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***Urban Growth and Attractiveness in a Bipolar Urban System:
Case of Constantine and Annaba (North-East Algeria)***

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To my twins Ahmed Yazen and Mohamed Zayen, I hope I made you proud.

Abstract

Scientists have always been interested in studying urban growth for its impact on the future of societies and on its ability as a factor in changing the direction of civilizations, studies about the causes and the consequences of urban growth began in the 19th century with multidisciplinary visions of the phenomenon, many theories have tried to explain or describe the modern explosive demographic movement that is crossing the ancient cities' boundaries to concur the peripheries.

Quite recently, territorial attractiveness appeared as a major factor in managing and directing urban growth by evaluating territories range and elements of attraction, However, this evaluation can result several interpretations due to the multidimensionality of territorial attractiveness concept, starting from economy and expanding into many fields such as geography and social studies.

In this thesis, we attempt to analyze the existing economic-urban dilemma in the North East region of Algeria by evaluating the attractiveness of its two national metropolises as separate territorial units and simultaneously studying the currant urban networks of the region, evaluating the general and multidimensional territorial attractiveness of the two poles along with the regional network will hopefully allow us to understand the actual cities system.

The main objective of the study is to explore the possibilities of a regional development strategies in this unique bipolar cities system, our method is not a "pure "new but more of a new model in the assessment for many other regions of the developing world suffering from lack of data and economic-urban issues, using a multifactorial model with synthetic indicators will help us have a general view of the issue and to define strengths and weaknesses of both territorial units, therefore, a projection of those results on the currant urban network of the region will reveal changes and recommendations for future regional development strategies.

Keywords

Development prospective, regional strategies, assets of attraction, urban growth potentials, metropolitan complementarity.

Résumé

Les scientifiques ont toujours été intéressés à étudier la croissance urbaine pour son impact sur l'avenir des sociétés et sur sa capacité en tant que facteur de changement de direction des civilisations, les études sur les causes et les conséquences de la croissance urbaine ont commencé au 19ème siècle avec des visions multidisciplinaires du phénomène, de nombreuses théories ont tenté d'expliquer ou de décrire le mouvement démographique explosif moderne qui traverse les frontières des anciennes villes pour rivaliser avec les périphéries.

Tout récemment, l'attractivité territoriale est apparue comme un facteur majeur dans la gestion et la direction de la croissance urbaine en évaluant l'étendue des territoires et les éléments d'attraction, Cependant, cette évaluation peut donner lieu à plusieurs interprétations en raison de la multi-dimensionnalité du concept d'attractivité territoriale, à partir de l'économie et en passant par de nombreux domaines tels que la géographie et les études sociales.

Dans cette thèse, nous essayons d'analyser le dilemme économique et urbain existant dans le Nord-Est Algérien en évaluant l'attractivité de ses deux métropoles nationales en tant qu'unités territoriales séparées et en étudiant simultanément les réseaux urbains actuels de la région, l'évaluation de l'attractivité territoriale générale et multidimensionnelle des deux pôles avec le réseau urbain régional permettra de comprendre le système urbain actuel.

L'objectif principal de l'étude est d'explorer les possibilités d'une stratégie de développement régional dans ce système unique de villes bipolaires, Il s'agit d'un nouveau modèle d'évaluation pour de nombreuses autres régions du monde en développement qui souffrent d'un manque de données et de problèmes économiques et urbains.

L'utilisation d'un modèle multifactoriel avec des indicateurs synthétiques nous aidera à avoir une vue d'ensemble de la question et à définir les forces et les faiblesses des deux unités territoriales, par conséquent, une projection de ces résultats sur le réseau urbain actuel de la région révélera des changements et des recommandations pour les futures stratégies de développement régional.

Mots clés

Perspectives de développement, stratégies régionales, atouts d'attraction, potentiels de croissance urbaine, complémentarité métropolitaine.

ملخص

لطالما اهتم العلماء بدراسة النمو الحضري لأثره على مستقبل المجتمعات وعلى قدرته كعامل في تغيير اتجاه الحضارات، بدأت الدراسات حول أسباب وعواقب النمو الحضري في القرن التاسع عشر برؤى متعددة التخصصات للظاهرة، حاولت العديد من النظريات شرح أو وصف الحركة الديموغرافية المتفجرة الحديثة التي تعبر حدود المدن القديمة الى الأطراف

في الآونة الأخيرة، برزت الجاذبية الإقليمية كعامل رئيسي في إدارة وتخطيط النمو الحضري من خلال عناصر الجذب إلا أن هذا التقييم أسفر عن عدة تفسيرات بسبب تعدد أبعاد مفهوم الجاذبية الإقليمية، بدءا بالاقتصاد الى مجالات عديدة مثل الجغرافيا والدراسات الاجتماعية

في هذه الأطروحة، نحاول تحليل المعضلة الاقتصادية-الحضرية القائمة في منطقة شمال شرق الجزائر من خلال تقييم جاذبية مدينتي قسنطينة و عنابة كوحدات إقليمية منفصلة وفي الوقت نفسه دراسة الشبكات الحضرية لباقي الولايات في المنطقة، إن تقييم الجاذبية الإقليمية والمتعددة الأبعاد للقطين إلى جانب الشبكة الإقليمية سيسمح لنا بفهم نظام المدن الفعلي القائم في المنطقة الهدف الرئيسي للدراسة هو استكشاف إمكانيات وضع استراتيجيات استشرافية إقليمية في هذا النظام الفريد للمدن ذات القطين، طريقتنا ليست نموذجاً جديداً بل هي نموذج مقترح في تقييم الجاذبية الإقليمية للعديد من المناطق الأخرى في العالم النامي التي تعاني من نقص البيانات والقضايا الاقتصادية - الحضرية، استخدام نموذج متعدد العوامل مع مؤشرات مركبة سيساعدنا في الحصول على رؤية عامة للمسألة وتحديد نقاط القوة والضعف في كلتا الودحتين الإقليميتين، ولذلك، فإن إسقاط تلك النتائج على الشبكة الحضرية للمنطقة سيكشف عن تغييرات وتوصيات لاستراتيجيات التنمية الإقليمية في المستقبل.

الكلمات المفتاحية

التنمية المرتقبة، الاستراتيجيات الإقليمية، عناصر الجذب، إمكانيات النمو الحضري، التكامل الحضري.

Abstract

Scientists have always been interested in studying urban growth for its impact on the future of societies and on its ability as a factor in changing the direction of civilizations, studies about the causes and the consequences of urban growth began in the 19th century with multidisciplinary visions of the phenomenon, many theories have tried to explain or describe the modern explosive demographic movement that is crossing the ancient cities' boundaries to concur the peripheries.

Quite recently, territorial attractiveness appeared as a major factor in managing and directing urban growth by evaluating territories range and elements of attraction, However, this evaluation can result several interpretations due to the multidimensionality of territorial attractiveness concept, starting from economy and expanding into many fields such as geography and social studies.

In this thesis, we attempt to analyze the existing economic-urban dilemma in the North East region of Algeria by evaluating the attractiveness of its two national metropolises as separate territorial units and simultaneously studying the currant urban networks of the region, evaluating the general and multidimensional territorial attractiveness of the two poles along with the regional network will allow us to understand the actual cities system.

The main objective of the study is to explore the possibilities of a regional development strategies in this unique bipolar cities system, our method is not a "pure "new but more of a new model in the assessment for many other regions of the developing world suffering from lack of data and economic-urban issues, using a multifactorial model with synthetic indicators will help us have a general view of the issue and to define strengths and weaknesses of both territorial units, therefore, a projection of those results on the currant urban network of the region will reveal changes and recommendations for future regional development strategies.

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development prospective, regional strategies, assets of attraction, urban growth potentials, metropolitan complementarity.

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II

Glossary

ANAT: National Association for Spatial Planning

ONS: National Statistics Organization

PAW: wilaya's development plan

PDAU: master plan for development and town planning

POS: Land Use Plan

PUD: Constantine Master Town Planning Plan

RGPH: General Population and Housing Census

SEPT: The Spatial Planning Scheme of the Territorial Planning Area

SDAAM: Master scheme of Metropolitan Area Planning

SDATW: Master Scheme for Tourist Development of the Wilaya

SNAT: National Spatial Planning Scheme

SRAT: Regional Spatial Planning Scheme

URBACO: Constantine studies and Urban Realization Centre

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***“A goal without a plan
is just a wish.”***

Antoine de Saint-Exupéry

Introduction

Introduction

Urban growth was not a modern problem to be solved by a certain technique or technology, it became a phenomenon, an established reality that we must deal in order to master future planning strategies, in discussing urban and economic growth, we tangle a very thin line of differences, the clear vision of both phenomena in the same area require a definition of certain elements of growth such as causes, models and potentials of growth along with the spatial and demographic interactions occurring in the territory of concern.

Declaring those elements for urban growth with a general evaluation of actual and possible territorial attractiveness can present background into a new regional planning strategy, a strategy that is based of the territory's potential attraction assets and its situation in the regional or national network, an improved strategy with the objective of creating a dynamic cities system able to boost the development in a region.

From a historical point of view, Rome was the first city to reach a population of one million and be the subject to a series of Imperial edicts limiting its growth, concerns about the size of cities continue as it grows throughout history, for example, in London of the 16th century, the notion of some sort of cordon was proposed to protect the countryside and to stop the plague (Morris, 1994).

However, the industrial revolution that began in the mid-18th century was the starting flame of the modern explosive growth from the core to the edge, the dominant force in cities growth was defined as the polarization of the three resources: land, labor and capital. (Batty, M, Besussi, E, & Chin, N, 2003), in the 19th century, agriculture was abounded in favor of the economic prospects of cities, those cities became exchange points where industries and services that are close to each other prosper to be clusters. (Batty, Besussi & Chin, 2003)

Studies about the causes and the consequences of urban growth began to move away from geographic approaches to economic, social and multidisciplinary visions of the issue, many theories have tried to explain or describe this phenomenon, the concept of central places was presented in the work of (Christaller, 1966), where he argues that the spatial and hierarchical relationships between urban centers reflect the play of economic forces, and

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that large centers are the seat of many economic functions, while small centers possess only a few.

Nevertheless, this concept needs a balanced situation, a filled region in an equilibrium position, it is impossible to know how the system will react to some change such as a modification of population density (Ex: rural exodus), or a transport innovation, so as a theory, it shows a relative shortcoming in dealing with urban dynamic revolutions. (Batty, M, Besussi, E, & Chin, N, 2003)

(Garrison et al, 1959) introduce the rank-size rule: When urban centers interact, towns and villages started to gradually be brought into interaction with each other, as a result of the economic competition, causing some to grow and others to decline, it has been observed that there exists a certain regularity in the relative sizes of those urban centers remaining in interaction within a region.

In the 1970s, we witnessed what appear to be a clean break in the cities, the de-concentration that took place is simply a consequence of the fact that the most obvious locations for new development are in the suburban fringe. (Batty, M, Besussi, E, & Chin, N, 2003), since that, many studies discussed the urban growth from multiple angles, identifying its causes, its benefits and disadvantages or stimulating its future extensions or declaring its familiar patterns.

Included in this new paradigm was relatively new concept from an economic origins was introduced as a major factor of the future urban growth or decline of any given territory which is “ERRITORIAL ATTRACTIVENESS” it begins as a theory in the early 1900s, one of the first examples is presented by (Sombart, 1916) where he argues that territorial economic development generate territorial attractiveness based on the fact that the territory receives development from exports of goods and services, and since then it was widely discussed in economic studies.

Nevertheless, since 1990s, a new wave of interest in the concept of attractiveness had started moving away from the economic empirical studies to the depth of long-term multidimensional objectives by including other aspects such as historical and geographical factors. (Musolino & Volget, 2020), Storper (1997) concluded that territories are

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considered winners when they produce high profits for its business and high standard conditions for their residents, where Malecki (2004) developed a new paradigm, his study showed that the localization is the main element in the growth of any territory.

The measurement of territorial and urban attractiveness begins in the 20th century as a way to enhance cities potential development but it was mostly driven from an economic background, many researchers have proposed various methods as tools to enhance regional planning such as surveys, statistical analysis and ranking by indicators. (Malecki, 2004)

Cusin & Damon (2010) have proposed the most relevant approach to the concept of territorial attractiveness from an urban perspective, they demonstrated the difference between residential and territorial attractiveness on the scale of cities and showed the two different categories of attractiveness: potential attractiveness (the city's propensity to generate new flows in the future) and effective attractiveness (a city with a high migratory figure).

Also, in that study, more urban factors such as the geographical location, the living environment or the urban offer were introduced to measure attractiveness because those factors are becoming increasingly decisive elements in the choice of residential attractiveness, lately, considerable attention has been paid to the multidimensional aspect of the theory, several multidimensional studies were conducted to measure attractiveness using objective and subjective indicators. (Ezmale, 2012) (Annoni & Dijkstra, 2019).

In the past few years, the evaluation of attractiveness became an important issue in territorial planning due to its relativeness to the modern globalization phenomenon and its multidimensionality, where a general evaluation of any given territory can be approached from multiple aspects and angles, Ex: a destination's perceived image (Ezmale, 2012), the factors that influence the tourism development (Guzman-Sala, 2016), the assessment of urban attractiveness by students (Antonova, Abramova and Polyakova, 2020).

The multidimensionality of the notion was established in a wide world literature generating many method of evaluating attractiveness such as surveys (Schäfer & Just, 2018) or ranking cities by indicators (Annoni & Dijkstra, 2019), not only to measure economic attractiveness but also territorial attractiveness and on different scales: cities, regions,

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clusters and countries....etc., in hope of a boosting economic growth and enhancing regional and urban strategies. Ex: the attractiveness of the Moroccan regions (Khalifaoui & Lamari, 2015) and the Attractiveness of European Tourist Cities (Valls & Sureda & Valls-Tuñon, 2014).

