order to improve its urban qualities.

6.3.2 José María Córdova Military Academy

Historical context and current situation

The history of the Colombian Armed Forces goes back to the year 1907 when the president Rafael Reyes decides to hire international experts (firstly under a Prussian captain) to train new troops[180]. This would be the origin of the first modern and professional army in the country. The first army base in the city of Bogotá was located directly in the city center and was called Military Academy of San Agustín[181] (Escuela Militar de San Agustín). The main objective of the military academy was to instruct sergeants and corporals of the army.

Due to the rapid growth of the military academy and the inadequacy of the improvised facilities, the institution was forced to move in 1914 to the outskirts of the city at the time (an area that today is considered as part of the city center). The Academy changes in this period also its name to Military Academy of San Diego.

Throughout its first decades, the military academy evolved to a specialized institution of growing importance for the nation. Accordingly, the army base in San Diego became once again obsolete and had to be relocated a second time in the outskirts of Bogotá, in an area called Rionegro. The relocation took place between 1941 and 1943. For the first time the

[180] Corporación La Candelaria. *Atlas histórico de Bogotá 1911-1948*. 2006. p. 66-72
[181] República de Colombia. *Escuela Militar de Cadetes General José María Córdova*. 1997

Figure 6.6 First maps of Bogotá showing the military area (circle) – 1944, 1954 and today

military academy established itself in modern facilities constructed specially to settle and instruct the army, and not in an adapted building. The facilities were constructed in a seventy-hectare plot of land in the north of Bogotá. These were inspired on the colonial architecture[182] and cover only one third of the entire plot, due to the extensive sport and military exercise fields. Among the pure military facilities, the base has also a library, a museum, a church, sport facilities, stores for the military and classrooms. In the second half of the twentieth century the military academy changed its name to Escuela Militar de Cadetes General José María Córdova, honoring the Colombian national hero who fought in for the continent's independence.

The military base José María Córdova is only one example of a series of military areas in Bogotá that emerge in the outskirts of the city but that were eventually absorbed by its growth. Because of the activities carried out on them, and of the minimum distance regulations they require, these military areas are incompatible with other land uses such as housing and commerce. In other words, due to evident security reasons, military areas in Bogotá stand as impenetrable islands within the urban fabrics. In some cases these areas hinder the normal functionality of the city, since they block important traffic arteries and impede the normal development of housing areas.

Location with regards to the city at its origins

The Military Academy's history is characterized by a constant evolution, which has directly influenced its physical location with regards to the city. Along with the quantitative growth and specialization of the Colombian armed forces since their foundation, the military base has also influenced the areas in which it has been located in different periods of time. In two opportunities the military academy was forced to relocate in the outskirts of the city. Today's army base in the north of Bogotá has also been absorbed by urban areas: it is completely surrounded by residential neighborhoods (see figure 6.8).

Location with respect to strategic places

The strategic location and high potentiality of the José María Córdova Military Base is the main reason to have selected the site for this analysis. The base is located in the vicinity of a series of important urban subcenters, which contain important social, commercial and leisure facilities:

- Los Héroes node - subcenter (1,3 km)
- Calle 80 / Avenida 68 node – subcenter (0,9 km)
- Shopping malls *Metropolis* (0,9 km) and *Iserra 100* (1 km)
- Department stores *Exito* (0,9 km), *Carrefour* (1,7 km) and *Cafam* (0,5 km))
- A home improvement store (0,9 km)

[182] República de Colombia. *op.cit*. p. 81

Figures 6.7 Military area Escuela de Cadetes José María Córdova. Aerial photo, main building and entrance

Accessibility

The military base is located on two important traffic arteries of Bogotá:

- Calle 80 – Autopista a Medellín
- Avenida Suba

Additionally, the area is located closely to other main traffic arteries of the city:

- Carrera 30 - NQS (0,2 km)
- Autopista Norte (1 km)
- Calle 100 (1,3 km)
- Avenida 68 – Congreso Eucarísitco (1 km)

Location with respect to public transport

Different lines of the bus rapid transit system *TransMilenio* run near to the military area on the Calle 80 – Autopista a Medellín (Line D), on the Avenida Suba (Line C), on the Carrera 30 – NQS (Line E) and on the Autopista Norte (Line B). The accessibility of the military base and its closeness to massive public transport endow the area with a special attractiveness and a high potential for quality urbanization.

Level of contamination

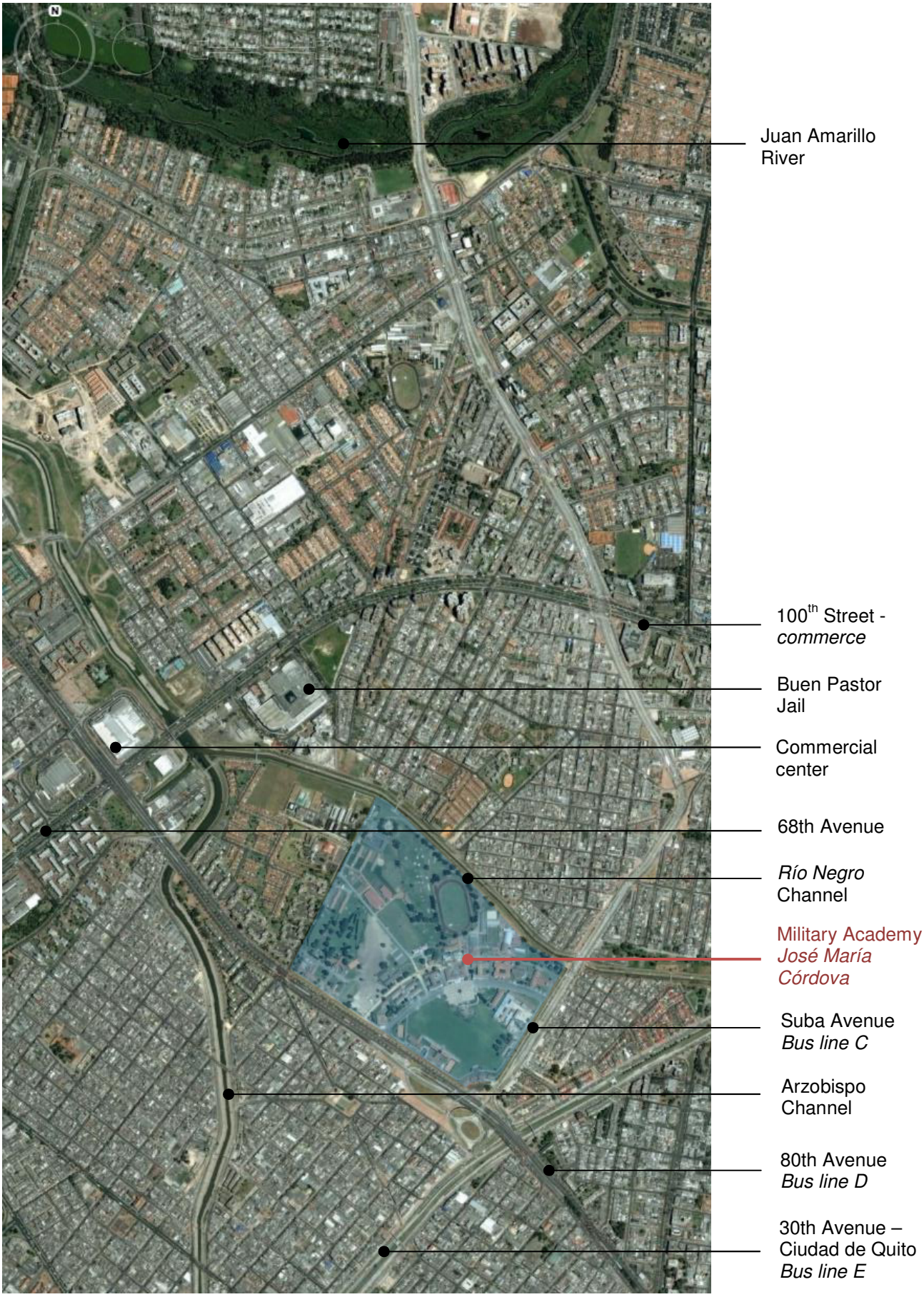
Taking into account that this specific military base is mainly used for forming and academic purposes, it is not assumed that the soils or groundwater could be affected by toxic substances. However, this could only be determined by a technical analysis, especially underneath facilities where hydrocarbons could have penetrated the soils (garages and workshops).

Development tendencies in the urban context

The previous analysis confirms the high potentiality for conversion of the military area. Its strategic location in the city with regard to subcenters, as well as its high accessibility, allow a high quality urbanity which today does not exist due to the present use. Additionally, there are four aspects which should be taken into account that speak in favor of a conversion of the site:

1. The José María Córdova Military Base is completely surrounded by settled residential neighborhoods such as Entreríos, Rionegro, Patria and Gaitán. Additionally, the supply of products is completely covered in the neighboring subcenters. This gives a specific vocation to the sector, which is not compatible with today's military activities. The context determines a predominant residential character to the sector.
2. The location of the military base with regard to greenery and water channels strengthens its potentiality of conversion to a high quality urban quarter.

Figure 6.8 Aerial photograph of the area around the military academy



3. Many buildings inside the military base are protected patrimony. Allowing citizens to use them and integrating them to the city, increases urban quality of the entire district.

4. Military areas do not belong in a settled urban landscape. They do not contribute to enriching urban qualities since they are impenetrable spaces, closed to the normal citizen. Additionally, military bases could mean a certain threat to the surrounding residential areas, because of the activities carried out in its premises and the potentiality of being target of a terrorist attack (not to underestimate in certain countries).

6.3.3 Gasoline tanks in Puente Aranda (industrial area)

Historical context and current situation

The plant receives its name from the district on which it is found[183]. Puente Aranda, the 16th Locality or District of Bogotá, has been identified for decades by its strong industrial character. But before the district obtained the character that we know today, the landscape was dominated by swamps, small rivers and extensive grasslands[184]. In fact, the entire plateau on which the city of Bogotá lies today used to be a mix of extreme fertile fields, grasslands and wetlands, which were lost with the urban sprawl. Because of its proximity to the city, the fields of the Hacienda Puente Aranda gave way in the beginning of the 20th Century to urbanization and industrialization. The first forms of industry to locate in the area were small manufacture firms. However, heavier forms of industry such as plastics, textiles, chemicals, metallurgy among others soon settled in the area, making it the industrial center of Bogotá. In spite of the strong industrial character of Puente Aranda, the district possesses also extensive residential areas. The 16th District counts today with 370.292 inhabitants (2005) and shows an increasing population growth tendency.

The Puente Aranda Gasoline Plant is a vast complex of chemical facilities owned by the Colombian Petroleum Company ECOPETROL. The plant was built in 1941, and since then it has experienced a series of extensions. The main features of the plant are a great number of fuel tanks that store different kinds of gasoline, diesel and Jet fuel (aviation fuel). The stored fuel is then sold to different clients such as retail oil companies like Exxon Mobil, Shell and Chevron Texaco, which operate in Colombia. The average amount of fuel which is delivered to these companies is of 1.266.000 barrels a month[185]. At the beginning of the eighties, the gasoline plant had an explosion, which led to an evacuation of thousands of persons around it. Today, the plant continues representing a threat to the security of the inhabitants of Bogotá.

[183] Puente Aranda. From: www.puentearanda.gov.co. 6 February 2008
[184] Puente Aranda. From: es.wikipedia.org/wiki/Puente_Aranda. 6 February 2008
[185] This information was obtained from the Intranet of the Colombian Petroleum Company ECOPETROL, thanks to the valuable help of I. Sandoval.

Figure 6.9 First map of Bogotá showing the gasoline tanks of Puente Aranda (circles) - 1954 and today

Along with the industrial sites of Bogotá, the city possesses extensive areas of small and medium establishments such as mechanical garages, repair shops and workshops. Many of these small-sized businesses operate informally.

Location with regards to the city at its origins

Industrial areas are traditionally located in the outskirts of every city. The Puente Aranda gasoline plant appears for the first time in a map of the city in 1953[186]. The plant is clearly built on an agricultural area outside the city core. However it is easy to determine from the map that an urbanization tendency is taking place at the time of its surfacing in the area along the axis of the Avenida de las Américas. This would become the industrial axis of the city. In a matter of few years the gasoline plant was already absorbed by the city.

Location with respect to strategic places

Without doubt the strategic location and high potentiality of the Puente Aranda Fuel Plant is the main reason to have selected the site for this analysis. The fuel tanks are only approximately 4 kilometers from the city center. Important social, commercial, administrative, educational and leisure facilities are to be found in its immediate vicinity:

- The residential and commercial quarter Ciudad Salitre (1,6 km)
- The main exhibition center CORFERIAS (1,1 km)
- The Administrative Center of the Bogotá (2,5 km)
- The National Administrative Center - CAN (1 km)
- The National University (1,5 km)
- The main bus terminal (2,4 km)
- The Metropolitan Park Simon Bolivar (2,1 km)

Accessibility

The plant is located at the center of main traffic arteries of the city:

- Avenida de las Américas (0,8 km)
- Avenida El Dorado - Calle 26 (0,9 km)
- Avenida La Esperanza (0,5 km)
- Carrera 30 - NQS (2,2 km)

Location with respect to public transport

Different lines of the bus rapid transit system *TransMilenio* run through the Puente Aranda District on both the Avenida de las Américas (Line F) and the Carrera 30 – NQS (Lines E and G). A new rapid bus line is being constructed on the Calle 26 and the Avenida El Dorado. The proximity of the fuel plant to important avenues and to public transport only strengthens its strategic location.

[186] Cuellar, Mejía. *Atlas histórico de Bogotá – Cartografía 1791-2007*. 2007. p. 114

Figures 6.10 Gasoline tanks of Puente Aranda. Aerial photo and impressions. The aerial photo shows how the site with the tanks, which is more than 1 km long, limits with residential areas.

Level of contamination

With regard to the quality of soils and groundwater, there are no investigations available. Due to the type of industry being developed on the site, it is to be assumed that soils and groundwater contain high amounts of contaminants and toxic substances.