In recent times, many researches have addressed the concept of territorial attractiveness from several dimensions and for various objectives, Fino, Ceppi, & Fatiguso (2020) attempt to enhance territorial attractiveness by proposing virtual tours of the international architectural heritage, Comi, Grasseni & Resmini (2021) tackled the political dimension of the issue by studying the ability of judicial efficiency to improve territorial attractiveness for FDI¹, while Barois et al (2021) concentrated on the land and locational potential where they tried to understand the existing dynamics by developing a typology of "zones détendues" through the prism of territorial attractiveness by using a hierarchical ascending classification.

Among those researches, we refer to the interesting work by (Musolino & Volget, 2020) which we considered as a methodological support in our thesis, this paper elaborate clearly, the three facets of attractiveness, the difference between real, revealed and perceived attractiveness was established on a theoretical background:

- Revealed attractiveness as the actual inflows coming to a territory.
- Perceived attractiveness as to the perception of that territory in the conscience of residents and visitors.
- Real attractiveness in reference to the tangible and intangible factors that make a territory attractive.

In addition to that, they used a multidimensional approach to measure attractiveness through both dashboards and synthetic indicators, they introduce a clear classification on the methods of investigating the attractiveness based on the dimension of interest of the researcher.

Nowadays, territorial attractiveness in science is considered to be a multidimensional concept with several approaches depending on the actors responsible of creating or

¹ FDI: foreign direct investments

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managing the attractiveness, and on the attractors elements of the territory, therefore, measuring attractiveness became a subjective matter for every author based on his dimension of study and his chosen method of analysis.

On the other hand, we notice the interesting programmed² region of north east Algeria that possesses a strategic location, economic assets as the second position in terms of industrial jobs on a national level and the first position in population density as the most crowded with 209 inhabitants per km²³.

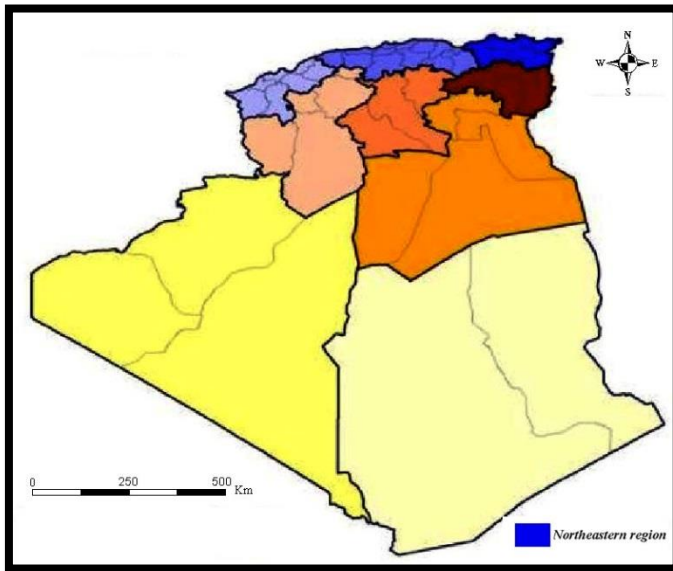


Figure 1: Delimitating the field of study

Source: Author's Elaboration (2020) of the SNAT 2005.

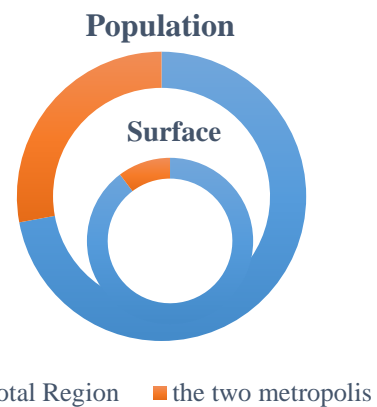


Figure 2: The Region Population Compared To Its Surface.

Source: Author's Elaboration (2020) of RGPH 2008.

However, the disposition of agglomerations is concentrated in the two national metropolises creating a unique bipolar cities system, more than one third of the region's population is living in the two metropolises with a combined surface of only one tenth of the region, therefore, the field of investigation in evaluating territorial attractiveness will be limited to the two metropolises Constantine and Annaba as the two poles in the region

² Programmed regions: in reference to the nine regions created by the Algerian state in 2000 as a part of major long term planning strategy on national level elaborated in the official documents, the regional division was based on physical and historical limits mainly for the objectives of creating harmonious and functional regions. Source: SNAT, 2001.

³ Source: Regional Territorial Development Plan, tome1, 2 & 3, the National Planning Agency ANAT, 2001, Annex 3.

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but the projection of its results on the region necessities a regional network and a full knowledge of the urban growth dynamics in the region.

Despite the existing human capitals and potential development assets, the region as a whole has experienced stagnation or relative economic decline over the past decade⁴, the reason for that stagnation was the inability of the previous development planning strategies to communicate the region's dominant position that has created an economic-urban dilemma, the region no longer has its driving role in the national economy, an economy that the state seeks to diversify and make it multipolar away from its dependency on hydrocarbon revenues⁵.

Research Purpose and Aims: Problematization of Undetermined Situation

Our work present a relatively new aspect in analyzing the economic-urban dilemma by the juxtaposition of the attractiveness evaluation of the present regional network for future urban growth, this study is driven from the attempt of problematization the undetermined urban-economic situation in the North East region of Algeria, to better define the situation, we start with a brief presentation of the spatial and geographic frame of the study from a 'macro' to 'micro' logic :

Algeria is the 10th biggest country surface wise in the world, It is located in the north west of Africa, divided into 58 wilayas, three national metropolises (Oran, Constantine, Annaba) and a single international metropolis as the capital Alger, the Algerian state undertook a major territorial planning project through the development of the National and Regional Planning Schemes in the 2000s (SNAT), the objective was opening the country economically, and better management and governance of decisions and resources at a local level.

The SNAT was the first territorial planning document that illustrated the regionalism division, it includes nine regions in the country based on physical and historical

⁴ This economic stagnation in the region was mentioned in the third economic diagnostic report of the SDAAM Constantine (director schema of management of metropolitan area), elaborated in 2014 by URBACO.

⁵ As cited in the report of the consulting and economic intelligence, firm Oxford Business Group (OGB) on Algeria, 2018.

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limits, every region has a spatial planning document as a guide for long-term development strategy called SRAT 'regional spatial planning scheme' (the regional schemas on the second phase were called SEPT) until this day, no updating of those documents or of its strategies was conducted, as a consequence, there is an ambiguity and uncertainty in dealing with the actual situation of the region or planning a prospective development strategy.

However, some interesting, but autonomous, planning documents called SDAAM 'master plan of planning of the metropolitan areas' for the four national metropolises (Alger, Oran, Constantine, Annaba) were published in the last decade presenting more up-to-date information and statistics, which allowed us to present specific data and statistics in our study.

The North East of Algeria a privileged region with its strategic geographical location, situated at the crossroads of the axes connecting the Maghreb countries and Africa to the Mediterranean that gives it a natural international vocation, the region is both coastal and inland, borders Tunisia, and the eastern and central highlands regions, a unique location that places it at the heart of transport networks.

The Northeast region from a spatial aspect appears as a de-structured territory with the domination of the two national metropolises of Constantine and Annaba with a population above 500000, and the presence of four cities of more than one hundred thousand inhabitants (Skikda, Jijel, Guelma, and Souk Ahras), the distribution of towns in this region corresponds globally to that of natural resources, however, the industrial investments made by the State from the 1970s was the main factor in de-structuring the regional space along with the insecurity of the countryside, which prevailed during the decade 1990-2000. (Reham, 2001)

In economic terms, trade became a 'refuge' activity in the region compensating for the lack of other employment possibilities, and the development of informal trade, which also responds to a need to satisfy a population of low incomes in necessities, the border position with Tunisia, favors the 'trabendo', in terms of tourism, a field that, if exploited correctly, could generate growth, the region suffers from a degraded environment (pollution of all kinds) and a lack of reception facilities, also noted in investments, a tendency to develop

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tertiary projects rather than secondary (industrial) projects, which shows a decline in productivity revenues in favor of services. (SEPT, 2009)

The reality of the region as mentioned in the official documents (SRAT, 2005) (SEPT, 2009) could be resumed to an accelerated and anarchic growth marked by the proliferation of precarious housing, a high rate of unemployment, absence of productive investments and an underuse of existing infrastructural capacities, **a difficult reality where the previous regional planning documents aged to 15 years ago or actual autonomous local planning documents could not solve or even give a general diagnose of the issue.**

An undetermined urban-economic situation along with the fast and continuous urban growth of both metropolis **poses a need for a clear problematization** and drives us to question the reasons for the economic stagnation in the region and to wonder about an approach that would emphasize in a non-exclusive way the important role of integrating attractiveness evaluation in future regional planning strategies.

In addressing attractiveness notion “The main question to ask is very simple: who wants to attract what?” (Hatem, 2005), Attractiveness appears as a relative issue where the attraction changes based on the groups at the focus of attraction strategies because “attractiveness” is a complex and diverse combination of criteria (Battaglia & Certomà & Frey, 2015).

In our case, the group of focus is the regional planners as our objective is to present a model of assessment, a tool to decision-making, therefore, we started by asking the crucial question:

- **How do we govern territorial attractiveness in a bipolar cities system?**
- **Is it possible to induce urban growth by integrating the evaluation of attractiveness in regional planning strategies? and How?**

However, those major questions reveal the necessity of answering in advance less complex ones, as for example:

- **How to evaluate the three facets of attractiveness simultaneously?**

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- **What are the appropriate indicators (based on the available data in the two metropolises of the North East of Algeria) to evaluate general territorial attractiveness?**
- **What are the models and the causes of the actual urban growth in the North East region (based on the theoretical classification of previous studies)?**
- **How to project the evaluation of territorial attractiveness and integrate its results in the future regional planning strategies?**

As an attempt to answer or clarify those question we propose a model of assessment gathering the three facets of attractiveness, evaluating it and projecting the results on the regional network that was created based on the geo-demographic data (RGPH 2008) in the North East region as a start for a cities system.

Theoretical Framework and Hypothesis: Research Model Proposal

The north east region of Algeria has a unique polycentric urban system, a potential dynamic system with multiple planning possibilities, we adapt the idea of a possible improvement in future planning strategies by effectuating an evaluation of territorial attractiveness of this system's metropolises separately from the rest of the region, we could have a better understanding for the reasons of the economic stagnation considering the fact that those two poles inhabits more than one third of the whole region's population.

The city of Constantine has a privilege by its historical roots being since its creation in the 19th century and early 20th in position of commander of a region in which appeared Annaba as a part of the region but that position was put to the test by the appearance of other economically competitive poles such as Batna and Setif, while Annaba has been an important pole that allowed the emergence of heavy mining industry to the international distribution, today, with the decline of the industry, Annaba is trying to compensate those losses by tourism except that the investment dynamic is quite slow (restrictive investment policy and difficult conversion of industrial fabrics) (SRAT, 2005)

In our study, while we refer to the previous regional division, we initiate a different one assuming the two metropolises as separated territorial units and evaluating their attractiveness in the regional space separately, for **the main purpose of a general**

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comparative review by evaluating territorial attractiveness with a multidimensional vision that will allow us to propose general recommendations for future regional and urban planning strategies of both territorial units.

Several **objectives** were established in the beginning of elaborating this thesis some are subjective to the case of study while others are general objectives for the elaboration regional planning strategies:

- Suggesting a model of territorial attractiveness assessment that can serve as a decision tool for the authorities in the regional development field.
- Present a better understanding of the actual situation in the region by an estimation of the elements of attraction of both metropolises and as a result declaring the potentials of growth for both metropolises.
- Offering guidelines for the suitable regional planning strategy that should allow the economic development to take the lead over the anarchic urban growth.
- Suggesting a scenario for a functional cities system based on the results obtained in the end of the research.

Taking under consideration those objectives and the precedent questions, we propose some **hypothesis** that will be tested into confirmed or not confirmed in the conclusion of the research:

- The first hypothesis is the possibility of evaluating the three ‘facets’ of attractiveness⁶ simultaneously in a single model for the objective of enhancing regional planning strategies.
- The second hypothesis is the necessity for regional planning strategy that promote attractiveness instead of complementarity in the northeast region of Algeria with declaring new territorial limits for the region based on the potential attraction/repulsiveness elements in both metropolises
- The third hypothesis is the possibility of improving the regional planning strategy by adapting the attractiveness evaluation and projecting its results on the actual

⁶ The definition of the three facets is included in the first title of the 5th section: ‘the construction of the synthetic indicator’.

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urban networks and the assessment of potentials for urban growth development as the initial step before the elaboration of the next regional planning document.

- The fourth hypothesis is the similarity of the attractiveness degree and zone of influence with differences in the attraction elements between the two metropolises

As a start, an examination of the state of the art on this subject was conducted, we explain in the upcoming title.

State of the Art

Previous studies concerning territorial attractiveness were conducted in Algeria but with an economic vision mostly to measure certain flows of revealed attractiveness or to investigate a current situation in the economic spectrum. (Ex: Ait-Yahia & Salaouatchi, 2019), However, some interesting urban studies took place in the past decade with similar hypothesis to the one that we adopt in our thesis for example the study of territorial attractiveness and potentials of development in the wilaya of Jijel presented by Bouhelouf, Hadjiedj & Dubois-Maury (2019).

In their conclusion they pose the necessity to replace the traditional approach in urban planning were they describe it as often voluntarist, centralised and very little participatory, by a more general socio-economic strategy, according to this study the urban project and the attractiveness maintain such a strong relationship because the first constitutes a framework for the development of a strategy and can offer, at the same time, a better visibility and readability of this city in its global dimension.