Development tendencies in the urban context

In spite of this fact, the area of the Puente Aranda fuel plant has a high potentiality for conversion. Its strategic location in the city with regard to subcenters and to facilities of public interest as well as its high accessibility, allows a high quality urbanity which today does not exist. Additionally, there are three aspects which should be taken into account that speak in favor of a conversion of the site:

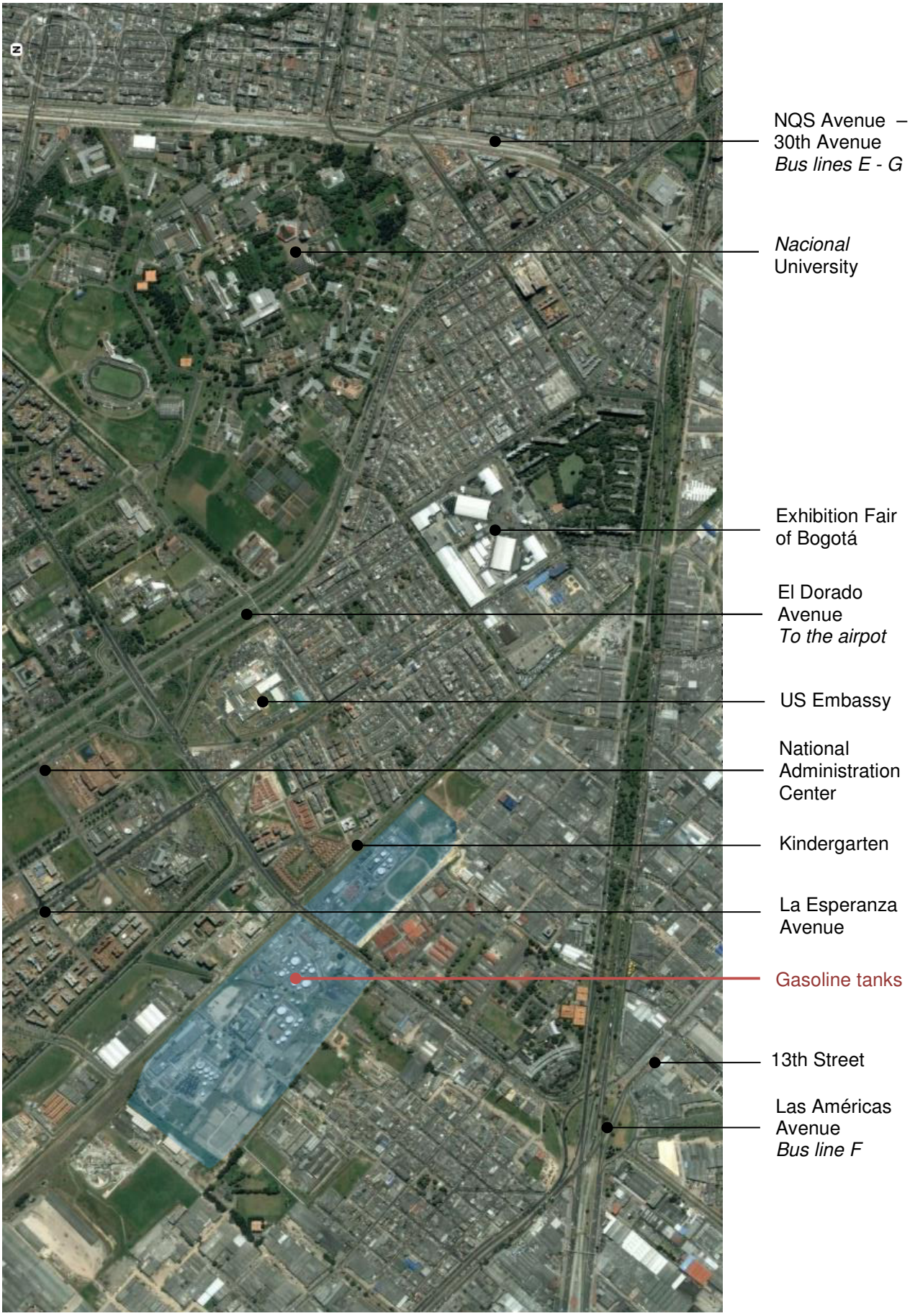
1. The residential and commercial quarter *Ciudad Salitre*, which is only 1,6 kilometers away from the plant, is a new mixed urban area that has been developed in the last 10 years in Bogotá. Ciudad Salitre was then one of the most ambitious urban projects in Latin America[187], attracting a wide variety of investors and uses (a mall, headquarters of firms, a science museum, hotels, housing, etc). The project was a success and became a model of good planning on a vacant urban area. This positive urban tendency could be extended to the neighboring grounds, such as the fuel plant.

2. Regarding the location of the fuel tanks with regard to neighboring residential areas (and even right next to a kindergarten), its image deteriorates considerably the landscape and the urban quality of the district. A new use would improve the image of this area of the city making it more attractive and continuing the positive urban tendencies of the surrounding spaces.

3. The storing of such amounts of fuel should be done distant from areas, where normal citizens cannot be threatened. The manipulation of hydrocarbons implies certain dangers, which should be avoided in urban areas.

[187] Ciudad Salitre. From: es.wikipedia.org/wiki/Ciudad_Salitre. 8 February 2008

Figure 6.11 Aerial photograph of the area around the Gasoline tanks of Puente Aranda



6.4 Fact sheets of the selected areas

The fact sheets are registers for each site inspired by the sheets administered in the NBS System in Stuttgart for the management of inner urban areas (see chapter 4). They contain the most important features of the sites (general information, pictures, main characteristics, etc.) and summarize their planning history. The area registers are instruments for an efficient management of the areas which are included in the inner development register of the entire city.

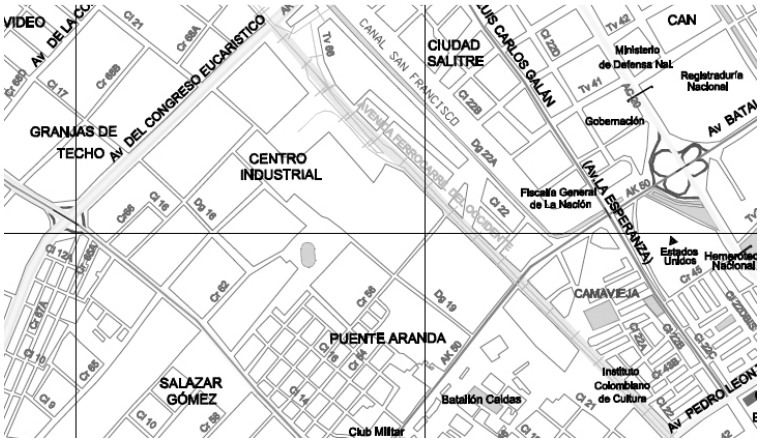
Figure 6.12 Fact sheet of the Estación de la Sabana – Former train station

Name	**Fotos / Maps**
Estación de la Sabana	 
Location	
Bogotá, Calle 13 Carrera 18	
Main access arteries	
Calles 13 and 19, Av. Caracas, Cr. 30	
Former / current use	
Train station / office, temporary uses	
Potential uses	
Housing, mixed, commerce, railway	
Dimensions of the area	
Approx. 8,5 hectares	
Actual condition	
Deficient, deteriorated	
Quality of existing buildings	
Deficient	
Chronology	
1890 – Origin of the railway 1917 – Construction of main building 1991 – Dissolution of train company Until today – Office, temporary uses	
Public transport	
Transmilenio lines A and E	
Contamination	
Expected contamination of soils	
Surrounding uses	
Workshops, small industry, low quality housing, school	
Actual condition of the surroundings	
Deficient	
Comments	
The site is located in a deteriorated traditional area of Bogotá. There are intentions of upgrading the former train station in a commuter train station. This would contribute to revitalizing the area.	

Figure 6.13 Fact sheet of the Escuela Militar José María Córdova – Present military base

Name	**Fotos / Maps**
Escuela Militar José María Córdova	 
Location	
Bogotá, Calle 80 Carrera 38	
Main access arteries	
Calle 80, Avenida Suba, Avenida NQS, Autopista Norte, Calle 100, Avenida 68	
Former / current use	
Military base	
Potential uses	
Housing, mixed	
Dimensions of the area	
Approx. 40 hectares	
Actual condition	
Good	
Quality of existing buildings	
Good	
Chronology	
Since 1943 – military base	
Public transport	
Transmilenio lines D, C, E, B	
Contamination	
Possible contamination of soils	
Surrounding uses	
Housing, jail	
Actual condition of the surroundings	
Good	
Comments	
The site is located in a predominantly residential area. It has excellent connections to public transport and commercial areas. The current use represents a suboptimal utilization of the plot. Additionally, it has negative impacts in the quality of urban space and the population around it. The site has a high potential of development.	 

Figure 6.14 Fact sheet of the Gasoline tanks in Puente Aranda – Industrial area

Name	**Fotos / Maps**
Gasoline tanks Puente Aranda	
Location	
Bogotá, Transversal 40 Diagonal 22B	
Main access arteries	
Transversal 40, Carrera 42, Avenida de las Américas, Avenida El Dorado, Avenida La Esperanza, Avenida NQS	
Former / current use	
Since 1953 – Heavy industry (gasoline tanks)	
Potential uses	
Housing, mixed	
Dimensions of the area	
Approx. 37 hectares	
Actual condition	
Deficient	
Quality of existing buildings	
Deficient	
Chronology	
Since 1953 – gasoline tanks	
Public transport	
Transmilenio lines F, E, G	
Contamination	
Expected heavy contamination of soils and groundwater	
Surrounding uses	
Housing, industry, railways, kindergarten, brownfields	
Actual condition of the surroundings	
Good, deficient	
Comments	
The site is located in a very mixed area, where housing, industry and other uses coexist. However the tendency of the sector and the strategic location with respect to public transport, centers and important facilities on the regional level give the site a great conversion potential. Additionally, the gasoline tanks represent a danger for the inhabitants of the entire sector.	

6.5 Comparison between sites according to potentiality criteria

Table 6.1 Comparison of the three selected sites under potentiality criteria

Criteria	Estación de la Sabana	Escuela Militar	Puente Aranda
Physical criteria			
Size and form of the site	🟢	🟢	🟢
Constructability	🟢	🟢	🟢
Actual physical condition of the site	🟡	🟢	🟡
Condition of existing buildings	🟡	🟢	🔴
Existing connection to public services	🟢	🟢	🟢
Accessibility			
Internal accessibility within the site	🟡	🟢	🟢
Extern accessibility to the site	🟢	🟢	🟢
Accessibility to public transport	🟢	🟢	🟢
Surroundings			
Quality of land uses surrounding the site	🔴	🟢	🟡
Level of settlement and consolidation around the site	🟡	🟢	🟢
Types and quality of land uses around the site	🟡	🟢	🟢
Centrality			
Physical relation or distance to centers or subcenters	🟢	🟢	🟢
Distance to commerce, social infrastructure, leisure	🟢	🟢	🟢
Environment			
Level of contamination (esteemed)	🟡	🟢	🔴
Feasibility of conversion			
Willingness to sell of land owner	🟡	🔴	🔴
Quality of land use			
Possible future uses on the site	🟢	🟢	🟢
Negative impact of the present use on surroundings	🟡	🔴	🔴
Identity			
Significance to the people	🟢	🟡	🔴

🟢 suitable 🟡 not ideal 🔴 unsuitable

The table was developed to establish a comparison between the three selected sites: for each site and each criterion it shows one of the following three colors:

- Green: the situation of the site is suitable with respect to the criterion
- Yellow: the situation of the site is not ideal regarding the criterion
- Red: the situation of the site is unsuitable with respect to the criterion

The predominance of the color green on the table confirms the fact that the three selected sites possess a high potential of conversion. Their intrinsic characteristics, as well as the positive determinants conferred by the situation in their surroundings, presuppose that the introduction of a new land use in the site would generate positive effects to the entire area.

Evidently the level of possible soil and groundwater contamination is a relevant topic to be established by a technical investigation in all three sites, especially in the industrial area of Puente Aranda. Taking into account that a potential new use implies the introduction of residential or mixed uses, it is necessary to determine if the existing contamination could be considered as dangerous to the future users of the site (children, animals, plants). If that is the case, a remediation of the contamination should be carried out.

Another important issue is the willingness to move out and to sell of the present owners of the sites. It is rather unlikely for the armed forces (military base) or the petroleum companies (gasoline tanks) to give up their strategically located locations on behalf of the urban planning. This underlines the fact that the present dissertation follows a merely academic purpose.

All three sites exert a negative effect in its surroundings. The conversion of the present use into a more qualitative utilization of the area would not only remediate the deteriorated sites, but it would also improve the urban quality in the surrounding areas. For this reason it is necessary to exert planning in all its scales: from the in the micro scale (site) to the macro scale (urban or even regional levels).

6.6 Evaluation of potential future uses according to criteria

In order to evaluate the potential future land uses of an inner urban area in a technical and objective way it is necessary to take into account all possible relevant criteria. In this chapter each of the three selected site are analyzed particularly with regard to the following main four land uses:

- Housing
- Commerce
- Mixed (housing, offices, commerce)
- Industry

The objective behind this evaluation is to determine the extent to which from these specific land uses is more suitable for each of the three sites according to their physical situation. This is accomplished by means of assigning one of three colors to each criterion to establish the suitability of the site for the specific potential land use:

- Green: the future land use is suitable for the site according to the criteria
- Yellow: the future land use cannot be entirely discarded
- Red: the potential future land use is rather not suitable for the site according to the criteria

The criteria utilized for this tool takes into account the internal and external technical characteristics of the site; therefore the sites are analyzed according to their intrinsic qualities and to the qualities of the surrounding areas. Each site is influenced by its surroundings; however the quality of its use influences the surroundings as well reciprocally. A negative land use can generate a negative influence on its neighboring areas. The resulting diagrams allow a comparison between the potential land uses. This simple tool can help determine which future land use can generate a positive impact on a specific urban area.

6.6.1 Estación de la Sabana – Former train station

The table shows that due to the characteristics of the site, the most suitable land uses in a future conversion would be commerce or mixed uses; whereas the introduction of an industrial use would not be suitable and would generate a negative impact on its surroundings.

In spite of the historical character of the area and of its importance to the collective memory of many inhabitants, the area of the former train station and its railways has suffered an increasing process of deterioration. The reactivation of the site through the introduction of a new use would generate a revitalization of the urban area. The eventual rebirth of the railway

use through a commuter train could put pressure in the future on behalf of a predominantly commercial use. However, the site and its surrounding areas would benefit from the introduction of a balanced mixed use, which would guarantee its revitalization. The train for commuters would not stand in conflict with the conversion of the site.

Table 6.2 Evaluation of potential uses for the Estación de la Sabana train station under potentiality criteria

Criteria	Housing	Commerce	Industry	Mixed
Physical criteria				
Size of the site	🟢	🟢	🟡	🟢
Form of the site	🟡	🟡	🟡	🟡
Constructability	🟢	🟢	🟡	🟢
Condition of existing buildings	🟡	🟢	🔴	🟢
Existing connection to public services	🟢	🟢	🟢	🟢
Accessibility				
Internal accessibility within the site	🟡	🟡	🟡	🟡
Extern accessibility to the site	🟢	🟢	🟢	🟢
Accessibility to public transport	🟢	🟢	🟡	🟢
Surroundings				
Land uses surrounding the site	🟡	🟢	🟡	🟢
Level of consolidation around the site	🟡	🟢	🟢	🟡
Types and quality of land uses around the site	🟡	🟢	🟢	🟡
Centrality				
Physical relation or distance to centers or subcenters	🟡	🟡	🔴	🟢
Distance to commerce, social infrastructure, leisure	🟢	🟢	🟡	🟢
Environment				
Level of contamination (esteemed)	🟢	🟢	🟢	🟢
Negative impact of the new use on surroundings	🟢	🟢	🟡	🟢
Identity				
Significance to the people	🟡	🟢	🔴	🟢
Possible future uses on the site	🟡	🟢	🟡	🟢

🟢 suitable 🟡 not ideal 🔴 unsuitable

6.6.2 Escuela Militar José María Córdova – Present military base

Table 6.3 Evaluation of potential uses for the Escuela Militar military base under potentiality criteria

Criteria	Housing	Commerce	Industry	Mixed
Physical criteria				
Size of the site	🟢	🟢	🟢	🟢
Form of the site	🟢	🟢	🟢	🟢
Constructability	🟢	🟢	🟢	🟢
Condition of existing buildings	🟡	🟢	🔴	🟢
Existing connection to public services	🟢	🟢	🟢	🟢
Accessibility				
Internal accessibility within the site	🟢	🟢	🟢	🟢
Extern accessibility to the site	🟢	🟢	🟢	🟢
Accessibility to public transport	🟢	🟢	🟢	🟢
Surroundings				
Land uses surrounding the site	🟢	🟡	🔴	🟢
Level of consolidation around the site	🟢	🟢	🟡	🟢
Types and quality of land uses around the site	🟢	🟡	🔴	🟢
Centrality				
Physical relation or distance to centers or subcenters	🟢	🟢	🟡	🟢
Distance to commerce, social infrastructure, leisure	🟢	🟢	🔴	🟢
Environment				
Level of contamination (esteemed)	🟢	🟢	🟢	🟢
Quality of land use				
Negative impact of the new use on surroundings	🟢	🟡	🔴	🟢
Identity				
Significance to the people	🟢	🟢	🔴	🟢
Possible future uses on the site	🟢	🟢	🟡	🟢

🟢 suitable 🟡 not ideal 🔴 unsuitable

The site possesses an especially high potential of conversion due to its strategic location within the city and with respect to urban centers and infrastructure. In particular, the proximity to three main public transportation corridors and the suboptimal use of the area (through

military activities in the middle of a housing and commercial sector of Bogotá) establish it as an ideal example of a potentially convertible site.

The predominance of the green color shows that, due to the characteristics of the site, most suitable land uses in a future conversion would be housing or mixed uses; whereas an industrial use would not be suitable and would generate a negative impact on its surroundings.

6.6.3 Gasoline tanks in Puente Aranda – Industrial area

Table 6.4 Evaluation of potential uses for the Escuela Militar military base under potentiality criteria

Criteria	Housing	Commerce	Industry	Mixed
Physical criteria				
Size of the site	🟢	🟢	🟢	🟢
Form of the site	🟢	🟢	🟢	🟢
Constructability	🟢	🟢	🟢	🟢
Existing connection to public services	🟢	🟢	🟢	🟢
Accessibility				
Internal accessibility within the site	🟢	🟢	🟢	🟢
Extern accessibility to the site	🟢	🟢	🟢	🟢
Accessibility to public transport	🟢	🟢	🟢	🟢
Surroundings				
Land uses surrounding the site	🟡	🟡	🔴	🟢
Level of consolidation around the site	🟢	🟡	🟡	🟢
Types and quality of land uses around the site	🟢	🟢	🔴	🟢
Centrality				
Physical relation or distance to centers or subcenters	🟢	🟡	🟢	🟢
Distance to commerce, social infrastructure, leisure	🟢	🟢	🟢	🟢
Environment				
Level of contamination (esteemed)	🔴	🟡	🟡	🔴
Quality of land use				
Negative impact of the new use on surroundings	🟢	🟡	🔴	🟢
Possible future uses on the site	🟢	🟡	🟡	🟢

🟢 suitable 🟡 not ideal 🔴 unsuitable

In spite of the predominant industrial character of the Puente Aranda District, this specific area around the gasoline tanks has shown a tendency of developing towards a rather residential use. The present heavy industrial use constitutes therefore a potential threat to the population around the tanks. Additionally, the urban landscape of the entire sector is considerably affected by it.

The relocation of the tanks is for this reason a dire necessity, which is unlikely to take place in the near future, unless the planning department of the city puts pressure on its owners. Taking into account the development tendencies of the district, an industrial use for this site is counterproductive and unwise. A mere commercial use can also be discarded. The predominance of the green color on housing and mixed uses shows that, due to the characteristics of the site, these would be the most suitable land uses in a future conversion.

6.7 Analysis of strengths, weaknesses, opportunities and threats - SWOT

The previous section analyzed the potential uses according to the real situation and the intrinsic qualities of each site and its surroundings. This means that the conclusions obtained with regard to their potential land use can be considered objective to a certain extent (estimations and assumptions on intangible qualities are never hundred per cent objective). However, urban development is influenced by other external forces, which in the end are stronger and more determining than the mere urban qualities of a place. These are the forces of the economy, society and politics. This section intends to take into account these more intangible forces which ultimately shape the dynamics of the city at their own will.

As an instrument for the analysis of the three sites, a “SWOT” Analysis is carried out for each of the three selected sites. This analysis is a tool used in strategic planning to evaluate the **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats involved in a project or in a business[188] – in this case in a future urban development in a specific area. The SWOT analysis has two parts according to the nature of the attributes:

- Attributes of internal origin: The strengths and weaknesses are attributes that are helpful or harmful to achieving the final objective (for this analysis the final objective is the reutilization of a site). These attributes describe the intrinsic characteristics of the site. This technical analysis was made in the previous section of this chapter.

- Attributes of external origin: The opportunities and threats are external conditions that are helpful or harmful to achieving the objective. They describe the external forces that affect a

[188] SWOT analysis. en.wikipedia.org/wiki/SWOT_analysis – May 5 2008

site with regard to urban politics, demographic tendencies and the economical forces of supply and demand of specific land uses.

The SWOT analysis is also useful in generating strategies by asking the following questions:

- How can we use a strength to obtain the objective of reactivating the site?
- How can we stop each weakness?
- How can we exploit each opportunity?
- How can we defend against each threat?

In urban planning the SWOT analysis can be employed as an instrument to evaluate simultaneously the potentiality of an area, according to its situation and characteristics (internal origin) and according to the forces that influence it (external origin). In other words, the SWOT analysis allows a direct correlation between the internal characteristics of a site and the external forces that affect it. Thanks to this method it is possible to pass from a technical level in planning to a more strategic one, and this way to increase the feasibility of conversion projects.

Such an analysis can be carried out for each possible land use (housing, commerce, offices, mixed, industry, etc.) or, like in this chapter, one SWOT analysis is carried out for each of each of the three sites.

6.7.1 SWOT Estación de la Sabana – Former train station

Table 6.5 SWOT analysis for the estimation of potentiality of the former train station Estación de la Sabana

Internal origins Attributes of the site	**Strenghts**	**Weaknesses**
	Traditional area of Bogotá Good accessibility Closeness to the historical Center Connection to infrastructure facilities, retail and services Excellent connection to public transport	Deterioration of urban qualities of the area - The urban quality of the surroundings is far from ideal Intents to revitalize the area have failed in the past The plot of land is partially irregular Possible contamination of soils and groundwater
External origins Attributes of economy, politics and society	**Opportunities**	**Threats**
	Valorization of the site and its deteriorated surroundings Connection of the site with future commuting train Recovery of architectonically valuable building - The main station building has a high potential of renovation A social balance could be obtained in the area Investors could find interest in the area The quality of the city Center can be strengthened by the amelioration of this area	Unwillingness to sell of owner The deteriorated aspect of the area can keep investors and buyers away Costs of remediation of contamination could be high Gentrification and segregation could take place Investors could find the area too complex for development Frustrated intents to redevelop the area could scare investors.

6.7.2 SWOT Escuela Militar José María Córdova – Present military base

Table 6.6 SWOT analysis for the estimation of potentiality of the military base José María Córdova

Internal origins Attributes of the site	**Strenghts**	**Weaknesses**
	Excellent situation with respect to public transport Good accessibility – Strategic location between of important urban axes There is no need to demolish buildings – Existing buildings can be reused Good situation with respect to commerce and infrastructure facilities Residential surroundings Situation between green spaces and water bodies	The military are well settled in the site - Unwillingness to sell of owner
External origins Attributes of economy, politics and society	**Opportunities**	**Threats**
	Possibility to create a new qualitative urban space Possibility to generate more space for housing Win public space for the city Evacuate a harmful use in a residential area Chance to obtain a social mix in the sector	In case of contamination costs of remediation could be high Refusal of the military to relocate Lack of interest of the local authorities to pressure for relocation

6.7.3 SWOT Gasoline tanks in Puente Aranda – Industrial area

Table 6.7 SWOT analysis for the estimation of potentiality of the gasoline tanks in Puente Aranda

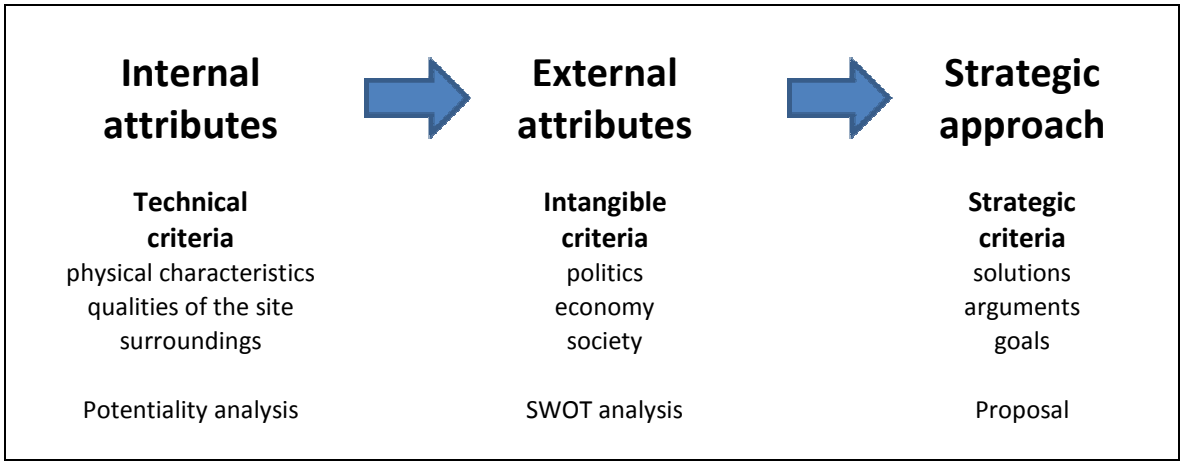
	Strenghts	Weaknesses
Internal origins Attributes of the site	Strategic location within the city Positive urban developments in its proximity (Ciudad Salitre) Excellent accessibility Excellent situation with respect to public transport	The companies are well settled in the site - Unwillingness to sell of owners Expected contamination of soils and groundwater – High costs of remediation The district of Puente Aranda is traditionally linked with industry
External origins Attributes of economy, politics and society	**Opportunities**	**Threats**
	Elimination of danger to inhabitants due to present use Improvement and valorization of the site and its surroundings A social mix could be achieved Continuation of the positive development tendencies of the area. Improvement of urban landscape	In case of contamination, costs of remediation would be high Refusal of the companies to relocate Economy forces are stronger than the public administration

6.8 Conclusions on the potentiality and SWOT analyses

In the section 6.6 of this chapter a series of recommendations for potential urban uses are proposed, according to the specific qualities of the selected sites and their surroundings. Section 6.7 intends by means of a SWOT analysis to define the opportunities and threats of these sites produced by the external forces that influence it. The results of both analyses are often contradictory. On the one hand, the sites have a high potential of sheltering new land uses due to their intrinsic characteristics. On the other hand, the forces of economy and politics do not allow a redevelopment of the sites.

The following diagram illustrates the methodology followed in this analysis:

Diagram 6.1 Method of analysis for potential conversion areas



An analysis of the site at the technical level draws objective conclusions that serve as an instrument to propose potential land uses. However, external attributes at the political level influence the development of the site and shape its evolution. This leads to a strategic approach to find exits to the constraints that hinder development and to evaluate the feasibility of conversion. This section summarizes the conclusions of the potentiality and SWOT analyses, and draws perspectives and proposals for the future of the sites.

6.8.1 Conclusions on the potentiality and SWOT analyses for the former train station Estación de la Sabana

The analysis on potential suitable land uses for the Sabana train station concluded that in case a conversion would take place, the most suitable uses for the site would be commerce and mixed. The SWOT analysis on the other hand describes a series of threats that could hinder the redevelopment of the site. Many factors speak against the revitalization of this urban sector in spite of its high potentials. The following conclusions can be drawn from the comparison of both analyses:

1. Commerce or mixed uses would be ideal for an area but there seems to be a lack of political interest to activate the regeneration process.

2. The reactivation of the train station in form of a regional train or metro would be a great chance for the entire urban area, especially due to its proximity to the historical Center of Bogotá and to the traditional significance that it possesses. This could accelerate the redevelopment of the sector.

3. The actual preponderance of small industries, workshops and garages in the area make it a rather unattractive space for living. The introduction of mere commercial use would be a

valid alternative. Nevertheless a mixed land use would improve considerably the quality of the area and would lead to a renaissance of the sector.

4. The redevelopment of the area of the train station by means of a mixed use is also an opportunity to generate a balanced social mix.

5. In spite of the architectonical importance of the main train station building, there seems to be until now no concrete measure of the public authority to protect it. European train stations converted cautiously into shopping centers or malls are an example of the reutilization of deteriorated infrastructure buildings. This could be an alternative to recover the building.

6. The local authorities have not realized the importance of this sector to strengthen the central character of the western part of the historical center of Bogotá. Conversion to a suitable land use would guarantee the revival of the centrality of the area.

7. Around the site of the train station there are a great number of potentially convertible sites. By observing the entire urban area as a group convertible of inner development sites, a greater impact can be achieved on the improvement of life quality in this sector of Bogotá.