Hadjiedj & Dubois-Maury (2019) describes the socio-economic approach as scalable, flexible, responsive, shared, not fixed, unfinished, and able to adapt to the evolutions and uncertainties of this urban project which can only be established based on the specificities, opportunities and assets that characterize the local context.

In another interesting urban study about attractiveness in North East region of Algeria ,Chouabbia K, Mouhoubi N & Lazri Y (2021) they suggest that attractiveness should be ensured by a balanced sharing of urban functions especially commercial and residential between the city centre and neighbouring municipalities of Constantine, the results obtained in this study point us towards a new generation of urban policy that works in an

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approach of competitiveness stating that the reduction of the pressure on the city centre of Constantine will allow to change the order between the types of attractiveness by bringing back in foreground the assets landscape identities of the center-city, and give more interest to the development and improvement of attractiveness.

In a past and similar study about urban attractiveness in the wilaya of Annaba, Telaidjia (2010) discussed opportunities for improving the economic attractiveness in the wilaya such as its very advantageous geographical location and its dense economic fabric declaring the possibility of branding the city via the health sector and the necessity of developing large poles (Zone of activity, business centers) in the centre to increase the attractiveness.

In our work, we opted for a more generic and macro version of evaluating attractiveness, by using a set of multidimensional indicators and a weighting method we try to approach the three facets of attractiveness in both metropolises of the north east region, despite the fact of its lack of deep diagnostic, the macro approach offers as the possibility of taking a general image of the potentials and the lines that needs further attention for the regional planning strategy.

Methodological Framework: Conducting a Pragmatist, Multifactorial Study

In this study, we propose an adaptation or an improvement of evaluating general territorial attractiveness for developing countries with difficulties to have sufficient data, our thesis presents a comparative study between the two regional metropolises in the northeast region of Algeria with a projection of its results on the regional network.

This study is a basic research, a modest contribution to the ongoing discussions about the role of territorial attractiveness in urban planning, using a mixed method with an explanatory sequential based on the work of (Musolino & Volget, 2020), with a macro⁷ approach.

⁷ Hatem (2005) proposed five approaches to evaluating territorial attractiveness based on scale of interest: “macro”, “meso”, “micro”, “decision process”, “image”, he emphasized the importance of choosing the appropriate approach depending on the objective of the evaluation.

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Our methodology is not a “pure “new method but more of a new model in the assessment of the economic-urban dilemma observed in northeast region of Algeria and in many others regions of the developing world, this model is unique in certain aspects (Ex:the weighting by the experts) and adaptable at different territories (with suitable indicators for every territory and experts that are familiar with it).

We conducted a comparative study between the two metropolises in the north eastern region of Algeria and we presented the actual agglomerations of the region in networks for each wilaya and as a final step we attempted to propose a new regional division based on the observed results, we started by investigating the suitable indicators, those indicators were chosen from different ranking experiences by the authors based on the availability of the data and the particularity of region.

In the following diagram, we explain the chronological buildup of the attractiveness evaluation into a model of assessment that was accomplished in this study:

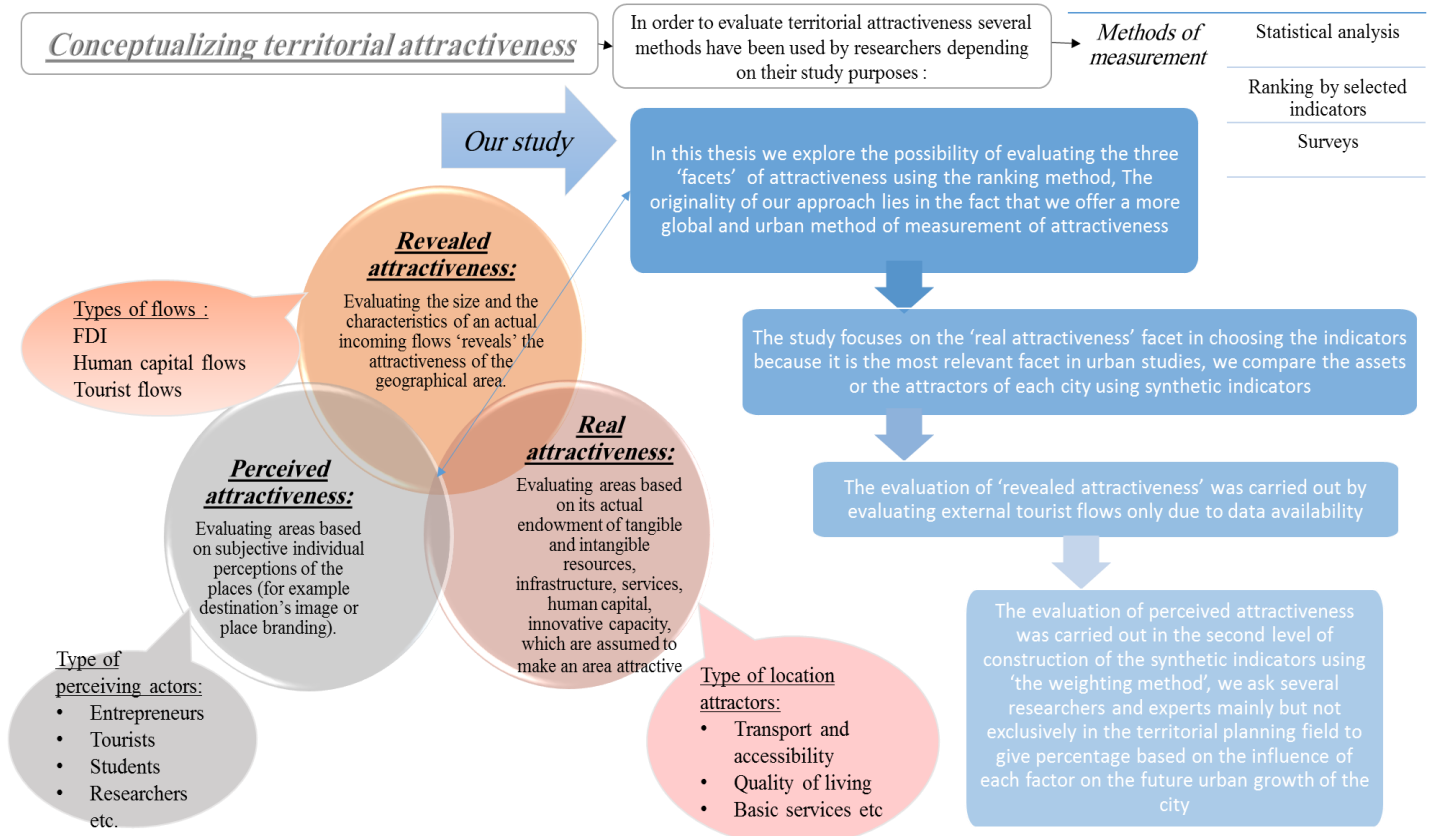


Figure 3: The buildup of the attractiveness evaluation into a model of assessment.

Source: Author’s elaboration of Musolino & Volget (2020)

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The objective was to create a list of multifactorial indicators divided into 9 categories from available data in a national level and creating a ranking model applicable to other developing regions, we collected the primary data from 21 different official administrations in both metropolises and normalized them through a standardization formula, and thereafter we opted for a weighting method.

We questioned 6 experts from mainly, but not exclusively, territorial planning background using a simple survey where we asked them to rank by percentages 3 urban factors for both metropolis based on the impact of those factors in the future urban growth of each metropolises, as a final stage in this step, we compared the synthetic indicators of both metropolises and projected the results on the actual territorial planning strategy.

As a second step, we conducted a thematic analysis of urban networks using a deductive and semantic approach, we start by creating the urban network of each wilaya based on the size of its agglomeration, then we identify their models of growth, the possible causes of growth and the interpretation of growth based on the urban network form and the data presented in the regional planning document the SRAT.

The final step was the projection of the evaluation results on the regional network where we discuss the currant regional division and prospective made by the state for both metropolises and for the other six wilayas in the region.

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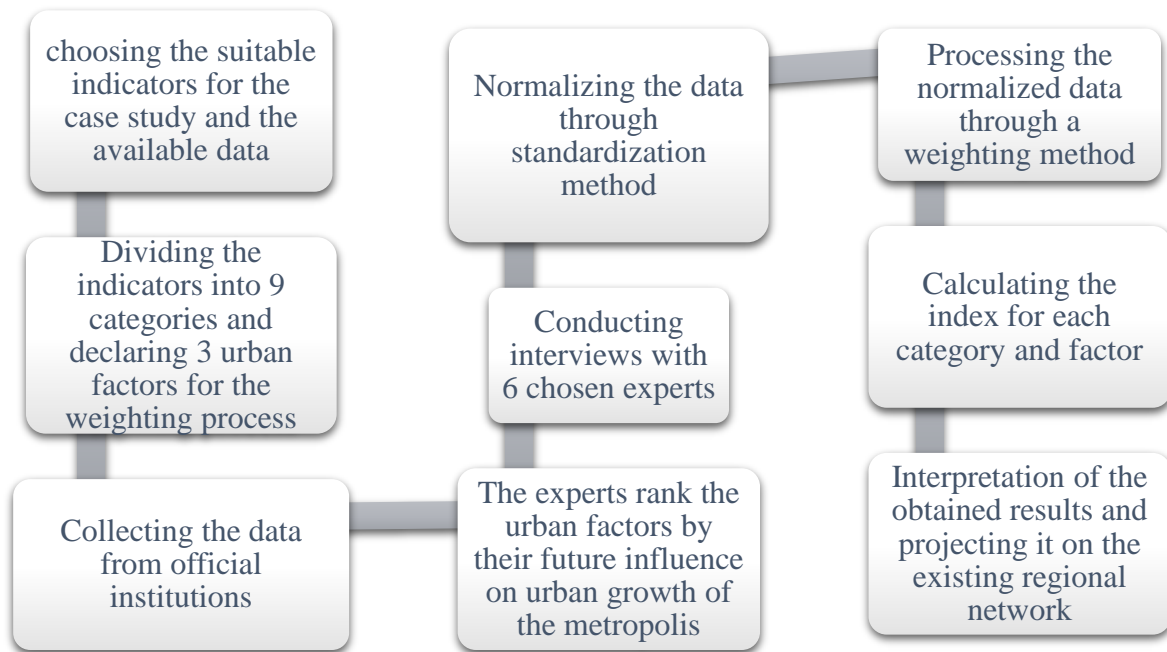


Figure 4: The chronological order of the research phases

Source: Author's elaboration (2020)

The originality of our approach lays in the fact that we offer an improved model of territorial assessment, a global⁹ and urban orientated method of measuring the three facets of attractiveness adaptable in various territories of the developing world, we conducted an empirical multidimensional study taking into consideration previous academic theories and created a regional network with an attempt to project the results of the evaluation on that network and improve the understanding of the region's undetermined situation.

Structure of the thesis

This research is divided into five chapter, some chapters have theoretical analysis of the concepts discussed previously followed by its projection on the study case while others contain either the theoretical analysis or the fieldwork accomplished, the five chapters are preceded by an introductory part and summarized by a general conclusion, the thesis is structured as follows:

Introduction

Chapter 01: In the first chapter, we discuss the phenomenon of urban growth, its history, causality, planning and models from theoretical aspect followed by an analysis of this phenomenon on the two metropolises of North East region of Algeria.

Chapter 02: in the second chapter, we present a detailed conceptualization of territorial attractiveness in urban studies, discussing its multidimensionality, its facets and its governance on a regional scale.

Chapter 03: in the third chapter, we tackle the urban systematic approach explaining its multiple scales and methods then creating every wilaya's network and the cities system (the regional network) of the North East region using the geodemographic data presented in the last population census.

Chapter 04: in the fourth chapter, we analyze our case study from a macro to micro logic beginning with characteristics and existing assets in the region and its two metropolises and moving on to the prospective of development cited in the official documents also for the region and its metropolises, we also illustrate the proposed scenarios in the regional planning documents for accomplishing the metropolitan complementarity or promoting the territorial attractiveness.

Chapter 05: in the fifth and final chapter, we explain the fieldwork accomplished and the results of the attractiveness evaluation, then we project those results on the regional network in hope of the possibility to develop a functional cities system in the region.

General conclusion: Like all research works, ours ends with a general conclusion, synthesizing the results of the research, as well as some elements of reflection, presenting the limits of the present research, and the prospects of future investigations.

Chapter 01:

The Phenomenon of Urban Growth

Chapter 01: The Phenomenon of Urban Growth

Introduction

Regardless the fact that urban development did not take off until the last century, first cities in human history have appeared more than five thousand years ago, the first cities were created mainly for meeting, defense needs, but in present time, urban areas encompass all the non-agricultural human activities such as production, trade, services, education and research, entertainment, etc.

Over the centuries, cities remained dispersed and small in size, resembling small isolated points spread over large areas territories, only a small proportion of the population lived in cities, the process of global urbanization has suddenly accelerated in the wake of technological progress in Europe during the revolution industrial, at the same time, city functions have multiplied, and the importance of the urban growth phenomenon has continued to grow in different parts of the globe.

At the end of the 20th century, urban growth has pushed cities further and further out, referring to that we quote Storper & Manville (2006): *“The cities were the jetsam of another age, vertical settlements in a horizontal world, and artifacts of a time before distance died. They were not where people wanted to live and were no longer where they had to work”*.

Urban growth was not a modern problem to be solved by a certain technique or technology, it became a phenomenon, an established reality that we must deal with in order to master future planning strategies, today, in all industrialized countries, cities are home to the majority of the population and produce the bulk of the nation’s wealth, urban growth is now seen primarily as a process of change economic and demographic structure.