6.8.2 Conclusions on the potentiality and SWOT analyses for the military base José María Córdoba

The analysis on potential suitable land uses for the military base José María Córdoba concluded that in case a conversion would take place, the most suitable uses for the site would be housing, commerce and mixed. On the other hand, the SWOT analysis describes a series of threats that could hinder the redevelopment of the site. Many factors speak against the revitalization of this site in spite of its high potentials for conversion. The following conclusions can be drawn from the comparison of both analyses:

1. The excellent location of this site makes it ideal for any type of use. Nevertheless, the types of use around it would hint rather towards housing or mixed uses.

2. The present use of the site is military and it is rather unlikely that they are willing to give up such a strategic location to move somewhere else, regardless of any argument about the high potentiality of the area. In other areas of the city, the local authority has already tried without success to put pressure on the military to move out. This is a signal that the public sector in Bogotá lacks of instruments to solve negative impacts on urban areas.

3. In spite of the unfavorable situation, the conversion of the closed military area into a lively urban space would be a great opportunity for the city to generate new high quality housing

and public space. The excellent accessibility and shopping possibilities of the site could be exploited through a more suitable land use.

6.8.3 Conclusions on the potentiality and SWOT analyses for the area of the gasoline tanks in Puente Aranda

The analysis on potential suitable land uses for the Sabana train station concluded that in case a conversion would take place, the most suitable uses for the site would be housing and mixed. The SWOT analysis on the other hand describes a series of threats that could hinder the redevelopment of the site. Many factors speak against the revitalization of this site and its surroundings in spite of its high potentials. The following conclusions can be drawn from the comparison of both analyses:

1. Housing or mixed uses would be ideal for an area but there seems to be a lack of political interest to activate the regeneration process in the area.

2. The relocation of the gas tanks and the introduction of housing in the area would be a great chance for the city, especially due to its proximity to the historical Center of Bogotá and to other successful urban developments. This could accelerate the redevelopment of the whole sector.

3. The actual preponderance of heavy industry in the area makes it a rather unattractive space for living. A mixed land use would improve considerably the quality of the area and would lead to a renaissance of the sector.

4. The redevelopment of the area by means of a mixed use is also an opportunity to generate a balanced social mix. It is an ideal area for housing, since it would strengthen the tendency in the sector.

5. The local authorities have apparently not realized the importance of this sector to strengthen the central character of this part of Bogotá. Conversion to a suitable land use would guarantee the revival of the centrality of the area.

6. Around the site of the tanks there are a great number of potentially convertible sites. By observing the entire urban area as a group convertible of inner development sites, a greater impact can be achieved on the improvement of life quality in this sector of Bogotá.

7. The biggest constraint to redevelop this area is the assumed contamination of the ground and groundwater.

IV. An urban model for Bogotá and the Latin American city

7. Strategies and instruments for the activation of urban conversion and inner development in Bogotá

Macondo era entonces una aldea de 20 casas de barro y caña brava
construidas a la orilla de un río de aguas diáfanas
que se precipitaban por un lecho de piedras pulidas,
blancas y enormes como huevos prehistóricos.

Gabriel García Márquez **CIEN AÑOS DE SOLEDAD**

In the previous chapter a series of potentially conversion areas were identified in Bogotá. From this list, three sites were selected and analyzed according to different criteria in more depth with the objective of determining their potentiality and possible future uses. The present chapter establishes a series of innovative strategies for the promotion and activation of inner development in Bogotá through urban conversion. The proposal is supported by a direct comparison between the cities of Bogotá and Stuttgart. Sixteen strategies are classified according to a series of fields of action, taking into consideration possible constraints that may hinder the implementation of the proposed strategy.

The comparison between both cities allows determining different situations and approaches to planning. The transfer of ideas and concepts from one city to the other demands an adaptation of models to the realities of each specific place. Evidently Bogotá and Stuttgart are two cities with completely different physical, social and economical situations, and for this reason the approach to a sustainable urban development cannot be transferred from one city to the other without a sensible regulation. In this chapter a strategy is developed for the Colombian context taking into account the differences and characteristics of this specific case.

This dissertation aims at the proposal of concrete innovative strategies that can be adopted by local governments and urban planners interested in a more sustainable development of their cities. It should be a useful instrument that generates a consciousness of the importance of stopping urban sprawl and reactivating inner urban areas.

7.1 Fields of action of inner development strategies

The development of urban areas can be classified under a series of *fields of action*. For each field of action, different strategies can be defined. However, isolated strategies and fields of action are insufficient without an integrated and concerted framework, which is supported by a solid political approach and equipped with efficient instruments and measures[189]. The proposed strategies are classified under the following fields of action:

a. Field of action “political framework”
This field of action sets the fundaments that make inner development possible. A political approach to sustainability sets the basic conditions for the development of strategies and instruments. This approach is based on three pillars: clear urban development concepts, the establishment of a sustainable conscience and the development of a land use policy for the long term.

b. Field of action “legal framework”
This field of action comprises all mandatory regulations that determine the legal framework for inner development to take place.

c. Field of action “information”
In the field of action *information*, strategies and instruments are summarized with the objective of collecting the necessary information which can help the different actors in the planning process (investors, owners and the public administration) to make the correct decisions. This field of action foresees the recollection of data from brownfields, empty urban areas, deteriorated areas, negative uses, information on possible contamination, etc.

d. Field of action “management and Marketing”
This field of action comprises organizational instruments such as the creation of the figure of a area manager who assumes the administration procedures of planning and designs marketing strategies for the promotion of development in inner urban areas.

e. Field of action”incentives “
In this field of action all financial incentives for the promotion of inner development are summarized. These incentives include support programs, reduction of taxes and allocation of subsidies.

f. Field of action “cooperation”
This field of action comprises all activities that promote a more efficient cooperation between public institutions and between the public and the private sectors. Additionally, it sets the

[189] Based on the fields of action of the “area cycle economy” (Flächenkreislaufwirtschaft). Bundesamt für Bauwesen und Raumordnung. Perspektive Flächenkreislaufwirtschaft. 2006. Band 1, pg. 38-39

instruments for a formal cooperation between different actors: cities, regions, municipalities, institutions and other organizations.

g. Field of action "planning"
The field of action planning comprehends all concepts for the urban development, including land uses, public space, the preservation of buildings, etc.

7.2 Comparison and strategies for Bogotá

This section of the chapter classifies a series of guidelines which should be taken into account for a sustainable urban development. For each one of the proposed guidelines there is a direct comparison between the cities of Bogotá and Stuttgart, according to the analysis made in the case studies of this dissertation. This method allows a diagnosis of the problem and a possible solution. The solution in the end is the strategy, which can be accompanied by tools or instruments for implementation.

7.2.1 Strategies for the field of action "political framework"

Strategy 1 - Creation of a general public consciousness about the importance of implementing a sustainable urban development

The most important requirement for the successful implementation of any idea is to generate a general consciousness on the necessity of adopting it. As long as there is an ignorance concerning the necessity of possessing something, there will be no demand for it. The same happens with sustainability. In other words, if decision makers and planners are not aware of the importance of developing our cities sustainably, it will be impossible to apply measures and carry out actions that enable a change of direction. If we agree on the importance of a sustainable planning and on the dire need to develop cities innerly, it is a requirement that decision makers are also convinced of it. Only through targeting policies it is possible to prioritize the direction to which planning should aim.

The concept of *sustainable development* can be understood as a "*pattern of resource use* that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but in the indefinite future"[190]. This is rather recent concept since it was firstly implemented by the World Commission on Environment and Development from the United Nations in 1987. The Commission, in its report, defined the term *sustainable*

[190] Sustainable development. From: en.wikipedia.org/wiki/Sustainable_development. July 10, 2008

development as a development that "meets the needs of the present without compromising the ability of future generations to meet their own needs"[191].

There is an increasing global awareness of the importance of having an environmental consciousness in every aspect of human life: extraction of resources, production, consumption of goods, disposal of waste, etc. The consequences of global warming have considerably awakened a consciousness in recent years about the way we handle our planet. However, it is not so widely spread that the resource *land* is also a perishable good that needs to be handled in a sustainable manner. Especially cities around the globe have a tendency to appropriate land, by urbanizing rural soils and destroying ecosystems, ignoring the consequences these actions produce on the planet and its population.

A sustainable urban development demands that decision makers, but also that every citizen understands the need to preserve the resource land. By systematically anchoring a sustainable consciousness in the management of urban areas, it is possible to create the political and legal instruments to prioritize inner development.

Table 7.1 Comparison between Stuttgart and Bogotá in terms of consciousness for a sustainable development and a strategy for Bogotá

S T U T T G A R T	B O G O T Á
Germany has identified the problematic of urbanizing greenfields. The country has accurate statistics on the amount of rural areas which are urbanized yearly, as well as concrete objectives for the reduction of the demand for new urban area.	Colombia has not yet realized the value of land and the importance of establishing clear policies to stop urban sprawl. This is mostly evident in the legal framework of planning. **The constraints** - *Land* has never been considered a perishable resource in Colombia. It is very difficult to convince people to help slow down urban growth if there is enough empty land around the city. - Changing the way people have traditionally done their work is a complex task. - The forces of the land market economy are strong and exceed good urban intentions.

[191] United Nations. "Report of the World Commission on Environment and Development." General Assembly Resolution 42/187, 11 December 1987. From: www.un-documents.net/wced-ocf.htm

A STRATEGY FOR BOGOTÁ
Generating a general consciousness on the necessity of a more sustainable urban development is of great importance for the future of our cities and planet. Therefore it is indispensable to obtain a change in thinking at the political level as well as the level of the general population. To reach this targeted awareness, it is necessary to obtain clear statistics on the extent of urbanization in Bogotá (hectares per year), as well as to demonstrate and diffuse the negative effects of urbanization.

Strategy 2 - Shaping of the political will

Political will is a determining factor in any decision on urban planning. It is in the hands of public administrations and local governments to decide to what extent they will counteract the forces of the market, which operate as a general rule against a sustainable urban development. The political interest and its degree of influence on planning (which varies from city to city) is a decisive factor in the direction to which a city develops. It is responsibility of the local governments to establish clear development objectives and policies. Each decision taken on the future of the city should reflect the objectives set by the local governments. It is a requirement that decision makers are convinced of the importance of a sustainable development. Only through targeting policies it is possible to prioritize the direction to which planning should aim.

However, political will not always coincides with a sustainable urban development. The following four scenarios reflect the situation in different cities of the world:

1. Often a good deal for the city is more important than any sustainable development policy. As long as there is a good remuneration for the city, any type of development is allowed.

2. Political power is so weak, that the construction market modifies planning standards (heights, densities, distances between buildings, etc.) according to its own interests.

3. There is an absolute anarchism in terms of urban development. Local governments have no influence in the way the cities evolve.

4. Local governments have clear development policies; however, these are not necessarily positive for the city. This is example of cases when political will prioritizes development in inadequate areas or when the establishment of land uses for an area generate negative impacts.

Urban projects need political support to be materialized. Political interest is more decisive and influential than given laws or good will. An environmentally conscious political will has the power of laying the foundations of a sustainable urban development. Policies aimed at

improving the urban environment can also improve the social life of citizens: "ecological and social solutions reinforce each other and build healthier, livelier, more open-minded cities"[192]. A durable sustainable policy of land use has the following characteristics:

- The synergy between all actors in the planning and development processes
- The combination of instruments that incentivize the control of the land markets
- The combination of regulation instruments
- The assessment of the correlations and impacts between the city and the region

The management of the land cycle should be regarded as a long term strategy in the urban development policy.

Table 7.2 Comparison between Stuttgart and Bogotá in terms of political will for a sustainable development and a strategy for Bogotá

STUTTGART	BOGOTÁ
Political will is crucial in any development decision taken for the city. Both city administration and the municipal council have taken drastic decisions with respect to inner development policies. Urban development in Stuttgart has taken a clear direction towards sustainability, due to the influence of the planning policies. However, in many cases political decisions reflect strict economic interests (for example in the cases of the new exhibition fair, Roser-Areal or Schoch-Areal). The city sets a high value to attracting companies and investors in the region and to strengthening its economic situation, even if this means making exceptions in terms establishing land uses or constructing in rural areas. In this context, urban development in Stuttgart possesses certain flexibility and it is not considered an obstacle for progress.	In previous years Bogotá has experienced an increasing interest in planning matters from the political level. Some concrete examples of positive urban developments, such as Ciudad Salitre, have demonstrated how important political will is in the moment of materializing an urban project. However, construction markets are still very influential in the development of the city. Without political will it is impossible to relocate certain uses that represent negative impacts or to prioritize the redevelopment of specific areas of the city which urgently need revitalization. Politicians in Bogotá have still not realized the potential of many urban areas, and are not aware of the importance and advantages of inner development. Bogotá needs a clear political will towards a more sustainable urban development.

[192] Rogers. *Cities for a small planet*. 1997. p. 32

	The constraints - Urban planning has not always been one of the main priorities of the public administration in Bogotá. Few public administrations have prioritized urban development and public space as one of their priorities. - The land market regulates to a great extent the direction towards which the city develops. I some cases politicians have also economical interests.
A STRATEGY FOR BOGOTÁ	
Political sphere must be more active in the urban planning decisions taken for Bogotá. For this a policy for the management of urban land with clear objectives must be defined and applied for the city. In the political level, the city should establish clear and strict limits of growth. Drastic political decisions are the only way to slow down the urban sprawl in the city. Political parties should commit themselves to not supporting projects in the city's periphery.	

Strategy 3 - Establishment of inner urban development as a concrete urban objective

The role of planning cannot be restricted to a mere administrative activity. Planning has the faculty of determining in the present the way something will develop in the future. If we are planning for the future, we should know how we want the future to look like and aim for it. For this reason, it is essential to set clear objectives. These have the faculty of shaping the decisions we make today. Development visions are the basis for the actual development of a place. Planning objectives act as guidelines, and as such, they show the direction to which planning is heading.

Any planning strategy which aims at a sustainable development of cities must include the consideration of the sustainable administration of land as a valuable, perishable resource. In other words, inner urban development must be considered a priority in any sustainable development strategy. It is the responsibility of urban planners to work out development visions as a process of planning the city.