In general, visualization, planning or modelling urban growth need a full understanding of the past and present factors and forms of urbanization which we will attempt to explain in this chapter

Chapter 01: The Phenomenon of Urban Growth

1.1. Background on Global Urbanization

1.1.1. History of Global Urbanization

The theoretical explanations for urban growth go back to the forces of «repulsion» and attraction offered in the 19th century, Ravenstein (1885) noted that migration rural-urban was driven by population growth, lack of land agricultural and enclosure repulsion factors.

The share of the population living in cities remained low until the 19th century then began to grow at an accelerated rate, it reached 20% in 1850, then rose to 38% in 1900 in Europe, and the United States, today, these proportions exceed 80% in all these areas. (Bairoch, 1985) (United Nations, 2016)

Redford (1926) proposed three types of factors as explanations for urban growth during the first phase of industrialization in developed countries:

- The growth in the industrial sector
- Surplus labor in the rural sector
- The existence of an informal sector in urban areas

In the second half of the last century, the urban population has increased, with an increase of more than 40 million individuals on average each year, since 2010, more than half the world's population is living in urban areas.

A strong correlation between urbanization and the level of economic development can be observed in the comparison between countries. In general, the higher the level of GDP¹ per capita of a country, the more important is the share of the urban population in the total population. (United Nations, 2016).

For a specific country, the process of urban growth is also correlated with its level of economic development, according to some studies, the relationship between the rate of urbanization and the level of development can be described by a logistic curve (Mazumdar, 1987).

¹ GDP: Gross domestic products, is the sum of gross value added by all residents producers in the economy plus any product taxes not included in the valuation of outputs divided by mi-year population. (Wikipedia: The world bank data, 2000)

Chapter 01: The Phenomenon of Urban Growth

Apart from the rapid growth of the urban population and the urbanized percentage, there is also a strong trend of population concentration in the large cities. In 1950, there were only two cities with more than 10 million inhabitants (called megalopolis according to United Nations, 2004): New York and Tokyo, each with population between 11 and 12 million.

In 1975, two other cities, Shanghai and Mexico City, to be megalopolises.

In 2000, the number of megalopolis reached 18 along with Tokyo, the largest city in the world, these 18 megalopolises alone shelter 15% of the population of the world's urban population, in many countries, the urban growth higher rate is structured around large metropolises.

In terms of urban population growth, the rate is considerably higher in developing countries as in developed countries in the post-war period, in 1950, the urban population of the developing countries is significantly higher than in developed countries.

The urbanization process starts when the factors of production in the past dispersed in rural areas begin to engage in non-agricultural activities and agglomerate in space to form urban centres, the relative weight of the urban sector becoming increasingly important.

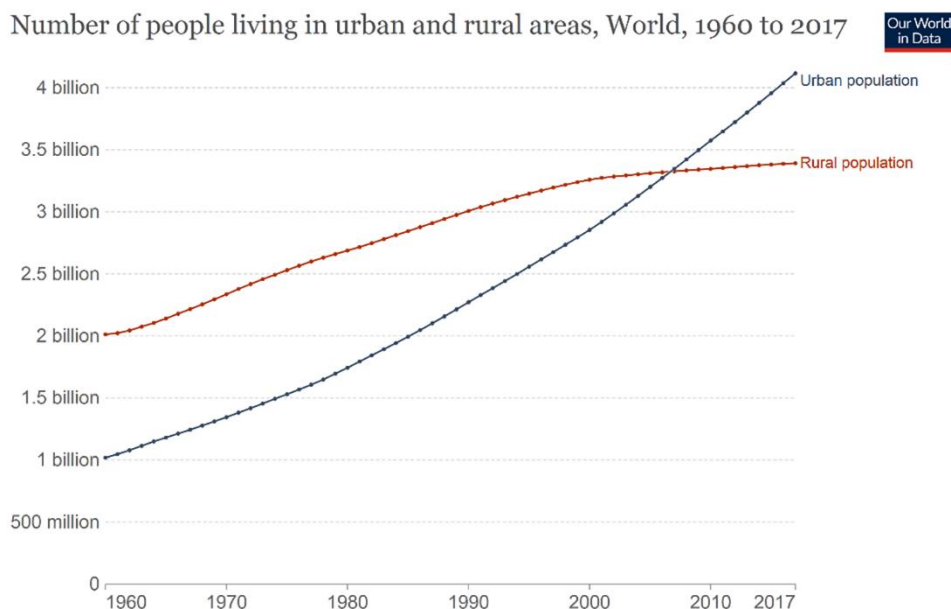


Figure 5: Number of people living in rural and urban areas worldwide from 1960 to 2017

Source: world Bank based on data from UN population division 2017

Chapter 01: The Phenomenon of Urban Growth

Over the next two decades, the growth of urban populations in developed and less developed regions tends to converge, leading to the urban population in both groups of countries around 1970, and subsequently dominant of the urban population in less developed regions, in terms of growth of large cities, less developed countries reveal also considerable potential and become the main source of growth.

1.1.2. The Link between Modern Urbanization and the Industrialization Revolution

In the strict sense of the word, this process of urbanization only began with the beginning of the industrial revolution, although the existence of cities goes back a long way in history, human society remained long agriculture where cities did not really play the main role in the economy.

The industrial revolution radically changed this urban-rural relationship, by modifying the mode of production and bringing innovations in multiple areas such as manufacturing, agriculture, construction, transportation and communications.

Now, non-agricultural economic activities taking place in cities have become the main source of wealth creation and cities have experienced strong growth to become the engine of economic development (O'Sullivan, 2007)

The history of global urbanization shows above all a strong correlation between industrialization and urbanization, during the first half of the 19th century when the industrial revolution began, the share of the urban population in the world's total population increased by only 1.2%, from 5.1% in 1800 to 6.3% in 1850.

Nevertheless, during the second half of the 19th century, when global industrialization is accelerating, doubled to 13.3% in 1900 (Ye, 2002), for developed countries, the figures are 7.3%, 11.4%, 26.1% respectively for 1800, 1850 and 1900.

England being the country of origin of the industrial revolution, it is also the country where urbanization begins the earliest, in 1850, England saw the share of its population over 50% and has now entered the industrial and urban society.

France, Belgium and Switzerland have started their urbanization between 1770 and 1800, three decades later, Germany and Australia took between 1850 and 1880, urbanization

Chapter 01: The Phenomenon of Urban Growth

began in countries such as Italy, France, and the urbanization process affected the rest of Europe and Japan.

Development theories explain the close relationship between urbanization and industrialization, in his descriptions of the typical model in development, Lewis (1954) proposes that industrialization in the first phase of development is accompanied by a gradual and sustainable flow of migrants to urban industrial centres, which at the same time drives the process of urbanization.

On one hand, urbanization is induced by industrialization: the development of modern industries in urban centres results in the transfer of labour from the traditional agricultural sector to the secondary and tertiary, the share of the urban population increases with this migration rural-urban.

On the other hand, urbanization also influences industrialization: the growth of cities allows urban industries to benefit not only from agglomeration economies in production, but also from a consumer market expansion of industrial products, the experiences of industrialized countries show that, at a level of development the urbanization process begins to deviate from industrialization: the share of manufacturing industry in GDP decreases, while the share of the population growth of the tertiary sector.

Building on the empirical studies from many countries between 1950 and 1970, Chenery and Syrquin (1975) find that there is a common pattern of global urbanization: the rate of urbanization increases with the increase in the rate of industrialization until which both reach about 13%, and then the process of urbanization accelerates and the rate of urbanization exceeds the rate of industrialization. (Henderson, 2004).

Urbanization of developing countries is equivalent to that of developed countries around 1875, a delay of about 75 years, in the post-war period, the urbanization of developed countries entered the deceleration with a share of the urban population approaching 70% around the the 1980s, by contrast, Third World countries are entering the urbanization. (Henderson, 2004).

The world's fastest growing urban population today in developing countries, in fact, industrialized countries become "fully" urbanized around the year 1975, in the sense that

Chapter 01: The Phenomenon of Urban Growth

the share of the urban population is between 60% and 90%, with levels of urbanization actually reached depending on factors such as the importance of modern agriculture in the economy, urban definitions, etc. (Henderson, 2004).

While the first industrialized countries enter into urban predominance around the middle of the 20th century, the rest of the countries engaged more in the industrialization process are also lagging behind urbanization.

The temporal order of urban transition is determined, among other things, by the industrial technological diffusion, but also by the political independence of these countries in development path, the urbanization of Third World countries is different from that of developed countries only in terms of period and rhythm, but also in terms of urbanization, many authors (Kojima, 1996, Nakanishi, 1996) study the different experiences of urbanization in developing countries.

It is found that the strong historical correlation between urbanization, industrialization and per capita income revealed in developed countries, is not evident in Third World countries, most developing countries have higher levels of urbanization than today has developed countries known, when they were at comparable levels of development (Todaro & Smith, 2002).

In some countries, urbanization is not accompanied by strong industrialization and an increase in per capita income, or there is an excessive concentration of population in large cities, it is the phenomenon called "**over-urbanization**", some developing countries have a low level of urbanization relative to their level of industrialization and income, a fact referred to as "**sub-urbanization**" (Todaro & Smith, 2002).

1.1.3. Forms of Urbanization

The urbanization process is believed to be strongly linked to industrialization and the income growth such as the development history of high-income countries, in this classic model of urbanization, growth of the population living in urban areas, and it is reinforced by urban growth by taking advantage of productivity that cities provide.

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However, the fifty years of urbanization since the post-war period in the countries less developed show different experiences, insofar as the between urbanization, industrialization and the level of income is not always respected.

Most developing countries have experienced more rapid urban growth than industrialization and income growth, or population concentration excessive in large cities. In some other countries, the level of urbanization is not high enough in relation to their level of economic development.

Over-urbanization is defined by Kamerschen (1969) as follows: “*countries in the first phase of industrialization suffer from an imbalance as well in the size and distribution of their urban populations, which implies essentially that they have a percentage of the population living in cities and higher than the ‘justified’ level at their stage of economic development.*”

This definition indicates the two characteristics of over-urbanization: relative size of the urban population, excessive, and the concentration of the urban population, excessive level of income and economic development. A third aspect of increasingly marked in over-urbanized countries is the segmentation of the labour market and the significant importance of the informal sector in urban areas (Kazuhiro, 2007).

In over-urbanized countries, urban labour markets are highly segmented, with a relatively large informal sector alongside the formal sector (Kazuhiro, 2007).

Periurbanization, a process of spatial extension of the city that is part of the process of metropolization, has marked urban development since 1960s (Le Jeannic, 1997), peri-urban is a belt outside the city that is a mixed space with both urban working households and farmers.

The peri-urban area is therefore a rural area in the sense that most of the land is allocated to productive agricultural activities, but it is also an urban area in the sense that the majority of the working population living there works in a city, carrying out migrations alternantes” (Cavallès et al., 2003).

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The existence of the informal sector has been evident since the 1970s in most developing countries, following the massive influx of labour into cities has not led to the growth of unemployment in the formal urban sector (Todaro & Smith, 2002).

Another form of deviation from the traditional route of urbanization is sub-urbanization: the growth of the urban share of the total population does not follow the rate of that of the share of industry in total GDP, the urbanization process is lagging behind industrialization. The phenomenon of under-urbanization is where rural-urban migration was restricted by a system of control of permissions: rural exodus was prohibited or strictly controlled, the size of the population of cities was limited by administrative measures sector (Todaro & Smith, 2002).

For other countries, such as South-East Asian countries, the urban population is slowly growing, due to mainly to the dispersed distribution of industries, in these countries, some of the rural population will be able to engage in non-agricultural activities in the rural areas, without entering urban areas (Hamer & Linn 1987, Kojima 1996).

Number of developing countries have experienced the coexistence of a massive migration of their rural populations in urban areas and a growing urban unemployment rate, for explain this phenomenon incompatible with classical dualistic models many economic geographers proposed several models of growth.

Much of the new migrants engaged in small family businesses or in various modest and fragmented self-employment activities, grouped under the term sector informal, the definition of the term is related to irregular situations of activities at the official business registration and taxation regulations, characterized by low levels of income and skills of the labour force, this informal sector plays an important role in the absorption of rural migrants in cities, providing them with minimum means of existence. sector (Todaro & Smith, 2002).

Development theories describe the mechanisms of urbanization in a dualistic economy, where rural-urban migration achieves the transfer of labour from the traditional level of agriculture low productivity to a modern high-productivity manufacturing sector. (World Bank, 2000).

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This divergence compared with the traditional pattern of urbanization does not allow taking full advantage of the positive effects of cities, on the contrary, the negative effects of the agglomeration demonstrate and hinder economic growth.

If urbanization does not keep pace with industrialization and growth in many developing countries, this is largely due to policies of governments to influence urbanization (World Bank, 2000).

Governments in developing countries often try to control urbanization, by influencing both the pace of urban growth and the spatial distribution of cities, today, the developed regions are entering a phase of urban growth after reaching a fairly high level of urbanization, while less developed regions continue massive urbanization and experience growth the world's fastest urban population. (Lewis, 1954)

The “dualistic economy” models initiated by Lewis (1954) and developed later by Ranis and Fei (1961) constitute one of the classical theories of development, and serve as a basis for theories explaining urbanization.

In these models, the economies of developing countries comprise two sectors: on one hand, a traditional “subsistence” sector (mainly agriculture), it is characterized by a surplus of labour and therefore a low marginal productivity, on the other hand a modern or capitalist sector, characterized by high productivity and a higher wages.

In response to the wage differential, workers in the traditional sector are willing to enter the modern sector, with the growth of the sector's output labour is gradually transferred from the subsistence sector to the modern sector.

These models of the dual economy have for the central element the gains of the production from the transfer of labour from the traditional low-productivity sector to the modern high-productivity sector.

Urbanization is the most direct from this cross-sectoral transfer of work, the transfer of rural-urban work not only contributes to the short-term productivity, but also long-term growth to the extent that it increases the rate of capital accumulation in the economy.

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In conventional models of dualistic development, the traditional sector has no capital, by integrating migration and development into a single system, the dualist development provide a synthetic description of the historical experience of growth in developed countries, urbanization is interpreted as a phenomenon that goes hand in hand with the growth of production.

Although these models are the subject of many criticisms, mainly for more or less restrictive assumptions, population transfer rural-urban that they describe remains an unavoidable process for most countries developing countries whose population is predominantly in agriculture, Nevertheless, since the 1960s, the realities of the urban growth deviates from the schema proposed in these classic models to more complex economic models. (Docampo, 2014)

Docampo (2014) divided the descriptive interpretation of those different models of growth into two groups:

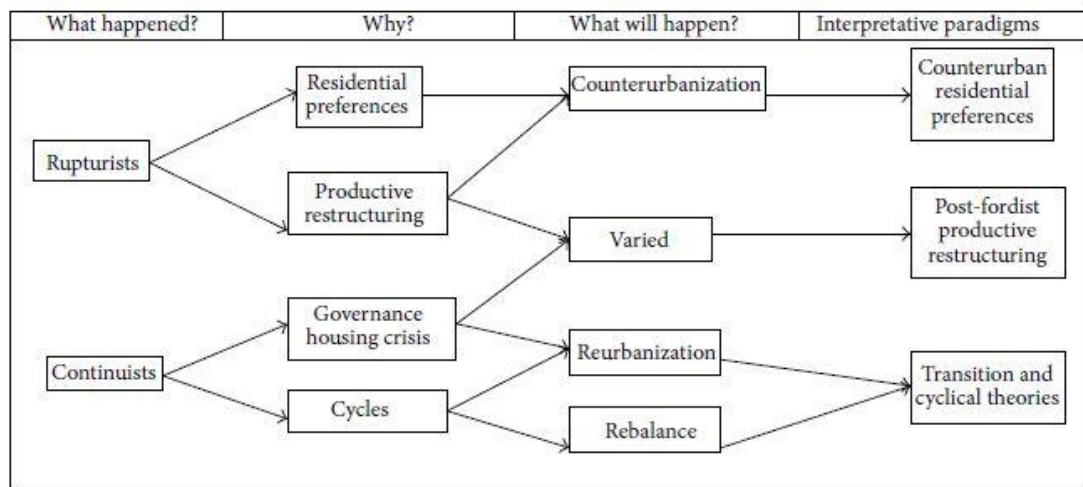


Figure .6 : interpretive logic of urban growth

Source: Docampo, 2014

- Continuists (or evolutionists): in this group the de-concentration that took place is a change on the territorial scale, the city maintains its living dynamism but includes territories (urban areas) that go beyond the perimeter of the “continuous-compact” to include both spaces in “low density cities” and housing developments in denser estates.

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- Rupturists (or revolutionaries) Rupturists emphasize on the fact that something relevant has changed and that cities have lost their historical hegemonic role in favor of more dynamic new locations, we are faced with a “new cycle,” which arises out of the end of a previous stage.

1.2. Delimitation of the Urban Space from Growth to Sprawl

1.2.1. Development of the Urban Growth Concept to Several Terms and Forms

Urbanization is a universal phenomenon, but unequally distributed from its creation, and under the effect of the increase of the human population, the development of the residential economy, the changes in mentalities and the technical development, cities keep on getting bigger, the scale of the urbanization movement has manifested itself in all urban centres and in their peripheries, which are spreading at an unbridled pace, for example, in 1800, only 3% of the world's population lived in cities, compared to 15% in 1900, 30% in 1950 and 46% in 2000.

At this rate, 65% of the world's population is projected to be urban by 2025, and according to the World Bank data, the world's population is expected to nearly double from 2007 to 2050, from 3.1 billion to 6.4 billion. This evolution, which began at the beginning of the last century, has accelerated in a generalized way since the Second World War, this phenomenon of rapid urbanization is observed on all continents, concerns both developed and developing countries, the rate of urbanization in developed countries is about 75% higher than that of developing countries, which is about 43%.

The rural/urban divide is becoming more and more blurred and we are faced with another much more complex reality, peri-urban spaces, these mixed spaces offer the feeling of being both in the city and in the countryside or pose an identity problem, we no longer know if we are in the city or in the countryside: *“Urban sprawl, combined with the re-composition of cities, is now omnipresent, reshaping the geography of hybrid, neither urban nor rural territories”* (Mangin, 2004).

These changes are accompanied by an evolution of terms and classifications that are multiplying, to the point that they risk blurring the reading of urban space: suburbanization, rurbanization, exurbanization, peri-urbanization, peri-urban, peri-urbanization, peri-urban,

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urban area, peri-urban crown, multi-polarized municipality, predominantly urban area, metropolis, metapolis, country-city, global city, network-city, archipelago-city, diffuse-city, exploded-city, compact-city, etc. (Rouxel, 2002).

Census organizations now use two main approaches to define the city, the first delimits the urban agglomeration formed by the continuity of the built-up and population density, the second defines the urban area, which is much wider than the simple agglomeration, since it also takes into account the peri-urban crowns which send a certain share of assets to this functional pole every day. (Allain, 2004)

Making urban populations from one country to another at different times does not necessarily mean adopting identical criteria: In Europe today, the minimum functions associated with a city are considered to characterize aggregates of more than 10,000 inhabitants, whereas in South Africa, which is more recently urbanized and has a smaller surface area, it is more reasonable to lower this minimum threshold to 5000 inhabitants. (Allain, 2004)

In Algeria, the demographic and spatial dimensions for scaling agglomerations (or what considered to be small or medium cities) are explained in the following figure:

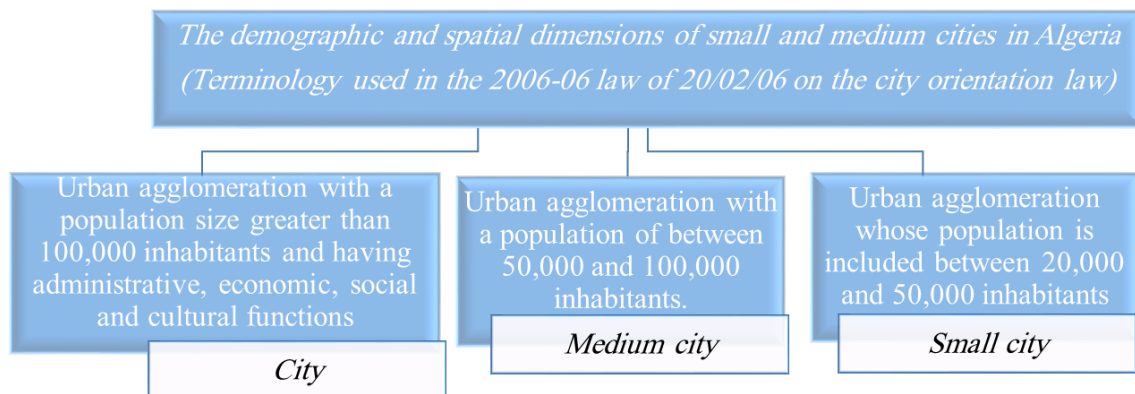


Figure 7: demographic and spatial dimensions of agglomerations in the Algerian planning documents
Source: RGPH (2008) with author's elaboration (2019)

This characteristic makes it necessary to adopt the delimitation of urban areas in this country since the middle of the twentieth century (the definition of the Standard Metropolitan Area, which adopts the principle of urban areas, dates from 1949), the

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evolution of the urban and peri-urban vocabulary perfectly reflects the particularity of such spaces, the changes and changes they undergo continuously, as well as the complexity of the urban phenomenon.

This complexity is due to the specific characteristics of the city: a space built by people and societies (Paulet, 2005), diverse activities and functions, and a strong diversity of objects that make up it, the city is characterized by a strong spatio-temporal heterogeneity.

1.2.2. Framing Urban Sprawl Phenomenon and Delineating the City's Contours: Typology, Causality and Measurements

As Bessy-Pietri (2000) confirms, “over the past 30 years, cities have developed along the lines of urban sprawl.”, the city as a concept that is difficult to define, because it is both a concrete material reality and a set of social and economic functions where material and immaterial exchanges play a driving role (Aydalot, 1976).

Thus, cities are objects too rich and too diverse for a single definition, a single design, to account for, depending on whether the focus is on the built environment, architecture, housing, urban activities and functions, political status, or the lifestyles of residents, definitions change and measures change” (Lajoie, 2007).

Any definition of the city, which necessarily involves a representation and a measure of the object, therefore depends on the representation chosen, which is often correlated with its disciplinary origin, According to Mangin (2004), three parameters seem to structure the pattern of development observed in the majority of modern cities: road infrastructure, mass distribution and activities, residential sprawl of low density habitat.

The disciplines working on the urban object are numerous, their approaches and methods, their representations and models, the relationships they maintain with this space are different and complementary, therefore, the definitions of the city, very numerous and diverse, vary according to the disciplines.

According to Lajoie (2007): *“the geographer first approached the city by its materiality and its territoriality when the sociologist first turned to its social functions while the economist approached its functional dimension from the concept of agglomeration economy”.*

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Faced with such a situation of disciplinary partitioning, Beaujeu-Garnier (1997) denounces: *“the disciplinary furrow and the compartmentalized conceptual world in which researchers concerned with urban research who have views and even too subjective language have too often taken pleasure.”*

In addition to the complexity of the diversity of views on the city, there is the difficulty of delineating its contours, which have become increasingly blurred in space and time, the city has long been defined as opposed to the countryside, often referring to a brutal city/countryside boundary, Today, this dichotomy is no longer relevant: the walls that separated two worlds with distinct laws have disappeared everywhere.

“The rise in living standards and the development of transport have freed urban population from the need to live in a well-defined, continuity-built perimeter, activities and residences are being diluted in previously rural areas, statistically, these new forms of urbanization are increasingly difficult to grasp” as stated by Le Gleau et al (1996), the urban/rural/city divide is becoming more and more blurred and we are faced with another much more complex reality: **peri-urban spaces**.

These mixed spaces offer the feeling of being both in the city and in the countryside and pose an identity problem because we no longer know if we are in the city or in the countryside, according to the expression of Lajoie “the definition of the city is constantly recomposed in the rhythm of the ever-changing territorialities that constitute it” (Lajoie, 2007) and Elisée Reclus, **“time ceaselessly modifies space”** (Reclus, 1905).

This evolution is accompanied by an evolution of the terms and classifications used to name the new urbanized territories (peri-urban): suburbanization, rurbanization, ex-urbanization, this evolution of the urban and peri-urban vocabulary perfectly reflects the changes and changes that these spaces undergo. (Rouxel, 2002), perhaps the most known and observed spaces of those previously mentioned is urban sprawl.

Urban sprawl is a worldwide phenomenon, present on all continents, is observed in most cities, mainly around large and medium-sized agglomerations, explaining the causes of urban growth usually is made based on a historical, chronological study of a certain area through time, but several studies have proposed general causes that could lead to future

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urban growth (or sprawl) based on multiple factors, Bierens and Kontuly (2008) summarized the causes of Urban Sprawl into five categories:

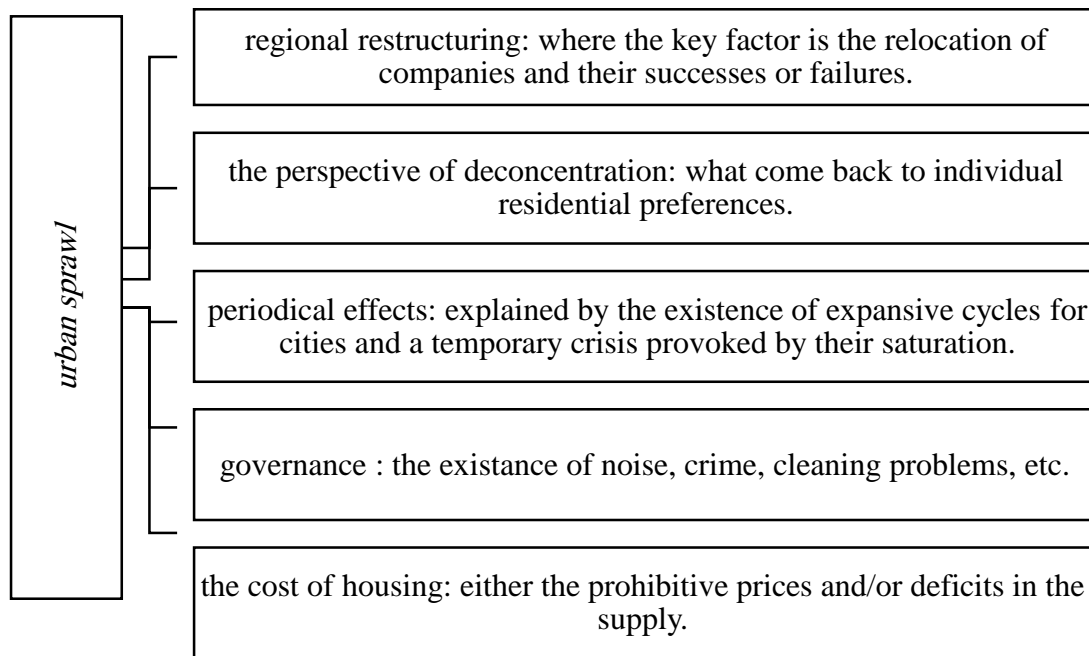


Figure 8: the major causes of urban sprawl

Source: Bierens, Kontuly, (2008).