Table 7.3 Comparison between Stuttgart and Bogotá in terms of urban objectives and a strategy for Bogotá

STUTTGART	BOGOTÁ
Urban planning in Stuttgart follows the objectives established in the *Urban development concept for Stuttgart*, (STEK), which is a long-term, sustainable plan for the city. The STEK sets guidelines for a sustainable spatial development, as well as development priorities, such as reutilization of areas.	Bogotá's development objectives are set in its Territorial Organization Plan (POT). In spite of the plans strong environmental focus, the plan lacks of a clear concept for land economy and the reutilization of inner areas. **The constraints** - The legal framework for urban planning, which is established for every municipality in Colombia in the Territorial Organization Plans, determines a series of general objectives, but does not go specify on the importance of inner urban development.
A STRATEGY FOR BOGOTÁ	
Inner urban development must be set as the most important urban objective of the public administration. The city should formulate a clear conceptual proposal with the definition of pilot projects and priorities for inner areas in the entire city. This objective must be established in written form and must reflect the commitment of the city to a sustainable development through inner development and conversion of uses.	

7.2.2 Strategies for the field of action "legal framework"

Strategy 4 - A supportive legal system

A legal system can enable, hinder or even frustrate an urban action. If legal instruments are not available, even the best ideas experience difficulties materializing. That is not the exception with inner urban development. Every urban action is subject to a series of laws and regulations. The idea behind an urban law is the shaping of future urban development. Urban laws determine the typological and functional characteristics of urban areas. They help to control the way a city evolves with fairness, establishing rights and responsibilities, possibilities and limits.

Law systems are permanently subject to modifications according to the evolution of policies, objectives and needs. Many European countries have modified their legal systems in order to facilitate a more sustainable urban development. Today these legal systems include concepts such as brownfield regeneration, financial incentives and remediation of contaminated soils, which were ignored by the traditional laws. If redevelopment projects are to be prioritized, it is necessary to simplify and accelerate the planning processes so that inner urban areas can become attractive for investors. Inner urban development demands an efficient legal system.

Table 7.4 Comparison between Stuttgart and Bogotá in terms of urban legal systems and a strategy for Bogotá

STUTTGART	BOGOTÁ
Paragraph 13a of the German Construction Law (BauGB) was included in 2007 as an amendment of the law, and its objective was to facilitate the planning procedures and implementation of projects for the inner development of cities. It stipulates the possibility of making exceptions to the law in order to eliminate obstacles that slow down or even stop the realization of redevelopment projects.	Neither the planning law 388 from 1997 nor the Territorial Organization Plan (POT) of Bogotá make any specific reference to inner urban development or conversion in their pages. Even though both documents have a clear environmental focus, none of them sets concrete objectives for the deceleration of urban extension. **The constraints** - Colombian cities have established quite recently a legal framework, which does not contemplate inner urban development. It is not to be expected that this framework and specially the urban objectives established in it will be modified in the near future.
A STRATEGY FOR BOGOTÁ	
Bogotá needs to create a solid legal framework in behalf of inner urban development. It is indispensable to lay out the legal instruments to generate more efficiency in the planning processes that facilitate a more sustainable urban planning. Inner development needs to be included in black and white on the legal system of planning in Colombia and Bogotá.	

Strategy 5 - Strengthen the role of planning departments

As absurd as it may sound, many local governments in the world are not aware that the regulation and control of urban development is a responsibility of the public administration and not of the construction market. Development anarchism prevails in these cities: areas are urbanized without any control; new neighborhoods emerge without minimum infrastructure; densities, typologies, heights, distances are decision of developers and not of the given master plans (in case there are any). This is the landscape in many developing countries, but also in many world capitals such as Vienna[193]. Every city in the world is to some extent victim of the pressures of the market, which shouldn't be a surprise since developers prefer to buy land for construction in an area where the price per square meter of land is lower. It is in these cases where the planning departments must establish their authority as responsible entities for urban development, and for the setting and application of urban objectives and policies.

The way the marketplace works is that self-interested buyers and sellers try in any way to maximize the total benefit[194]. This means that the objectives of the markets do not always go hand in hand with the objectives of society and environment. It is responsibility of the public administrations to look after these objectives, and this way to "improve market incomes". And since the market forces are strong, local governments need to be stronger and establish their authority.

Table 7.5 Comparison between Stuttgart and Bogotá in terms of public authority and a strategy for Bogotá

STUTTGART	BOGOTÁ
With Stuttgart's resolution not allocate any more green areas in its periphery for new urbanizations, it shows the authority of the public administration over the forces of the market.	In recent years Bogotá's urban planning system has experienced a progressive strengthening. However the city is still very much tied to the forces of the market and the interests of investors. The public administration should have the authority of relocating negative uses and of setting limits of growth. **The constraints** - Planning departments in Colombia do not have

[193] As described in the book from the architect Reinhard Seiß: *Wer baut Wien? (Who constructs Vienna?) - Hintergründe und Motive der Stadtentwicklung Wiens seit 1989*. 2007

[194] Mankiw, N. Gregory. *Principles of economics*. 2001. p. 205, 206

	the strength to implement a strict land use policy or to relocate uses which are harmful for the city. They are often at the mercy of the political decisions and the land market forces. - The dire necessity of constructing low-cost social housing in Bogotá makes peripheral rural land very attractive for investors. The priority is to supply people with low quality housing as long as it is cheap, regardless of the improvement of life quality people would obtain if they would live closer to their work places.
A STRATEGY FOR BOGOTÁ	
The planning department needs to be equipped with the instruments to counteract the forces of the land market economy. It must find the courage to establish a strict control of land uses and to regulate with firm hand master plans and construction specifications. Establishing clear unmovable limits and planning objectives, the public authority guarantees strictness and avoids exceptions. It is important to establish capabilities and skill enhancement of the public authorities through training and further education.	

7.2.3 Strategies for the field of action "information"

Strategy 6 - Identification and inventory of potential inner development areas and creation of an information platform with data from the sites

A targeted and efficient activation of inner areas requires a register of potential urban areas as a basis for decision-making[195]. The first and most important step to start a successful inner development of cities is the identification and classification of all potential areas within the urban area. By doing this it is possible to systematically activate development in targeted areas of the city. All identified areas can be classified according to different criteria: location, size, state, type of land use, type of area, etc. This is an efficient way to manage development with the objective of making sites attractive for potential investors.

Thanks to this system, specific inner urban areas can be prioritized depending on their location with respect to centers, subcenters, commerce and infrastructure. For every site

[195] Müller-Herbers et.al. In: Institut für Wasserbau. *VEGAS-Kolloquium 2008 – Ressource Fläche III*. p. 74

there is a historic description which illustrates the different uses through time. Additionally the platform should offer planners and investors information on the possible restraints of development, such as accessibility, quality of surroundings or contamination. By systematically administrating the information of a site, it becomes easier to determine all its potentialities and to evaluate and calculate the costs of a possible investment.

Table 7.6 Comparison between Stuttgart and Bogotá in terms of identification of potential areas and a strategy for Bogotá

STUTTGART	BOGOTÁ
In 2002 Stuttgart implemented a system called *Sustainable management of urban areas* (NBS), which has established itself as the most important instrument for the sustainable development of the city. The system consists on the creation of a catalogue of existing potential developing areas with the most important characteristics. Areas with development potential include brownfields, gaps between buildings, empty lots, suboptimally used areas, conversion areas and new areas throughout the city. The system also has an information platform, which can be permanently updated and presented on the internet for potential investors.	Until today Bogotá does not have a catalogue of inner development areas. **The constraints** - Without a policy for inner development and with the possibility of limitlessly extending the city there is no pressure to carry out such an inventory.
A STRATEGY FOR BOGOTÁ	
To begin with a successful redevelopment of deteriorated areas, Bogotá needs to have clarity with respect to the amount, extension and potentiality of inner development areas. The planning department should identify, inventory, catalogue and administrate all potentially convertible areas to be able to find the best ways to activate its redevelopment.	

Strategy 7 - Establishment of a system for remediation of contaminated sites

Contamination can be an obstacle for the redevelopment of a site. This is often the case in areas on which industrial uses took place in the past. In developed countries the level of accepted contamination is dictated by the future use. This means that the amount of contamination tolerated in soils and groundwater vary depending if the future use foresees

activities for housing, commerce or industry, since children, animals and plants could enter in contact with toxic substances. This is also the case by demolishment of old buildings. Often these constructions are constructed with contaminating materials such as asbestos and tar. Such materials not only represent a potential danger for the human being but they must be disposed of in a sustainable way.

Remediation costs are often extremely high. For this reason it is necessary to establish a management of contaminated sites that allows a rapid analysis of possible contamination. This way, it is easy to establish in early stages of planning the costs and time that a remediation would demand. Management of contaminated sites is an instrument that allows investors to know what they can expect. It facilitates and enables inner urban development.

Table 7.7 Comparison between Stuttgart and Bogotá in terms of remediation of contaminated sites and a strategy for Bogotá

STUTTGART	BOGOTÁ
Remediation of contaminated sites through an efficient management has become routine in the public administration of Stuttgart. The city disposes of funds for the financing of remediation actions. Thanks to historical investigations, Stuttgart has identified and catalogued all urban areas in which contamination can be expected. Environmental investigations are a requirement in all development procedures. The city lays a high importance on the quality of its soils and ground water.	Bogotá does not analyze or carries our measures to remediate contaminates sites. **The constraints** - The technical investigations and the remediation are extremely costly. - Bogotá does not have experience in the remediation of contaminated sites.
A STRATEGY FOR BOGOTÁ	
Bogotá needs to assume a more active and aggressive policy for the identification and remediation of contaminated sites. For this the city needs the technical support of entities that already have experience in the field, even if it means to activate international experts. Bogotá must establish values and standards of contamination of soils and groundwater. Additionally it needs to develop remediation models and methodologies. The city needs to guarantee the remediation of contaminated sites by creating financial models and by forcing contaminating companies to respond for the damage they produced in the first place.	

7.2.4 Strategies for the field of action "Management and marketing"

Strategy 8 - Creation of a sustainable management of urban areas

Modern urban planning has adopted the figure of a manager for the efficient administration of urban areas. Area management is the new task of the public administration, which integrates all public bodies in a municipality. The manager works as an intermediary between the different parties involved in an urban project: the public administration with all its sections (urban planning, environmental planning, economy, etc), the investors, land owners, citizen associations and the users. The management of urban areas has the faculty of facilitating planning procedures, which are often long, arduous and inefficient, and therefore unattractive for investors, especially in inner urban development projects. For efficient reactivation strategies, an adequate coordination of time and procedures is necessary. The area manager guarantees transparency, communication, public relations, networking, etc.

The management strategy aims at a continuous support from inner development areas as well as an efficient coordination of activities carried out by the different municipal departments. By doing this, the redevelopment of problematic areas can be activated and made attractive to potential investors. In other words, in the management of specific areas there is a type of marketing taking place. Another important task of the area manager is the management of conflicts and the finding of solutions to obstacles that may hinder planning processes. Area management can be supported by Geographical Information Systems (GIS), which help to query, analyze, evaluate and classify all informations that are needed to promote the reactivation of brownfields and redevelopment projects.

Table 7.8 Comparison between Stuttgart and Bogotá in terms of management of urban areas and a strategy for Bogotá

STUTTGART	BOGOTÁ
The Department for the economic promotion of Stuttgart promotes the reactivation of city-owned sites for industrial or commercial purposes. The city has carried out management strategies for problematic sites, on plots of land which cannot be revitalized without help of the administration since they are financially unattractive. This is the case of the sites Güterbahnhof, Schoch-Areal, EnBW-Areal and Stephan-Areal.	Bogotá does not carry out individual site management. The city has priority renovation areas such as the historical center of the city, but with an emphasis on public space and not on specific plots of land. **The constraints** - Traditionally the city has concentrated efforts in the development of new urban areas and not in the redevelopment of established ones.

	- Until now the city administration plays a rather passive role with few exceptions in the targeted development of specific urban areas. - Land owners and investors are very independent in their work.
A STRATEGY FOR BOGOTÁ	
Bogotá should establish a system for the management of the development of deteriorated urban areas, especially for sites which cannot be redeveloped without support of the public administration. The city is divided in administrative zones or districts called *localidades*. This management of development and conversion areas can be done this level or in smaller scales. The management of inner development and conversion areas can strengthen the city's economical situation by attracting investment, giving solutions to the housing deficit and improving life quality.	

Strategy 9 - Integration of public and private actors through cooperative planning processes

Efficient and successful urban projects demand first of all cooperation between the different departments of the public administration. This is very often not the case, since traditionally planning departments, environmental departments, mayor's offices, and so on, work independently from one another. Every public department has its own requirements, methods and systems, which makes it extremely complicated for investors and developers to find their way through the map of public institutions. This can be considered an obstacle for planning, especially for areas which are not necessarily attractive for investments.

On the other hand, public and private sectors operate frequently like enemies. In order to carry out developments in specific priority areas it is necessary that the different parties involved in a project sit together and find solutions. Cooperative planning processes are very useful, especially in early stages of a project. By involving different actors it is easier to develop concepts for the future of a site in terms of land use, density, typology, etc.

Table 7.9 Comparison between Stuttgart and Bogotá in terms of integration of actors and a strategy for Bogotá

STUTTGART	BOGOTÁ
Public offices in Stuttgart work closely together in the development of urban projects. There is a permanent exchange of information between them. There are working groups which involve different departments as well as a disposition to meet regularly to discuss common affairs. Cooperative planning procedures are slowly beginning to establish themselves in the public administration as an instrument to activate the redevelopment of problematic sites.	Dialog between public departments is rather reduced. These work rather independently from one another. **The constraints** - Public departments in Bogotá are very independent in their work. The cooperation and exchange of information between them is deficient. There are not enough scenarios for the integration of departments. - There is a general perception that the objectives of the public and private sectors are incompatible with each other. Public departments offer basic support in all bureaucratic affairs to the private sector. But there is no concept of working together as partners to reach common objectives such as the redevelopment of deteriorated urban areas.
A STRATEGY FOR BOGOTÁ	
Urban redevelopment demands an efficient cooperation between all public departments of the administration. There must be more dialog and coordination to facilitate the planning processes. The public and the private sectors should work together to obtain common goals that are beneficial for the city. The city must create platforms for the exchange of information and the generation of discussions that bring forward conversion projects. It is important to convoke all possible actors and stakeholders in order to make planning decisions more democratic and to obtain the best results.	

Strategy 10 – Citizen participation and transparency in decision making

Every decision taken by the public administration should be done in the most transparent way, by involving the citizens and making every decision public. The objective is to obtain transparency in the decision-making processes. All kinds of people are affected in one way or the other and to different extents by any urban intervention. Some benefit from the

projects others suffer disadvantages. All these should be taken into account in the planning processes with the participation of the general public.

Table 7.10 Comparison between Stuttgart and Bogotá in terms of citizen participation and a strategy for Bogotá

STUTTGART	BOGOTÁ
Stuttgart does an effort to make urban decisions democratic. All master and development plans are displayed publicly for the inspection of the persons concerned by the intervention. These have legally the right to oppose to the plans. In cases such as the elaboration of the *Development concept for Stuttgart*, the entire community was invited in public debates to discuss on the document. The participation of citizens in Stuttgart is a self-evident element of urban planning. The most important issues are discussed in public workshops, hearings and events. Additionally, the press plays an important role on the urban development of the city.	Citizens in Bogotá are not sufficiently informed on the decisions taken for the city. To some extent it is the people who do not follow these decisions or participate actively in the planning processes. **The constraints** - In Bogotá there is no culture of publicly discussing urban planning matters. People in general tend to be passive and conformist in this respect. - Publications such as newspapers and magazines do not cover thoroughly or with enough depth discussions around urban plans and projects.
A STRATEGY FOR BOGOTÁ	
Urban planning in Bogotá has to involve more transparency, more citizen participation and more public consensus. Urban projects must find a platform to be publicly discussed and should receive the necessary dissemination in order for them to be transparent and fair. Decision making should involve all affected parties including neighbors and citizens in general. Publications such as newspapers and magazines should help democratize urban planning by assuming a critical and fiscal role. They should inform about all plans and projects of the city, as well as promote and encourage a public discussion on the topics. Urban planning should be presented in a simple language and not in a technical one so that the population has the chance of participating in the planning processes that affect them and the city in general.	

7.2.5 Strategies for the field of action "incentives"

Strategy 11 - Activation of redevelopment projects through financial incentives / grants / reduction of taxes

The public administration should able to reward investors who practice inner urban development, as way of promoting sustainability in the city. Since urbanizing in the green outer skirts is as a general rule cheaper for investors and developers due to low costs of land, cities have the chance of balancing investment by offering price incentives for developers who are willing to develop inner urban areas. Financial investments can be assigned in many forms, such as grants, tax reduction, elimination or reduction of bureaucratic fees, assumption of feasibility and remediation costs.

In many countries these financial incentives can come from special funds or simply from tax money. Cities in developing counties are often not able to support urban priorities financially. Important is not to regard financial incentives as purely monetary. There are many ways the public administration can support projects without involving money.

Table 7.11 Comparison between Stuttgart and Bogotá in terms of financial incentives and a strategy for Bogotá

STUTTGART	BOGOTÁ
The Federal Republic of Germany as well as the city of Stuttgart invest high sums of money in urban renewal and remediation of contaminated areas. The money comes mostly from national or state funds, which are specially allocated for these purposes. Incentives are also given in the form of education and training as well as a consulting service for citizens. The German Law eliminates the requirement to carry out the otherwise obligatory environmental audit (*Umweltprüfung*) and the compensatory ecological measures in inner development projects, with the objective of facilitating and activating a more sustainable urban development.	The city has a system of subsidies which are generally channelized through institutions called *cajas de compensación familiar* (institutions for familiar compensation). Subsidies cover many aspects such as health, leisure and education. In terms of urban planning, these subsidies are usually directed for the construction of social housing, without consideration of the place. **The constraints** - Financial incentives (subsidies) in Bogotá are allocated in specific types of projects such as social housing. - As long as inner urban development is not considered a priority in planning there will be no incentive for the investment in redevelopment projects.

A STRATEGY FOR BOGOTÁ
In order to activate inner urban development the city must offer different kinds of incentives to constructors and investors. This can be in form of tax reduction, elimination of legal requirements, investment alternatives, grants for remediation, etc. Subsidies could be a great incentive to activate inner development and conversion projects, if they would be allocated in such types of projects.

7.2.6 Strategies for the field of action "cooperation"

Strategy 12 - Contact with other cities / cooperation / exchange

Cities need to be creative when challenged by problems of any sort. The most interesting approaches to urban planning emerge in cities with the highest pressure to find solutions to dire problems. I this context, many cities around the globe, both in developed and underdeveloped countries, have become paradigms of creative urban planning. One of the most influential examples worldwide is Barcelona.

It is unwise to expect a city can survive by itself; that it can find the answers to all its problems alone. Cities should always keep their eyes open for models utilized successfully in other cities. The idea is not to reinvent the wheel, but to adapt positive elements and approaches from other cities to their own reality. International projects often offer the platform for an interchange of ideas. Today many different organizations worldwide offer technical cooperation, as well as the chance to carry out cooperation projects for an interchange of experiences and ideas especially between developed and underdeveloped countries.

The value of cooperation must be realized by the public administration. Municipal cooperation can be established in different levels between different national and international expertise in a horizontal way:

- Between the city and the region
- Between municipalities
- Within the municipalities, between public departments
- Between private and public actors
- Between the public bodies and other institutions (universities, NGOs, associations)
- In research projects

Know how transfer should also be done vertically by applying the result of research into the daily practice.

Table 7.12 Comparison between Stuttgart and Bogotá in terms of international cooperation and a strategy for Bogotá

STUTTGART	BOGOTÁ
The geographical situation of Stuttgart has forced the city to take radical measures on urban growth, by stopping any extension of urban areas. By adopting this rigorous position, the city has become an international paradigm of sustainable urban development. Stuttgart has participated in recent years in a great number of cooperation projects, financed mainly by the European Union and the Federal Republic of Germany, that allow the city to share its experiences with others, but also to learn from solutions that have been successfully implemented in other parts of the world. Stuttgart lays a great importance on its international relations.	Bogotá has also become in recent years an international paradigm especially in terms of mobility and security. Many cities are placing their attention in the solutions that Bogotá has applied for public transport. However the city has not realized the potential of participating in international projects and of actively learning from other cities. In terms of urban planning Bogotá has based its approach in models implemented in countries like Spain. However the city has still to fortify its international role. **The constraints** - Colombian cities have rather closed and traditional structures. They do not set much value to international cooperation. - Bureaucracy and closed mindedness impede a real exchange between municipalities and the introduction of innovative solutions to urban problems.
A STRATEGY FOR BOGOTÁ	
Bogotá should improve its knowhow transfer through cooperation with other cities in order to exchange experiences and to learn from other positive examples and best practices. For this the different institutions and departments of the public administration should actively look for international partners that can share technical cooperation and methodological approaches. International projects are a good way to place the city in the international scenario. The city should open to new forms of planning even if it means changing traditional structures and ways of thinking. Bogotá is not the only one that benefits from the international cooperation. Bogotá can also share its own experience in the fields where the city has found interesting solutions to its problems. Universities and research institutions should integrate in their scope of lectures courses on sustainable urban development.	

7.2.7 Strategies for the field of action "planning"

Strategy 13 - Planning in all levels and scales

Urban projects should be regarded in all its impact levels. Every project, depending on its size and location, produces a different impact. Therefore there must be an evaluation of the impacts it produces in all scales (neighborhood, district, city, region). This is especially valid for big projects which produce positive or negative effects in the regional or national levels. The impact of small projects should also be regarded in all its scales. Better urban impacts can be achieved by grouping small projects. Interventions on a site should be accompanied by the improvement of public space, since this stimulates other positive urban developments.

Table 7.13 Comparison between Stuttgart and Bogotá in terms of public space and a strategy for Bogotá

STUTTGART	BOGOTÁ
In Stuttgart, architectonical developments and the creation or improvement of public space go hand in hand. The use of public space is strictly controlled.	With the introduction of the system of *loads and benefits* a new perception of public space in urban projects has been achieved. Improvements have been achieved in the recovery of public space. However more control is necessary in order to guarantee its use for the people. **The constraints** - Interventions in urban space are often done without involving them in an urban or regional context. Without clear urban concepts, projects become islands that do not contribute to the integral improvement of urban structures.
A STRATEGY FOR BOGOTÁ	
If every urban project affects the city in its different scales, it is necessary to promote inner development projects according to the master plans of the city to recover and strengthen its structure. Punctual projects do not always generate an impact. Projects produce better impacts when observed as an ensemble that follow a specific urban objective. Projects should be integrated within the regional system. By promoting projects under specific urban models and criteria, systems of urban centralities can be potentiated and consolidated; urban structures can be strengthened. Public space should be improved through targeted investment as a means of activating redevelopment.	

Strategy 14 - Closing of empty building lots

Empty building lots and gaps between buildings are common features in every city. For one reason or the other they were never filled out throughout the years. Empty urban spaces generate a negative image in the urban landscape. Filling out these empty building lots allows the creation of new space for other uses. Empty areas are normally pre-equipped with necessary infrastructure. The public administration should promote the activation on empty lots by encouraging and facilitating owners to develop, looking for possible investors and mediating between the different parties. The objective is to exploit the full potential of limited spaces, "stretching the spaces between buildings to the maximum"[196].

Table 7.14 Comparison between Stuttgart and Bogotá in terms of empty building lots and a strategy for Bogotá

STUTTGART	BOGOTÁ
Stuttgart has a special program in its planning department for the promotion of closing gaps between buildings. One of the main causes for the existence of empty lots in the city is the destruction left from the war. Since 1990 empty lots have been inventoried. Since then, from the approx. 1.500 identified lots, one third has been already closed. This corresponds to an area of 75 hectares for new developments[197].	The city has an enormous amount of unconstructed land within its urban area. The historical center of the city suffers specially from this problem. Many empty blocks are used as parking lots or low quality handicraft markets. **The constraints** - Land owners are often not interested in urbanizing their empty lots of land, often due to price speculation or simply to lack of interest. - In Colombia there is no tradition with expropriation of speculation lots.
A STRATEGY FOR BOGOTÁ	
Bogotá should develop a program for the closing of empty urban lots and gaps between buildings. Its development should be promoted and prioritized, even if this means applying pressure on owners. Bogotá should regard empty urban spaces as a reserve of construction areas, and should start activating development through an active and aggressive campaign. The Center of Bogotá has an especially high number of empty lots which should be activated to improve the sector's image.	

[196] Ferguson. *op.cit.* p. 14
[197] Baulücken – Mobilisierung von Baulandreserven. From: www.stuttgart.de/sde/menu/frame/ns_top_11021.htm. July 17, 2008

Strategy 15 - Revitalization of urban areas through the cautious selection of land uses and urban elements

Attaining a positive balance of land uses can considerably improve life quality in urban areas. The advantages of mixing uses have been proven in cities around the globe since a heterogeneous urban area guarantees vitality at all hours. Compact cities imply a concentration of uses. For citizens this means short distances to supply centers, work places and recreation. At the urban and building scales, the mix of uses brings life to the street and reduces the need for citizens to get into their cars to meet everyday needs[198]. But it also means the opportunity of creating exciting qualitative environments where the people can enjoy the advantages of living in an urban area, such as cafes, gastronomy, stores, culture, parks, architecture and creative activities.

For deteriorated settled areas such as city centers, introducing residential uses can promote revitalization. For new developments in inner urban areas, introducing mixed uses guarantees healthy urban environments. Balanced land uses can be complemented by urban elements such as water (fountains, streams and waterfronts) and greenery.

In general terms two different types of mixed uses can be identified:

- Horizontal coexistence of different land uses in an area - different uses next to each other

- Vertical coexistence of different land uses - different uses on top of each other (for example, commerce in ground floor, offices and living in upper floors)

Table 7.15 Comparison between Stuttgart and Bogotá in terms of land uses for inner development areas and conversion sites and a strategy for Bogotá

STUTTGART	BOGOTÁ
In Stuttgart land uses for new inner development areas are assigned according to the location of the site with regard to focuses of emissions (e.g. noise) and with regard to strategic situations such as squares, avenues or stations. This implies that the proportion in the mixture of uses changes according to the properties of the site. Vertical mix of uses is an alternative which is more and more being implemented.	Bogotá has developed in recent years a more horizontal mix of uses, for example in *Ciudad Salitre*, where commerce, housing and other uses coexist next to each other. Examples of vertical mix of uses are very few. *Parque Central Bavaria* is one successful example. In general, Bogotá has a rather monofunctional character separated in sectors. Mixed uses are being encouraged in central areas, such as the Historical Center as a way of revitalizing the area.

[198] Rogers. *op.cit.* p. 33

	The constraints - Traditionally, Bogotá's physiognomy has been monofunctional with the exception of certain central areas. - The predominant urban typology in new residential quarters does not allow a real continuous mix of uses.
A STRATEGY FOR BOGOTÁ	
Bogotá should encourage a higher mix of uses in new projects. The introduction of small workshops, repair shops, retail, studios or other small enterprises in residential areas is a way of adapting urbanism to the traditional social structures of the city. On the other hand, introducing residential uses in deteriorated areas is a positive way of revitalizing them. Mixed uses with culture, gastronomy, creative activities, etc. are to be promoted especially in central areas.	

Strategy 16 - Strengthening of identity through the preservation and recycling of old buildings

Old buildings are often seen as disposable objects. They are not functional and their restoration is complex and expensive. In redevelopment projects it is easier to demolish and start again than to overtake the task of repairing degenerated structures. However, the importance of old buildings goes beyond functionality. They have the power of evocating past uses and of building collective memory, which is indispensable to form urban identity. Cities which mix old and new buildings are heterogeneous and rich in facets.

Table 7.16 Comparison between Stuttgart and Bogotá in terms of preservation of old buildings and a strategy for Bogotá

STUTTGART	BOGOTÁ
Germany has a long tradition in preservation of old buildings. Many industrial and infrastructural structures belong to the list of monuments to be preserved. The restoration of old buildings is a common practice in redevelopment projects. This is the case in many former industrial sites where old buildings have been recycled to shelter new uses, such as museums, theaters, restaurants, etc.	There are some examples of recycling of old buildings (*Parque Central Bavaria*, *Hacienda Santa Bárbara*). Demolition is however a common practice. Architectonical monuments are with some exceptions limited to historical buildings. **The constraints** - It is easier, faster and cheaper to demolish old buildings. - The importance and potential of former industrial buildings are often underestimated.
A STRATEGY FOR BOGOTÁ	
Old industrial, military and infrastructural buildings with a specific architectonical value should be protected and be integrated in future land use concepts. Bogotá should lay more value on the importance of old buildings to collective memory and identity.	