Urbanization is a phenomenon of widespread urban sprawl, despite their diversity, which reflects the diversity of spaces, their identity and their specificity, these forms converge towards a dominant poly-radiocentric model (Mangin, 2004), or rather a succession of modes of urban composition including “each leaves a part of itself in the accumulation that makes the city” (Ferras, 1990).

The scale of the phenomenon and its modalities may vary from one city to another depending on geographical and social factors, making it difficult to define. Despite these specificities, urban sprawl has some aspects that seem universal.

In all cases, the process of urban sprawl, the factors of which are known, has many consequences, particularly on the environment, the study of urban sprawl is therefore an important issue for understanding the effects of urbanization on future planning strategies.

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Evaluating and anticipating these impacts requires careful monitoring and analysis based on methods and data adapted to the nature of the phenomenon and the particularity of each case study. Its measurement, its follow-up over time and its modelling are of great interest to both the scientific community but also to anyone interested in urban management.

Urban sprawl has been, and continues to be, the subject of numerous studies and publications that highlight the difficulty of defining and measuring it.

“What is the city in general?” This question asked by the geographer Beaujeu-Garnier (1997) reveals that the definition of the city remains an ambiguous concept, remains a challenge that the geographer, economist, sociologist and others are constantly confronted with. *“Defining the city has always been an embarrassing concern for those dedicated to urban analysis”* (Béguin, 1996).

Defining the city, delimiting its contours, measuring this **“expanding urban universe”** and tracking its spatial evolution over time is one of the formidable problems that any researcher working on this complex space issue, the big problem usually encountered in the delineation of urban space is the lack of a single definition of what is **“urban”**, definitions of urban entities often differ from country to country (United Nations, 2004) for historical, geographical or legal reasons.

Urban sprawl have multiple definitions with common characteristics, these definitions are often based on different approaches such as administrative boundaries or population densities, in order to meet its own needs, the city is growing, for lack of land availability within its limits, it is spreading out, as a result, the city’s border is continually pushed further (Nicot, 1996).

Over the past 30 years, cities have developed along the lines of urban sprawl (Bessy-Pietri, 2000), so how can urban sprawl be defined? The literature addresses the phenomenon of urban sprawl through a multitude of definitions and terms that describe the same process.

However, there is no universal and comprehensive definition of urban sprawl (Wilson et al., 2003), defining urban sprawl is all the more difficult because the vocabulary referring to peri-urban space and its dynamics also extends, at the risk of blurring traditional readings of urban space.

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“Urban sprawl, combined with the recomposition of cities, is now pervasive, reshaping the geography of hybrid, neither urban nor rural territories” (Mangin, 2004).

As Le Gléau, Pumain and Saint-Julien (1996) point out, this difficulty in measuring urbanization does not arise solely at the level of a country but makes any attempt at international comparison even more delicate.

Moreover, the terms used to designate these new spaces are multiples: “... suburban, suburban or rurban space, suburbia, exurbia, diffuse city, scattered city, emerging city, exopolis, edge-cities, boomburbs, new burbs, super-burbs, and many other neologisms have appeared” (Allain, 2004). This multiplicity underlines the difficulty in understanding the phenomenon of urban sprawl.

However, despite the complexity of the phenomenon and the multiplicity of terms used to designate the spaces it transforms, the analysis of some of its definitions makes it possible to identify the main characteristics that seem universal.

Not all forms of urban growth are synonymous with urban sprawl (Wilson et al., 2003), so it's a particular form of urban growth. Peiser (2001) refers to urban sprawl as “urban sprawl” as **“greedy and inefficient use of space and monotonous, uninterrupted and discontinuous leapfrog development”**.

Squires (2002) defines urban sprawl as *“a model of urban and metropolitan growth that reflects low density, automobile dependency and new development of fringed areas, often around the city”*.

Urban sprawl is therefore characterized by a discontinuous development and low density use of space on the outskirts of cities, despite the question of **whether “density can stop urban sprawl?”** There is still debate (Wiel, 2006).

Galster et al., (2001) distinguished five types of urban sprawl that we summarized in the following table:

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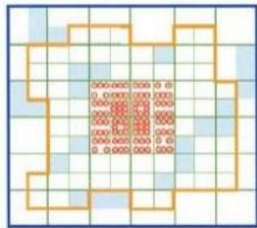
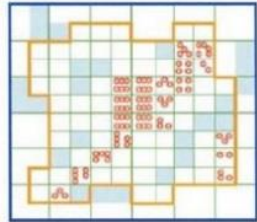
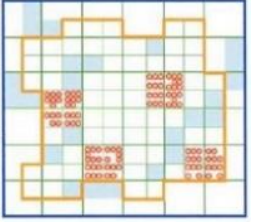
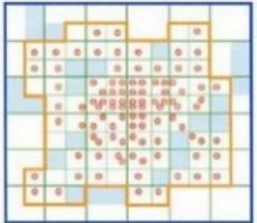
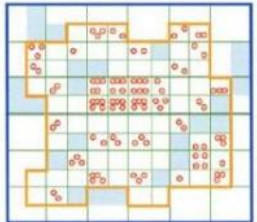
	High Density	Low Density	Graphical presentation
Compact Contiguous	Circular or radial using mass transit	Possible but rare	
Linear Strip Corridor	Corridor development around mass transit	Ribbon development along radial routes	
Polynucleated Nodal	Urban nodes divided by green belts	Metro regions with new towns	
Scattered Discontinuous	Possible but rare	Metro regions with edge cities	
Leapfrogging Development	Possible but rare	vacant or non-urban land and uncoordinated investments	

Table 1: the five types of Urban Sprawl

Source: Galster et al., (2001)

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Other definitions of urban sprawl clarify these initial definitions by describing the process of urban sprawl through high mobility with a dissolution of home-to-work distance, low density of residential buildings, job loss and rural-urban Conversion (Torrens, 2008).

Thus, motivated by a propensity of the inhabitants to settle preferably in a housing pavilion on the outskirts of the cities, the urban sprawl results in the conjugation of several elements (Enault, 2003):

- The densification of territories located further and further from the heart of the city
- The transfer of population from the centre to the periphery
- A higher rate of population growth as one moves away from the city
- The development of activities on the periphery
- The development of infrastructure and equipment, land-use conversions
- The degradation of natural environments.

Urban sprawl is therefore both a state, a material reality (of urbanized surfaces) and a process in this subject Enault (2003) provides an interesting description of the process of urban sprawl in three successive stages.

He considers the city as an emitter home capable of converting rural spaces into urban surfaces: *«the transformation takes place by simple contact between the agglomeration and the countryside but also by «heating». Thus, the urban home polarizes a large rural perimeter whose “growth potential” decreases as one moves away from the city centre, like a forest fire, the city consumes the nearest surfaces while sending burning wicks over long distances. The latter cause new secondary fires acting as the main focus, just like a traditional dissemination process, urban sprawl thus proceeds by contagion.»* (Enault, 2003)

1.2.2.1. Peri-urbanization: the Crossroad of Urban Sprawl and Attractiveness

Urban sprawl and peri-urbanization are two distinct phenomena, indicates Castel (2006), not to be confused. **If peri-urbanization refers to the concept of commuting mobility and reflects the level of attractiveness of the agglomeration, urban sprawl is “a physical notion, without a precise definition, which refers to the occupation of space by new constructions, on the periphery of agglomerations”** (Castel, 2006).

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In order to distinguish the two phenomena, Castel (2006) gives the following three examples:

- an active household leaving the city to live in the heart of a rural village produced, by its movements, of peri-urbanization but without creating urban sprawl
- conversely, a pensioner from the same village, by having a house built outside the village, produces urban sprawl without peri-urbanization
- a city resident who, by moving, goes to work in a neighbouring city does not create urban sprawl, neither peri-urbanization, but nevertheless generates displacements.

Citing these examples, it appears that: *“the assimilation between the peri-urbanization movement and urban sprawl is acceptable as long as the peri-urban area consists of workers working towards the centre and residing in new dwellings”* (Castel, 2006).

Therefore, urban sprawl is difficult to define, because this term covers both a state, a material reality (of urbanized surfaces) and a process (the mechanisms at work and their impacts), Moreover, the lack of hindsight in the face of the evolutionary character of new urbanized spaces does not facilitate their understanding. The scale chosen for the observation and design of the city also strongly conditions the different possible interpretations of urban sprawl (Certu, 2007)

Consequently, since it is almost impossible to deal with the whole phenomenon of urban sprawl, one or more of its aspects must be given priority, depending on the approach chosen, Certu (2007) identified different analytical approaches to address urban sprawl:

- The morphological approach, which deals with urban forms and space consumption.
- The “territory structuring” approach, which covers employment and service hubs, commuting. In this respect, there is a lack of awareness of the mobility of non-employees or the mobility of leisure time linked to leisure and consumer practices.
- The “specificity of living conditions” approach, which analyses the participation rate of municipalities, the distribution of social groups, the specific needs of newcomers, the places visited, meeting places, etc.

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- The “quality of the living environment of peri-urban populations” approach, which studies the well-being of populations, access to equipment and services.

In the absence of a single definition, the measurement and monitoring of urban sprawl relies on different data and tools depending on whether the change in land use or population is concerned, the forces driving urban sprawl are numerous and act at different weights and spatio-temporal scales (Galster et al. 2001).

They relate in particular to micro and macro-economics and planning policies implemented at different levels, in general, the development of the residential economy in favor of an enthusiasm for single-family homes, the development of activity areas associated with the performance of transport networks are the origin of the expansion of cities. (Ewing, 1997)

Residential sprawl rooted in the desire of households to settle away from city centres in search of new lifestyles reflects the process of urban sprawl, rural and peri-urban spaces, perceived as places of residence and recreation, attract more and more people for the quality of their living environment, in addition to that, the democratization of the individual car has changed the behaviour of households by reducing the distances travelled to the point that the spatial distance tilts in front of the temporal distance. (Ewing, 1997)

Subject of sometimes controversial analyses, the phenomenon of urban sprawl is perceived differently, while some see it as a response to the legitimate aspirations of households to own their individual homes and leave the city in favour of nature for better air quality and “natural” landscapes. (Ewing, 1997)

Others see it in a different light, agree that it is an unfavorable trend for the environment and social cohesion, and encourage it to be limited and framed by appropriate policies, these differences in the viewpoints of the same phenomenon sometimes lead to oppositions characterized as land use conflicts or environmental conflicts involving the organization of periurban and rural territories (Jeanneaux, 2006).

Urban sprawl changes the landscape, threatens peri-urban agriculture, is manifested by fragmentation of landscape structures and isolation of natural habitats, calls into question the green belt, intercommunal spaces and endangers ecological connections, through these

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changes, urban growth causes ecosystem disturbance, and poses a serious threat to biodiversity (Forys & Allen, 2005).

Human activities, whose impact on the composition and dynamics of natural systems can vary in intensity and modalities (Le Lay, 2002), must be taken into account as a major component of the behaviour of species and the functioning of their habitats.

It can be carried out at the scale of an agglomeration, or at smaller scales, that of a network of cities, of a department for example, taking into account the two scales of analysis makes it possible to place the agglomeration in a wider spatial context in order to determine the heavy trends affecting the development of the agglomeration itself. (Forys & Allen, 2005)

1.2.2.2. Stimulating Urban Growth

The monitoring of urbanized areas imposes methodological constraints: the heterogeneous nature of urbanized and urbanizing areas, as well as the speed of the changes that occur there, render inoperative traditional approaches to monitoring and mapping, particularly for large areas, for example at the level of a department. In this context, the use of satellite remote sensing is of interest (Batty & Howes, 2001).

Very high spatial resolution remote sensing images, which currently range in pixel size from 40cmX40cm to 5mX5m, are commonly used to accurately study urban and peri-urban environments (Puissant, 2003), from land-use modelling to simulation of future land-use modelling involves understanding the processes that govern them and their spatial-temporal variations.

The prediction of changes by modelling involves first reconstructing and analyzing the evolution of past changes, then studying the factors behind these changes at different scales of time and space, this modelling of urban sprawl poses a number of methodological problems, including the choice of variables to describe past changes, and the identification and prioritization of factors responsible for observed changes and future changes. (Puissant, 2003)

Understanding the dynamics of complex urban systems and assessing the impact of urban growth on the environment requires modelling and simulation procedures that require

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innovative methodology and robust techniques (Yang & Lo, 2002), Moreover, the interdisciplinary approach is essential in understanding the urban phenomenon and in particular in urban modelling, population spread has been measured by differences in the average annual rates of change of the population of the centre city and the crown when the rates increase steadily from the centre to the periphery.

The analysis is carried out by comparing the average annual rates of population change, without taking into account absolute changes. A high rate of change may well correspond to a small absolute change, especially when one is in less dense areas, such as crowns for example, three intensities of regular spreading are observed:

- Marked spread
- Moderate spread
- Weak spread

The (always positive) averaging indicator has identified three sub-groups among urban areas that follow the regular averaging model, that is, areas for which rates increase steadily from the centre to the periphery: marked spread, moderate spread, low spread.