7.2.8 Summary of strategies

Table 7.17 Summary of strategies and instruments for the promotion of urban conversion

FIELDS OF ACTION	STRATEGIES	INSTRUMENTS
Political framework	Generation of public consciousness	Dissemination of discussions
		Statistics on urban land consumption
	Shaping of political will	Information instruments to influence the decisions on urban areas
		Commitment of political parties
	Generation of concrete urban objectives	Urban concepts and plans
Legal framework	Shaping of legal system	Laws, norms
		Acceleration of processes
	Strengthening of public administration	Instruments to counteract the power of the land market
		Training and further education of public employees
Information	Inventory of areas	Computer based platform of areas
		Catalogue of areas
	Remediation of contaminated areas	Management of contamination
		Technical cooperation for remediation
		Remediation standards
Management and marketing	Management of conversion areas	Marketing tools
		Support through GIS tools
		Intermediation bet. parties and actors
		Attraction of investment
	Integration of different actors	Better communication within public administration
		Better communication bet. investors and involved actors
	Citizen participation	Transparency
		Dissemination and publications
		Public events
Incentives	Financial incentives	Tax reduction
		Facilitation of procedures and bureaucracy
		Grants and subsidies
Cooperation	Exchange	Participation in international projects
		Knowhow transfer
		Involvement of universities and research
		Technical cooperation
Planning	Planning in different levels and scales	Regional and local plans
		Public space
	Filling up empty urban areas	Inventory of empty urban areas
		Pressure to owners - Expropriation
	Selecting cautiously land uses	Land use plans
		Mixed uses
	Preservation of old buildings	Building recycling
		Urban identity

7.3 Perspectives of urban conversion and inner development in Bogotá

The object of this dissertation is based on the thesis that cities can and should learn from each other. Under this premise, a comparison between the cities of Bogotá and Stuttgart was carried out in terms of sustainable urban development. The result of this analysis is the proposal of a series of strategies for inner development through urban conversion for the city of Bogotá. Nevertheless, it is not the aim of the dissertation to compare both cities one to one, which due to innumerable reasons are not comparable in many of its features: both cities differ in size, economy, history, culture, etc. This implies that any proposal of strategies inspired from one city must be adapted to the reality of the place in which they are to be implemented. In other words, these strategies should not be a copy from Europe or any other continent; they should be unique in order to be successful.

Cities in the world share all kinds of common problems. The urban sprawl with all its consequences is the cause of many of these problems. However the approach applied to cope with such challenges must be different from city to city according to their specific economic, social, political and spatial situations. In the process of identifying and transferring concepts and examples from one city to the other, there must be a consideration of the local aspects. The present work is based on European models. On account of the often very different ways cities function in developing countries, the urban "re-planning" strategies of the developed world are often not always the correct ones[199]. Stereotypical and normative application of concepts without taking into account local conditions can produce the opposite of development. "What is needed is therefore is the development of a set of planning instruments for urban redevelopment "which functions as independently as possible of the prevailing balance of power but still on the basis of socially orientated market economy".

This section analyses the perspectives of urban conversion in the Colombian context from the social, economic, political and spatial points of view. The analysis is based precisely on the differences between the framework conditions of Bogotá and Stuttgart. The image of a new type of city should emerge thanks to the implementation of urban conversion strategies tailored for Bogotá: a city which is conscious of its need for sustainability and which reflects the results of the new approach in the creation of qualitative environments. If urban conversion is such an efficient instrument to materialize inner development, how can it be adapted to make it successful in Bogotá? Which are the strengths and weaknesses of the city? What can it do in another way to reach these objectives? Which chances does urban conversion offer to the future of a more socially fair city?

[199] Boeckl. *StadtUmbau / UrbanConversion - Recent international examples*. 2003. p. 8

7.3.1 Perspectives of urban conversion in Bogotá in the socioeconomic dimension – Urban conversion as an instrument to counteract social segregation

Bogotá is different than Stuttgart in the socioeconomic dimension because both cities have radically different socioeconomic structures. While Germany, in spite of its high immigration index, has a relatively homogeneous system of classes, Bogotá like most Latin American cities suffers from a great gap between the rich and poor. In this system, the middle class occupies a comparatively small proportion. This implies a strong social segregation as well as a low social inclusion in the city.

The distribution of social differences is accentuated in Bogotá according to sectors in the urban space. The growth of the city has incentivized a separation between the rich in the north, the poor in the south and the immigrants in the periphery. Social segregation is expressed in terms of socioeconomic distance and inequity in the distribution of infrastructure facilities[200]. This is reflected in the inequity of the population with regard to accessibility to social infrastructure and work places. These two are not equally distributed throughout the city and are especially missing in poorer urban areas. This means that the higher the socioeconomic level, the lower is the amount of persons for infrastructure unit.

Combating social segregation

Urban planning has the capacity of contributing to the reduction of the gap between rich and poor through the application of inner development measures. Urban conversion presents a unique chance to generate healthy social environments in Bogotá by promoting and enabling the mix of social classes and land uses in targeted areas of the city. On the other hand, social exclusion opposes development and hinders the activation of inner development since social housing projects are generally planned in cheap plots of land in the periphery of the city where infrastructure is insufficient and work places inexistent.

Therefore, the urban objective should be that all urban processes in Bogotá are accompanied by policies that would strengthen democracy and would favor social inclusion by favoring the spatial mix of rich and poor. Urban development has the opportunity of combating social exclusion and reducing socioeconomic segregation in the urban space.

A socioeconomic spatial mixture reduces costs for the poor and allows them to improve their incomes and life quality by favoring the equality of opportunities. Local governments can generate a beneficial impact in space by influencing the distribution of urban land, by promoting the approximation of rich and poor in urban space through inclusive distribution policies and by managing land through strategic projects. This way it can guarantee that

[200] UNPD. *Bogotá, una apuesta por Colombia – Informe de desarrollo humano para Bogotá*. 2008

each and every citizen has access to public space, housing, mobility, services and a healthy environment.

Mixing urban uses with a social conscience

The allocation of land uses can be designed in such a way that all citizens benefit from the accessibility central spaces, commerce and infrastructure. Mixed land uses secure an equitable allocation of public investment through taxes, as well as the coexistence of traditional activities such as workshops and repair shops and living, which are vital for the subsistence of many social groups.

The struggle against poverty is only successful if urban development favors equity. Under this premise, urban conversion becomes an efficient instrument to counteract social segregation in Bogotá.

7.3.2 Perspectives of urban conversion in Bogotá in the economic dimension – Urban conversion as an instrument to promote economic balance in Bogotá

Bogotá is different than Stuttgart in the economic dimension because both cities have radically different economic situations. While Stuttgart is one of the strongest economic regions worldwide, Bogotá is the capital of a developing country. For this reason it is impossible to compare the cities in economic terms.

Improving fiscal situation through social mixture

Due mostly to the fact that a considerably big proportion of Bogotá's population lives in conditions of poverty, the fiscal situation of the city is unbalanced and weak. In other words, there is disequilibrium in terms of collection of taxes between rich and poor districts. Urban conversion has the property of promoting a social mixture and therefore an economic balance in urban space thanks to a more equitable public investment.

Savings in new infrastructure

By activating conversion areas the city decreases public investment in new infrastructure required for the development of peripheral areas. This way, the public administration can allocate public investment in already existing urban space while saving money from the city's budget. In these terms, urban conversion becomes an instrument for saving public money.

Attracting private investment

In general, Latin American cities are more investor-orientated and administratively weak in comparison to German cities. This means in other words that urban development responds rather to the interests of the real estate markets than to the regulations of the public authorities. In the end, revenue is more important than the fulfillment of social or

environmental objectives. To turn around this negative tendency, the public administration needs to generate investment alternatives in conversion areas directed to the private sector and this way promote a more sustainable urban environment.

Combating speculation of land

Speculation and informality are also elements which to some extent are uncommon in developed cities like Stuttgart. The prioritization of urban conversion in inner development areas can avoid the speculative element in the land market. By promoting the development of targeted sites in the urban space of Bogotá the city can activate the revitalization of deteriorated or suboptimally used areas whose redevelopment is hindered by speculators.

7.3.3 Perspectives of urban conversion in Bogotá in the political dimension – Urban conversion as an instrument to promote the compatibility of urban policies

Bogotá is different than Stuttgart in the political dimension because in Colombia there is often no agreement between urban planning and policy. The public administration of Bogotá has not yet realized the extent of its capacities and does not exploit all the instruments it possesses to strategically strengthen the role of urban planning and potentiate its influence in urban space. The lack of a public conscience on the sustainable scale of the city is reflected in the narrow vision of the public policies and in the urbanistic decisions.

Clearer responsibility of the urban politics

Bogotá has made great advances in terms of urban planning by strengthening the legal system that supports sustainable development. However the city still needs to strengthen the instruments that it already has with the aim of enabling the implementation of inner development measures. Politicians in Colombia need to realize the potentiality of their actions and assume their responsibility with the future of their cities.

Politics are essential for the realization of conversion projects. In many cases projects need active support from politicians since they may not be attractive enough for investors. Other cases show that political will is essential for the activation of speculation lots. One of the biggest challenges of urban politics in Bogotá is the relocation of specific uses, which generate negative effects in the city, such as industrial or military sites. The city needs to develop instruments to apply pressure and defend its interests. Through clear policies and strong authority the city can activate development in targeted areas, which are considered to be too complex to develop without the support of politicians.

Social housing as a chance for urban conversion

Unlike in Stuttgart, social housing in Bogotá is one of the most important factors that influence urban growth and development in the city, due to the number of housing units constructed yearly in the city. For many years social housing in Bogotá was dictated by the informal construction market. At the time, informal housing was the best alternative for the poor sectors to obtain a housing unit. Today, the sector is regulated by the central government, which guarantees dignified living conditions for the poorer and legality in construction. However, the urban regulations and the policies related to the management of urban land differ from the policies of social housing[201]. While all urban matters are responsibility of the city, the policies for social housing are an affair of the national government. Therefore, there is no correlation between the programs and actions of the city and the nation. The national government has concentrated its efforts in the arrangement of instruments for credits and allocation of subsidies, as well as the regulation of prices for social housing, based exclusively on the signals sent by the real estate market, which is strongly influenced by land speculators. The allocation of subsidies is incompatible with the restrictions to the supply of land.

In order to obtain efficiency in the process of social housing, it is necessary to reformulate the policies making them compatible and complementary. By allocating subsidies in strategic urban areas, both the nation and the city of Bogotá can obtain advantages. The city can contribute by providing urban land for social housing. Conversion areas are optimal spaces for the development of social housing in Bogotá. The challenge is to articulate the housing situation in the city with sustainable urban projects.

7.3.4 Perspectives of urban conversion in Bogotá in the spatial dimension – Urban conversion as an instrument to improve spatial and physical quality in Bogotá

Bogotá is different than Stuttgart in the spatial dimension because both cities have radically different geographical situations and demographic structures. Unlike Stuttgart, Bogotá has the possibility of expanding limitlessly, due to its location on an extensive plateau: there is no topographical barrier towards the western part of the city. While Stuttgart has been forced to stop urban growth due to natural reasons, Bogotá has not yet felt the pressure of slowing down its sprawl. There are other reasons for Bogotá to turn around its sprawling tendency related to sustainability. This demands however a stronger compromise from the public authorities and the politics of the city.

[201] UNPD. *op.cit.* 2008. p. 93 - 94

Demographic development vs. spatial development

There are many differences between Bogotá and Stuttgart in demographic terms. While Stuttgart's population has been stable in last years, Bogotá grows in a rate of around 2% a year. This phenomenon is explained mostly by the high immigration rates. Population growth is reflected in the spatial development of the Bogotá. The city needs to quickly solve the demand for housing and land, and the traditional solution is to urbanize peripheral rural areas to be occupied by the low social classes. Conversion areas in the city constitute a chance for the allocation of housing in central areas. The management of conversion areas can be done in a decentralized way, taking advantage of the administrative divisions of the city called *localidades*.

It would be convenient to revise the Territorial Organization Plan (POT) of Bogotá, because this way the city would have an excellent chance to strategically rethink its spatial distribution based on the principles of social inclusion and the potentialities of the inner areas. Urban laws need to obtain a more strategic profile by favoring urbanization near the established urban centers and infrastructure.

Massive transport as a motor for urban conversion

Unlike developed cities like Stuttgart, Bogotá is still finding solutions to its difficult problems of mobility. The recent creation of new lines of public transport is a great chance to redevelop many deteriorated urban areas of the city, which had suffered under bad accessibility. Public transport becomes in a motor for urban conversion since it increases the potentiality of development in some areas which were otherwise unattractive to investors.

Due to the high costs of a metro system, Bogotá introduced in the year 2000a Bus Rapid Transit system (massive transportation based on buses). This system has changed radically the spatial relationships and distances within the city, where the time to reach workplaces for the poor is considerably longer than for the rich. Additionally, the new system has improved accessibility and revaluated urban spaces which were depreciated. In this context, public transport has become a motor of urban redevelopment.

In the long term, Bogotá wants to reactivate transport by train at a regional level. This would also mean a chance to improve the urban quality and promote regeneration projects in the areas affected by the future train system.

The value of public space

Public space is a public good in which normally nobody is excluded and there are no rivalries. However, public space has not the same value in Bogotá as in Stuttgart. In Bogotá, like in many cities in developing countries, public space is permanently threatened by informal sellers and physical obstacles. In order to increase urban quality and social

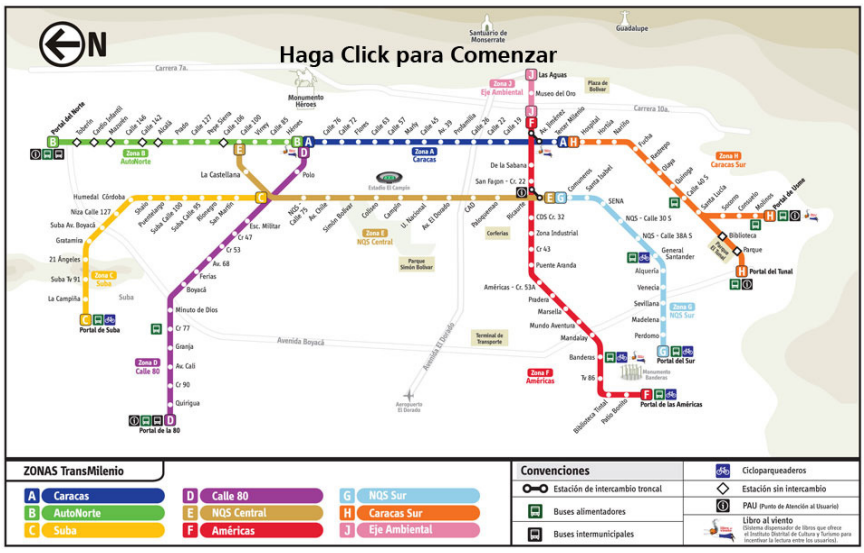
inclusion, it is necessary to supply qualitative public spaces, as well as public services and social infrastructure, to be enjoyed by every citizen. Conversion projects offer the chance to improve deteriorated urban spaces, and this way to improve life quality in deteriorated urban areas.