To make this distinction, at each period, we looked at how the difference in the annual rate of change of the crown and the centre city of each of the areas compared to the average difference of the period:

- if this difference is greater than the average difference, the spread is called “marked”
- if this difference is between the average value and this average value minus a half standard deviation, the spread is called “moderate”
- if this deviation is less than the average value minus half the standard deviation, the spread is called “low”

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In total, we obtain five patterns: the three types of regular spread (marked, moderate, low) and the two preceding cases illustrating the diversity and complexity of the way urban areas are developed. (Bessy-Pietri, 2000)

1.3. Urban Growth and Metropolization

1.3.1. General Overview on the Relationship of Metropolization and Urban Growth

Metropolization is a global phenomenon that appears to be a process of **selective urban growth**, linked to the globalization of the economy and to changes in productive systems, it was born of the effect of the transformations of the productive organization on the development of the cities, from the generalization of the new technologies of information and communication and the internationalization of the modes of financing, the strategies of firms and trade. (Lacour & Puissant, 1999)

This dynamic only concerns large urban centres, with major or rare economic and cultural functions and acquiring the status of an international city, which attract the most dynamic activities, services and concentrates strategic jobs where Metropolization is observed in cities that hold functions major economic areas, have a large population, have large urban areas and spaces where major political functions are carried out. (Lacour & Puissant, 1999)

Metropolises are characterized by a very large population mass of 500,000 to 1 million people, an area of regional influence, a range of industrial functions and services for a regional population, metropolises perform particular tertiary functions (general administration, management, management and head offices large companies, financial services, banking and insurance, rare and highly specialized, higher public services and political control activities, and concentrate cultural activities (museums, qualification activities: academics, large schools, research centres, etc.), the tertiary sector remains one of the dominant features of metropolisation, concentrating trade, private services and public services. (Lacour & Puissant, 1999)

Metropolization is not simply a phenomenon of population growth in large conurbations, it is also a process that can generate new urban growth forms but it can have the discriminatory effect and changes the regional balances by increasing the polarization of

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the largest cities to the detriment of the rest of the urban framework. (Lacour & Puissant, 1999)

Therefore, and specially for regional metropolises where the influence is developing and still relatively small in comparison with international metropolises, investigating the territorial attractiveness could present an proactive step in the region's development.

1.3.2. Urban Growth in the North East Region of Algeria

Several official planning documents has discussed urban growth dynamics in the region, the focus in this part is summarizing the dynamics of growth for the agglomerations that previously scored high urban growth rates as it plays a vital role in planning the regional space:

- Souk-Ahras: the largest increases in population density will have occurred in the commune of the capital of wilaya and that of Sedrata.
- A similar configuration to Souk Ahras ca be found in the wilaya of Guelma with Hammam-Debagh and Heliopolis.
- In the wilaya of Mila, two distinguish urban growth dynamics, one in the north, in the agricultural zone and the other in the south, both influenced by the Constantine-Setif (in the south) and Constantine-Mila-Jijel and Mila-Sétif roads.
- In the Jijel wilaya, the concentration of population occurs in the capital of wilaya and in the neighbouring municipalities of Emir-Abdelkader, Taher and Kaous, but also, to a lesser extent, on the Constatine-Mila-Jijel axis by the national road through El-Milia.
- As for Skikda, a noticeable increase of population occurs in Collo and in the agricultural part of the wilaya, along the Constantine-Skikda axis.

1.3.3. The Metropolization Process in the North East Region of Algeria

The city is the place of human settlement par excellence, it is the traditional place of commerce, trade and flows, it stimulates progress and creativity, the city is defined as much by its geography as by its history, economy and culture and its regional role.

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Cities and regions in planning strategies have a variety of interdependency relationships, such as a united city-region, polycentric or monocentric regions, the bulk of those relationships are inharmonious, nevertheless cities may be the key to a region's overall prosperity. (Servillo, Atkinson & Russo, 2011), in order to declare a city's regional role we need to study its past and present dynamics and in the case of metropolises we need to exam their process of metropolization, the North East region of Algeria has a polycentric cities system, it is a unique and dynamic system with multiple planning possibilities.

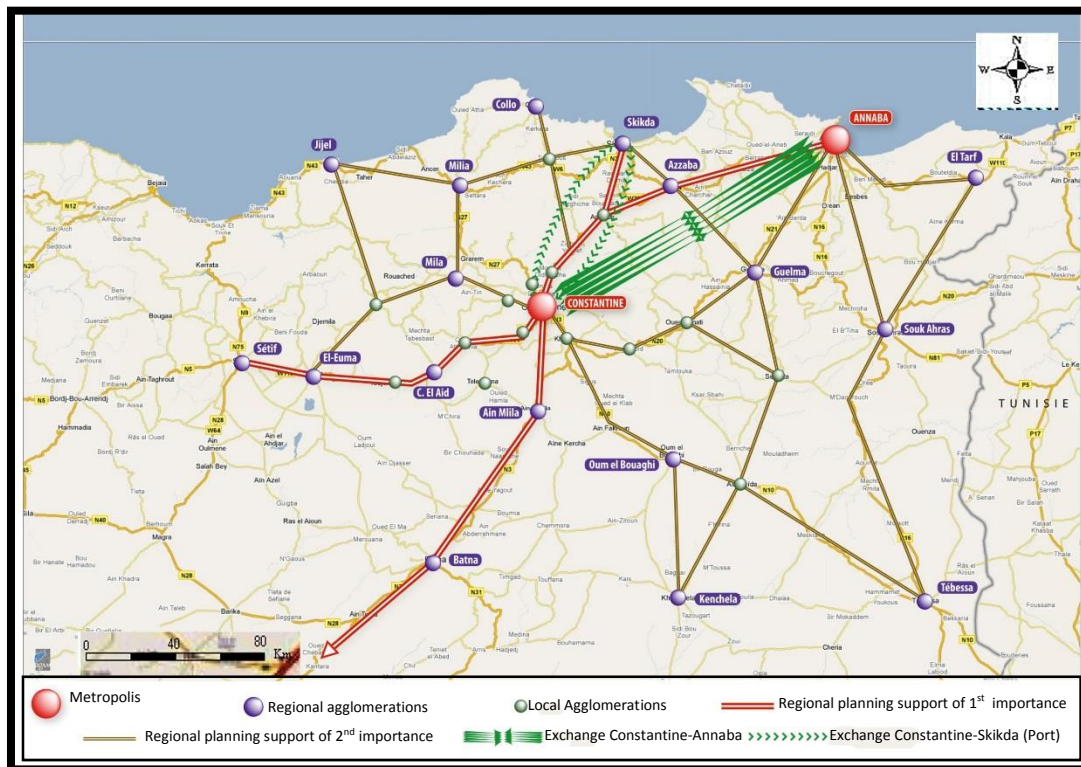


Figure 9: the bipolarity of the North East region of Algeria

Source: author's elaboration (2020) of the SRAT (2005)

We begin with The city of Annaba has suffered and continues to suffer the consequences of rapid urbanization, like many other Algerian cities population growth combined with the establishment of large industrial units has resulted in uncontrolled spatial expansion, the metropolis is not limited to the centre of the city but encompasses all the surrounding urban areas.

here is an urban diffusion to the detriment of agricultural areas, in the post independence period, the rural exodus caused the city to burst resulting the appearance of slums (Ex: Bouhamra, Sidi Salem), also the industrial fabric concurred the land with huge complexes (iron and steel, phosphate, etc.).

The urban growth in the wilaya of Annaba can be divided into two distinguish area:

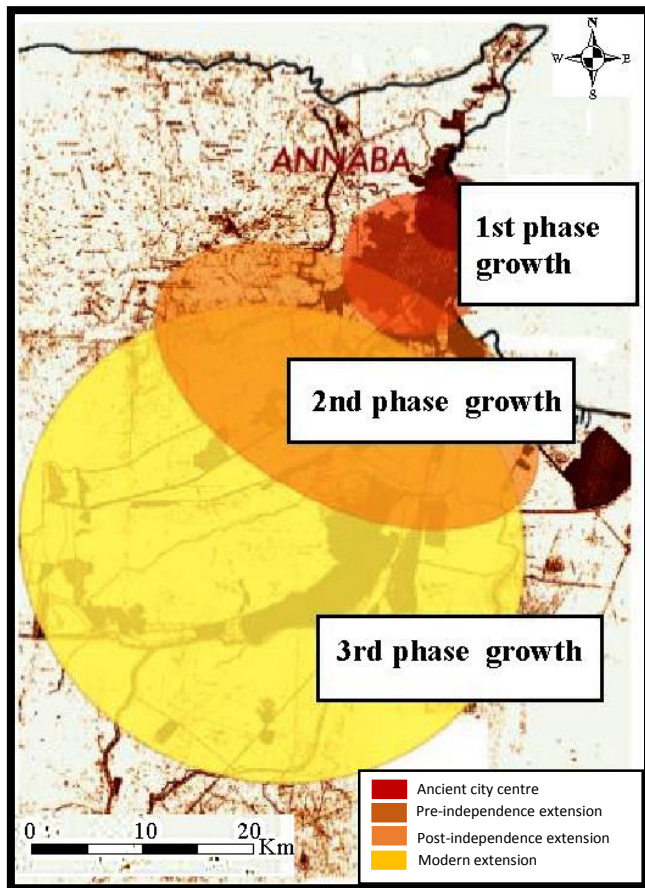


Figure 10: The chronological areas of urban growth in the wilaya of Annaba
Source: SDAT Annaba 2012 with author's elaboration (2020)



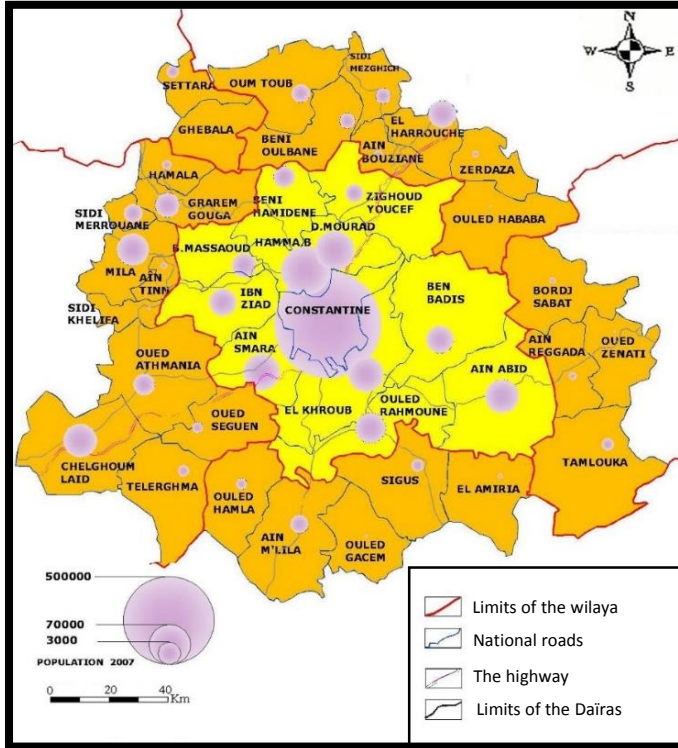
Figure 11: The lines of urban growth in Annaba
Source: PAW Annaba 2010

- the communal growth: near the historical centre and composed mainly of residential zones
- the intercommunal growth: as an intercommunal sprawl composed mainly of industrial fabric and new agglomerations resulted from the inter-wilaya rural exodus.

the lines of urban growth of Annaba are headed to the south east of the wilaya, that goes back mainly to the natural and topographic of the wilaya's north area and also to the rural exodus coming from the south (El Taref, Guelma.. etc), the deferral areas represented the main land support for Annaba, for example: EL BOUNI which served as a receptacle by hosting new urban habitat areas, as well as the secondary centers of SIDI AMAR and EL HADJAR, the current situation of this metropolitan area reflects a passive urban policy despite the existence of planning tools (PDAU and PAW).

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It presents a marked inconsistency in all fields, housing, transport, equipment, peripheral areas of the agglomeration as well as satellite urban centres continue to depend directly on the “city centre”, those constraints along with the physical extension obstacles make the promotion of a continuous and powerful metropolization toward the Mediterranean a challenging task.



For the Wilaya of Constantine and as the following map demonstrate, the metropolitan area of Constantine, reaching outside the wilaya's boundaries where many elements of other wilayas' networks are included under the indirect influence of the metropolis such as: Aïn mlila (wilaya of Oum El Bouaghi), Telghma (wilaya of Mila), El Harouch wilaya of Skikda) ...etc., this map dated to 2010 indicate a strong role of Constantine's territorial attractiveness in shaping the regional space.

Figure 12: The metropolitan area of Constantine with its agglomerations
Source: SDAAM 2008

The urban growth of Constantine was following a triangle form to the south of the metropolitan area despite the fact that Hamma-Bouziane has experienced the greatest increase in population density, the population growth in this wilaya was distributed in the

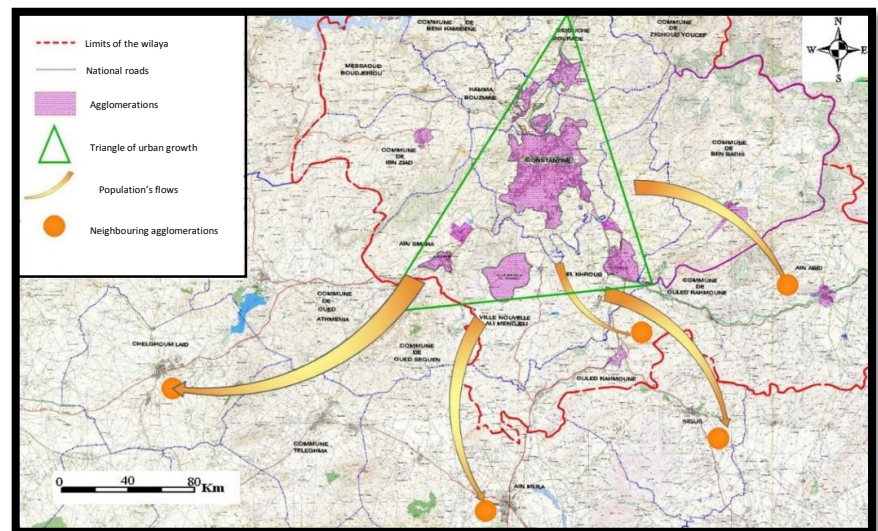


Figure 13: urban growth triangle
Source: SDAAM 2008

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five satellites of Constantine: El-Khroub, Aïn-Smara, Hamma-Bouziane and Didouche Mourad.