Urban conversion as relief for the environment

Unlike Stuttgart, where every square meter of forests and nature is untouchable, Bogotá is remorseless with its natural environment. The violence of the urban sprawl has ignored the ecological implication of every urban intervention. In its growth process, the city has destroyed rural areas, wetlands, rivers, mountains, wind exchange, ecosystems, etc. Urban conversion is an instrument that offers the chance of reducing the impact of urbanization in the environment and of increasing the benefits of nature in urban areas.

Urban conversion is also a chance to remediate contaminated areas in the city. Unlike Stuttgart, Bogotá does not implement measures with regard to the recovery of areas damaged by industry. This means that the city has no experience in the subject and therefore there is no legal framework to regulate the new uses on a convertible area. For this reason the approach to inner development must be different in Bogotá. It is necessary to focus development in the city towards a more environmental direction.

Figure 7.1 Map of *Transmilenio* - Public transport bus lines in Bogotá.



7.4 Conclusions

The following conclusions are structured according to the chapters of this dissertation.

7.4.1 Conclusions on urban conversion – Theory and practice (chapters 2 and 3)

Urban conversion is not a new concept: cities have evolved since they started emerging after the *Neolithic Revolution*[202]. Transformation is therefore an intrinsic characteristic of the city. However, the speed and intensity of urban transformation has not been constant throughout its history. There is no objection to the fact that the most influential and determining phenomenon in the city's landscape occurred during the Industrial Revolution.

Cities throughout the globe are still experiencing today the consequences of this revolution. While some conurbations undergo processes of deindustrialization in all its facets (demographic, economic and spatial), others, mostly in third world countries, are experiencing the phases of industrialization in the form of an explosive urbanization. In any case, the implementation of a more sustainable urban development is a dire necessity, whose importance has already been realized by planners and governments.

Sustainable urban development implies a more environmental and social handling of urban land, whereas the urban sprawl represents the counterpart of sustainability. Its negative effects are mostly palpable in the destruction of environments, the unnecessary use of all kinds of resources and an increase of social segregation. Urban sprawl is also related to the deterioration of centers and to an inefficient distribution of land uses within the urban fabrics. There are many possible strategies to counteract the urban sprawl in cities worldwide. One of the most effective strategies is the implementation of inner urban development by means of the conversion of land uses in inner urban areas. Conversion is understood as a reutilization of brownfields or deteriorated urban sites by introducing new land uses.

The most frequent examples of potentially convertible sites are former industrial and military areas and ports, as well as infrastructural areas such as railways. These types of sites can be classified according to many different aspects of conversion, for example:

- the nature of the project
- the original land use of the site
- the future land use
- the scale of conversion
- the degree of conversion of the original function
- the degree of reutilization of existing structures

[202] The city. In: http://en.wikipedia.org/wiki/City. 12 September 2008

Urban conversion has become a common denominator of European cities in the last two decades. Europe, more than in any other part of the world, has accepted the challenge of increasing sustainable urban development in their cities.

7.4.2 Conclusions on the case study Stuttgart (chapter 4)

The case study Stuttgart demonstrated how inner development through urban conversion not only contributes to the sustainable development of our planet, but it also showed that conversion is a feasible task when planners are equipped with the adequate instruments for its implementation.

Stuttgart, as a postindustrial city, possesses a vast number of areas that have a high potential of reutilization. These areas were identified by planners and have been established as the “bank” of development sites. Conversion becomes in Stuttgart the best alternative for development and the city has realized it. It takes a great amount of courage to make the decision of radically stopping the urban sprawl, in spite of the strong pressure of the market for new settlement areas, especially for the residential and industrial sectors. Today, the city administration is concentrating development exclusively in inner areas, and for this reason it was forced to create original planning instruments which did not exist beforehand. This task demanded creativity but specially the support of the political sector.

Currently, the notion of “land as a perishable resource” is a concept being discussed globally, even at the level of the United Nations. The German Government has actively adopted the international guidelines for sustainability, and among many measures it has adopted the reduction of the demand for urban land as one of the main goals. This demonstrates that the policies for inner development are of national interest. For this purpose, Germany has gone so far as to modify the planning laws and to set specific objectives based on indicators.

The public administration of Stuttgart is aware of the challenge and has created adequate instruments to make inner development feasible and applicable. The most important contribution of Stuttgart is the system for management of suboptimally used urban areas called NBS (*Nachhaltiges Bauflächenmanagement*). Thanks to the implementation of this system, the city has been able to identify and inventory potentially convertible areas. The system also allows an efficient process of planning and implementation. Knowing the potentials is the first requirement for a sustainable development. Only this way it is possible to determine targets and to canalize efforts.

Often, contamination present in soils and groundwater of an urban area becomes an obstacle for its redevelopment. An efficient remediation of contaminated areas by working hand in hand with planning is also a strategy to activate inner development. The integration of both fields in an only process accelerates the implementation of projects and saves costs.

Cooperation between local governments is a requirement for the transfer of knowledge and experience. Common projects allow the practical implementation and evaluation of specific measures. This way, cities can learn from real situations created in the framework of the projects. The financing of projects and technical cooperation is an essential issue in the implementation of conversion projects. When there is a political will to slow down the urban sprawl, there must also be a financial incentive. This incentive can be for example in the form of subsidies for remediation of contaminated soils or for urban revitalization measures.

This case study analyzed three practical examples of converted sites. However, the city has developed in the last years a great amount of projects of all sizes and types of excellent urban quality. This way, Stuttgart has not only achieved a sustainable development, but it has also revitalized innumerable areas which had suffered the effects of postindustrialization and the end of the Cold War. With Stuttgart 21 the city has the chance of gaining 134 hectares for new urban areas. Conversion is not restricted to infrastructure or industrial areas. The project *Im Raiser* is an example of a former military site which had lost its function. All suboptimally used urban areas and brownfields have a potential of conversion.

The Case Study Stuttgart demonstrated that urban conversion, as a measure for activating inner development, has become part of the routine of planning in this city. In other words, conversion is not restricted to punctual projects or to coincidence. Stuttgart has become an international paradigm for sustainable development.

7.4.3 Conclusions on the case study Bogotá (chapter 5)

Bogotá has experienced in the last two decades a revolution in terms of urban planning. Today the city is considered internationally a paradigm of development and an example for other megacities in developing countries thanks to the city's creative and effective solutions to many of its problems. This is the result of good consecutive public administrations that have prioritized the improvement of infrastructure, as well as the recovery of public space and the generation of a sense of appropriation of the city from its citizens.

This revolution goes hand in hand with the creation in the nineties of a solid legal base for planning. The Law 388 of 1997 and the resulting Territorial Organization Plans (POTs) have promoted a more sustainable development in Colombian municipalities. However, the fact that the concepts of *inner development* or *urban conversion* are not explicitly mentioned in the law (specifically in the POT of Bogotá) is a clear evidence that the city has not yet realized the potentialities of slowing down urban sprawl through the reutilization of brownfields or suboptimally used inner urban areas. This means that in spite of the legal advances obtained thanks to efforts made in the last decades to control the growth of the city, there are still no specific norms to regulate the prioritization of inner urban development.

With an area of almost 180.000 hectares[203], Bogotá has a vast potential for inner development especially through the conversion of former and still existing industrial and military areas. Unfortunately the topographic characteristics of the city and its metropolitan region (an extensive fertile plateau) allow an almost unlimited sprawl of the city. For this reason it is of great importance to begin reutilizing deteriorated and suboptimally used urban spaces in order to slow down the further urbanization of rural areas, wetlands, mountains and natural forests (destroying agricultural areas and ecosystems).

A true sustainable development of a city like Bogotá can only be attained by systematically identifying these areas and by facilitating and promoting their development. The city has a vast quantity of convertible sites that were once in the periphery of the city but were absorbed with the years by the urban sprawl. Many of these areas are brownfields or stand in a deteriorated state. Other areas are still in operation but represent a negative impact on their surroundings.

Bogotá has very few examples of conversion projects. The only representative project in which a reutilization took place was the conversion of an old brewery in the center of the city. An interesting inner development project in Bogotá is the urbanization of a vast plot of urban land which stood empty for decades. The successful urbanization of this site was possible only thanks to political engagement. This shows that a proactive political will is a condition for sustainable urban development, sometimes against the interests of the economic groups and market forces.

7.4.4 Conclusions on the potentiality of Bogotá for urban conversion (chapter 6)

The feasibility of inner development in a city is measured by the number and quality of inner urban sites, which possess the potentiality to be converted. The potentiality of conversion of a site can be determined according to its internal and external attributes, or in other words, to its physical and strategical characteristics. In the physical level, the degree of potentiality is determined by the inherent physical characteristics of the site and its surroundings, since the site influences whatever is around it and vice versa. In the strategical level, the site has a potentiality of conversion in the following situations:

- If there is a political interest to carry out a development in the site
- If there is interest of the owner to develop the site
- If the site is connected to a project of larger scale
- If there are investors willing to carry out a development
- If there is pressure from the community to improve the situation in a given area

[203] From: www.bogota.gov.co

While the physical characteristics of a site can be considered objective, its strategical characteristics, cannot. This means that a site will not be object of conversion if the political and economic preconditions are not given, even if it has the potential to it.

Bogotá has a vast potentiality of inner development through urban conversion. The city possesses a considerable number of convertible areas throughout its fabrics (especially in the central and western districts). Some of these areas constitute an enormous chance for the future development of the city, due to their characteristics and location, and to the fact that they presently generate a negative impact on their surroundings.

A first step to promote the development of conversion areas is the systematic classification of all these sites. With this inventory it is more feasible to generate development priorities and to increase the attractiveness of inner urban areas to investors. By efficiently managing urban areas, the objectives of social and environmental sustainability can be achieved counteracting the forces of the land market.

7.4.5 Conclusions on the strategies for sustainable urban development in **Bogotá** (chapter 7)

Today, when the world tends towards a society of knowledge and services, cities must rethink their development strategies and look for paradigms in order to face the ever more complex urban problems. The paradigms for the Latin American city are doubtlessly found in the European city, due to their affinity in typological terms and to the positive turn that the Europe has taken towards a more sustainable urbanism. Cities like Bogotá maintain the qualities of a relative compact city with balanced densities, in spite of the undeniable influence of North American urbanism as well as the demographic explosion suffered in the twentieth century[204]. Even though Latin American countries experienced a considerably late industrial revolution compared to their European counterparts, these are not unfamiliar with the urban consequences that this period brought along.

The question if a model of urban planning, based on inner development, would also be valid for a city like Bogotá can be answered simply: absolutely. Some negative opinions were heard throughout the preparation of this dissertation. Voices against a sustainable development argue that politicians have no interest in promoting inner development or that the planning routines and procedures in Bogotá are so rigidly established that cannot be modified. Others may assure that inner development is a good concept, but the private market of land that pushes to the periphery is too strong to defy its supremacy. The present work intends to prove that a city like Bogotá not only meets the conditions for the

[204] North American cities are characterized by their low densities and segregated structures.

implementation of conversion measures, but that it also has the maturity and legal platform to rethink its traditional methods of urban planning. In other countries it has been possible; for example in Eastern European countries like Poland, where cities have assumed the challenge of remediating the devastation left by years of unsustainable development , obtaining excellent results. Also in some Latin American cities it is already possible to find a considerable number of exemplary projects of urban conversion.

The only way to overcome the obstacles towards a more sustainable urban development is to create a consensus at the national level in which the different actors (from the politics, the economy, the responsible for planning and the citizens) focus their efforts in one same direction, in common development objectives which are more compatible with the socioeconomic realities of the cities. In other words, an essential precondition for a country like Colombia to assume the path of a sustainable development is the commitment of its rulers and decision makers, both from the public and the private sector, as well as from society in general.

Bogotá is still missing the awareness of society about the importance and urgency of adopting actions such as:

- the creation of incentives to make inner urban areas more attractive for investors
- the remediation of contaminated urban land
- the regulation and defense of public space
- the protection of priceless ecosystems
- the promotion of active citizen participation

This lack of awareness is reflected in the enormous power of the private market of urban land, which is in the end, the instance that regulates urban development in Bogotá, at the expense of the environment and the poor. That is the only way to understand why the city devours its rural periphery while segregating the weakest members of society.

In an investor-oriented city like Bogotá, urban conversion constitutes an appropriate instrument for the reduction of demand for new urban land. Most notable, for a city like Bogotá, urban conversion constitutes an extraordinary chance of improving spatial and social quality in the city. In this context, the approach to inner development in Bogotá is different to the approach carried out in a city like Stuttgart.

Unlike most European cities where the differences between social classes are not so wide, Latin American cities struggle with the wide gap between social classes. The weakest members of society have always been segregated in the distribution of the urban fabrics. The policies for social housing in Colombia seem to support this social segregation by allowing private developers to urbanize valuable rural land in the periphery of the city. In this context,

urban conversion is an opportunity to generate social inclusion by awarding central areas to the development of healthy socially and functionally mixed spaces.

Bogotá is at present reinventing its entire public transportation system. In recent years, the city has adopted a system of Bus Rapid Transit, which has radically revolutionized the potentials of inner urban land. In this manner, public transport constitutes a once in lifetime opportunity to redesign deteriorated urban areas. In other words, it becomes a determining feature in the future urban development of Bogotá, since many central areas have gained accessibility and therefore a revalorization, which makes them once again attractive for redevelopment.

It is clear that urban conversion is not the solution to every urban problem. However it is an adequate instrument that strengthens social and environmental sustainability, and at the same time, helps to improve life quality in our cities. Nevertheless, inner development must also have limits and should not be implemented at any cost. Inner development projects should take into consideration the city's and the region's structures. Conversion areas should belong to development strategies and therefore they should be managed efficiently in order to attain the general objectives of development.

There is still a lot to be done in order for Bogotá to get on the path of sustainable urban development that other cities like Stuttgart have already adopted. Improving urban quality of life requires new visions of what cities could and should be. In a rapidly urbanizing world, we have no other choice than to develop strategies to make our natural habitat (which is the city) more livable. This work intends to make a contribution to raise society's commitment to the attainment of this objective.

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Figures 3.2 Rome
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Source: Landeshauptstadt Stuttgart. Stadtentwicklungskonzept. Entwurf 2004

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Source: Amt für Stadtplanung und Stadterneuerung. Stufen der räumlichen Planung in Stuttgart

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Source: Landeshauptstadt Stuttgart. Stadtentwicklungskonzept. Entwurf 2004

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Sources: www.stuttgart21.de

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Source: Cuellar, Marcela, Germán Mejia. *Atlas histórico de Bogotá – Cartografía 1791-2007*

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Sources: Nicolas Leyva and Google Earth

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Source: Google Earth

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