The dynamic population flow for the metropolis of Constantine mainly explained by the re-housing movement launched by the state in the past two decades and the attractiveness of the centre of the metropolis.

The first demonstration (fig 15) shows a spatial rupture between the metropolis's centre and surrounding poles and extensions declaring future difficulties in developing a continuous metropolization (from the centre) and the necessity for an efficient transportation system linking the centre to the growing satellites, we also notice also the existence of notable spatial connections between the southern poles in the wilaya (El Khroub, Ain Smara, Al Mendjeli)

The second demonstration (fig 16) the prospective of land consummation by urban space in the wilaya of Constantine, Rebbah (2014) declares that the PDAU of Constantine integrated land for the needs of urbanization in a process of theoretical and mainly spatial reflection and encounters a real capacity of public and private actors to divert future orientations and programming.

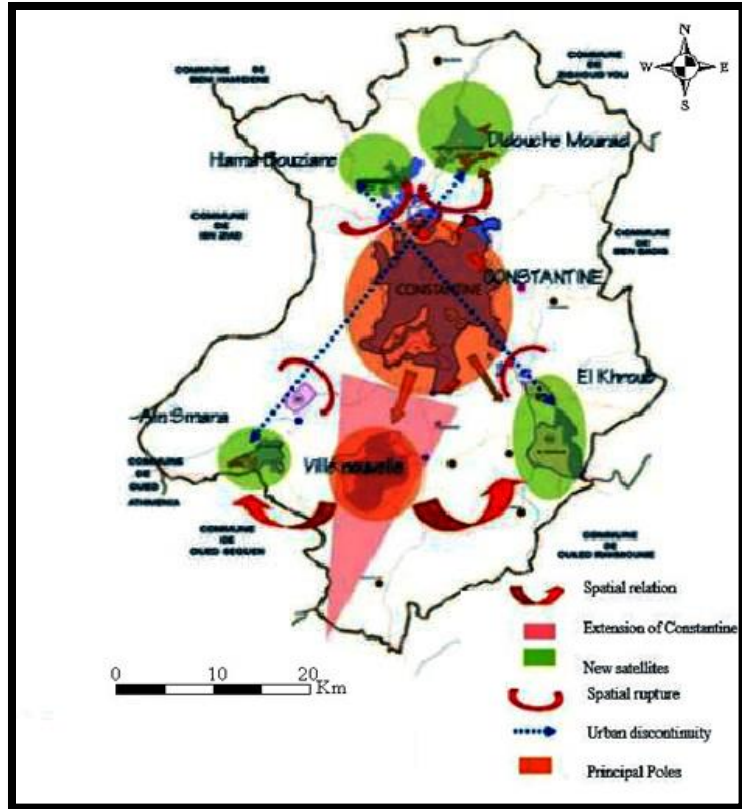


Figure 14: Diagnosis of urban reality in Constantine and its satellites

Source: SCU Constantine 2006 with author's elaboration (2020)

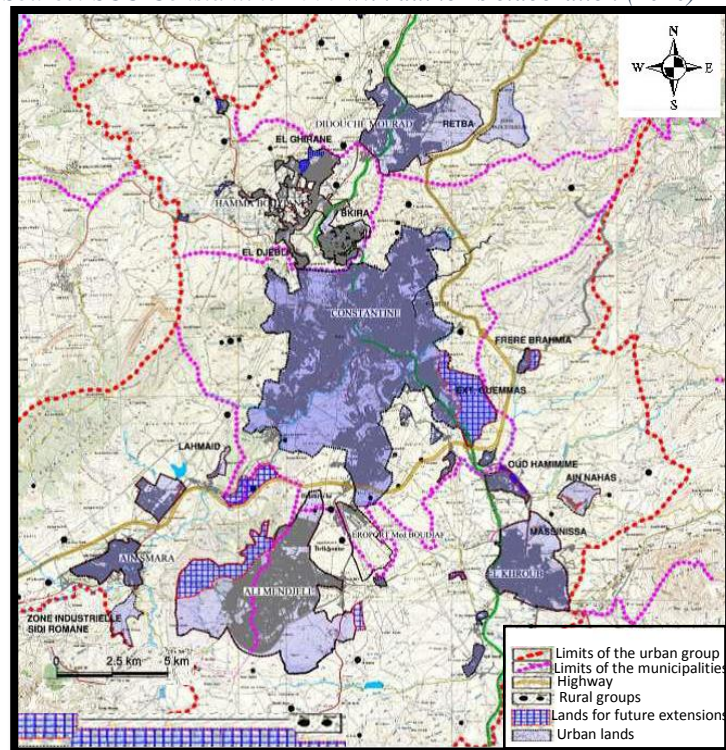


Figure 15: Evolution of the urban land of Constantine (1837-2030)

Source: Rebbah, 2014

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, the territory is in a constant change due to the but the globalization of the economy but the bureaucratic slowness delays and nullifies planning efforts.

In the following table, we summarized some of the basic metropolization characteristics for the two metropolises as mentioned in the SRAT:



	Constantine	Annaba
Geographical shape and limits ²	 <p style="text-align: center;">Hinterland</p>	 <p style="text-align: center;">Coastal</p>
Surface	2187 km ²	1 439 km ²
Population ³	851456	519072
Number of municipalities ⁴	12	12
Number of big cities	1	1
Number of medium cities	1	1
Number of small cities	4	4
Obstacle for extension	saturated site (growth shifted mainly to Ain El Bey, and in a second degree to El Khroub, Ain Smara and Didouche Mourad)	Physical obstacles (the massif of Edough Chetaïbi) Important industrial fabric

Table 2: Preliminary comparison between the two metropolitan cities

Source : Author's Elaboration (2020) of the SRAT (2008)

² Source: SRAT, 2005, ANAT.

⁸ For the political and sanitary reasons the population census was not published in 2018 so actual population was calculated by growth rates mentioned in previous population census, RGPH 2008.

⁹ In Algeria, the territorial division is presents in three consecutive levels: wilaya, daïra, municipals.

1.4. Planning and Visualization of Urban Growth models

Regardless the complexity of planning, it is worthwhile to examine the theoretical development of/in it in order to have a better understanding of planning is ontology and epistemology.

To this purpose, Friedmann (2003) presents a valuable framework for understanding the nature of planning by distinguishing between **theories in planning and theories of planning**.

To begin, planning theories are found in a variety of specialization areas of planning activities such as land use, transportation, and urban design, among others, these ideas are not about planning as a whole, but rather about a variety of planning subfields.

Theories of planning, on the other hand, are concerned with the underlying character of planning activities, and they regard planning as a decision-making process aimed at achieving particular types of human rationality, such as instrumental and strategic rationality.

Planning, being a future-oriented activity relies on scientific knowledge of urban systems, and urban models have long aided in the development of planning policies, however, the design of urban models has evolved over time, reflecting changing perspectives on urban systems as well as policy and practice trends in planning.

In the past, the urban system was usually examined from the top down and in aggregate, and predictive and operational urban models were built to support planning policy and practice in this regard. (Donghan, 2012)

Visualization is a ubiquitous method of human communication, whether it is used for one-way dissemination or two-way communication.

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Visualization has always been an important aspect of planning, even before the computer age. Blueprints, diagrams, charts, graphs, and maps, one of the first examples of visualization in planning was the garden city principle by Ebenezer Howard in 1898.

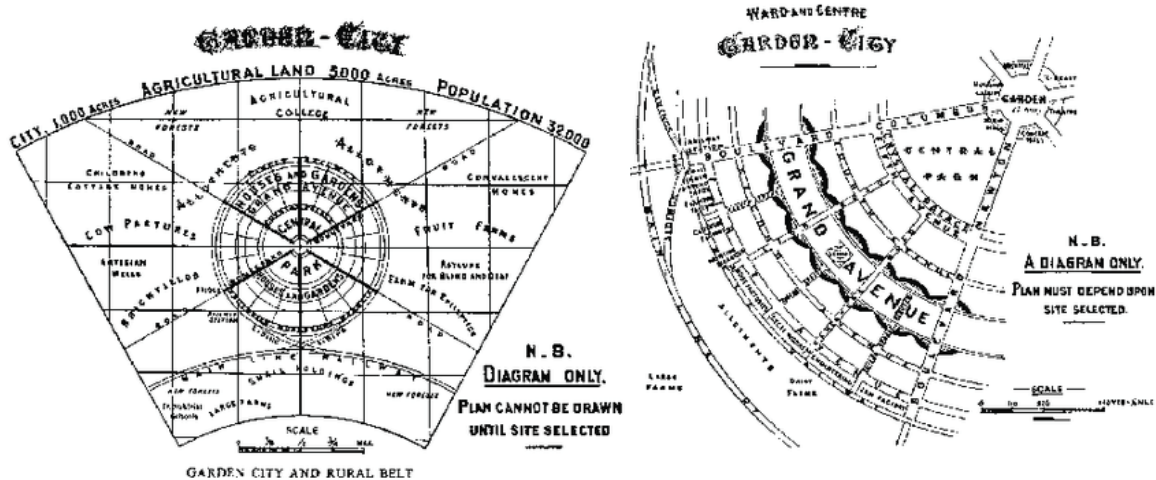


Figure 16: The principle of the Garden City of Ebenezer Howard 1898.

Source: Choay (1969)

The purpose of these visualizations is to drive planning activities by symbolizing concepts, values, and goals, as well as to improve planning by simplifying intended information.

Thus, visualization in planning is more than information transmission, and it can barely be substituted by verbal and written communications in some circumstances, there are various types of visualization in general. (Donghan, 2012)

There is three visualization techniques worth considering in a planning support environment (Donghan, 2012):

- Scientific visualization shows data obtained from scientific experiments and simulations to facilitate research and understanding of the data.
- Knowledge visualization attempts to improve the transmission of knowledge among individuals and to pursue the development of new knowledge.
- Information visualization strives to analyze huge amounts of abstract data to identify hidden insights or simply to make the stored data more accessible.

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Knowledge visualization strives to facilitate the transfer of insights, experiences, attitudes, values, expectations, views, opinions, and predictions, whereas information and scientific visualization focuses on the delivery of facts (Eppler & Burkard, 2006).

Scientific models are simplified representations of real-world target systems, it is critical to remember that the goal of a model is not to mimic reality exactly as it is, but rather to capture what has deemed required or essential to represent the system.

However, no model can perfectly capture all aspects of reality, model building is not intended to be a complete copy of reality, and only reality itself can accurately depict reality as it is. (Eppler & Burkard, 2006).

Despite the fact that no model can provide a complete picture of a system, models can provide a scientific foundation for understanding reality because they are often based on theoretical knowledge and analytical procedures that have been verified. (Donghan, 2012)

Urban models include many of the same qualities as scientific models, but they are focused specifically on urban systems. However, the main focus of urban models has been on the spatial changes generated by certain socio-economic activities or other perceived elements, rather than the entire metropolitan system, which is too large or vague to describe.

The word "urban model" does not necessarily imply a broad abstraction of the entire metropolitan system in any form, but rather refers to models of land use and land cover change in urban areas. (Donghan, 2012)

Urban development, or metropolitan sprawl, can be considered one of the most important policy issues in modern urban regions if it is uncoordinated and widespread, while there is no single policy solution or treatment, comprehending the urban growth system is the first step toward long-term urban growth sustainability.

Urban growth models that are spatially explicit and dynamic provide valuable simulations that encompass essential knowledge in planning and policymaking, such as how and where urban expansion might occur and what the driving forces are. (Donghan, 2012)

In an urban modeling environment, the usage of scenarios aids in the understanding of the causes and effects of future land use changes, as a result, it raises awareness of long-term

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effects and facilitates strategic decision-making, stakeholders and policymakers can learn from possible outcome states in future without doing experiments in the real world. (Donghan, 2012)

Urban planning is based on scientific concepts, but it is also based on a social value system. Although traditional urban models portray planning policymaking as a well-defined and linear process, modern urban policymaking takes place in a far more volatile and non-linear environment.

Because urban policymaking involves a complex interaction of many interests among multiple stakeholders and participants, a gap between model and policy is unavoidable.

The history of urban modelling traces back to the late 1950's and early 1960's, in those times the land use transportation models were widely introduced in the planning domain to address the interrelationship between transportation and land use change. (Donghan, 2012)

Urban modeling is the process of defining, building, and applying models for specific purposes in physical planning, it has a great influence on the social and human geographies built around location theory and spatial analysis.

The modeling of urbanism has begun with von Thunen's study of the spatial distribution of production in 1826, in the model, he compares the relationships between markets, productions and distance, he also shows how market's processing could determine how land in different locations would be used.

It essentially argued that industries are located according to the balance between their spatial patterns of demand and supply, while its generalization to populations sought to show how cities were structured hierarchically from the largest to the smallest according to demand in their hinterlands for the services they provided.

After that, Weber (1909) formulated a least cost theory of industrial location, which tries to explain and predict the located pattern of the industry at a macro-scale, he assumes that an industry will choose its location based on minimizing transportation cost of raw materials and markets, minimizing labor costs, and maximizing agglomeration economies.

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The central place theory, which was created by the German geographer Walter Christaller (1933), attempted to explain the reasons behind the distribution patterns, size, and number of cities and towns around the world.

He tested the model on Southern Germany and came to the conclusion that people gather together in cities to share goods and ideas and that they exist for purely economic reason.

This has been linked to industrial location theory in a coherent economic framework by Losch (1943, 1954), he established inter-urban theory based on the ideas that systems of cities were also organized spatially as overlapping hierarchical fields while it was picked up by those concerned with the shape or morphology of cities.

Modeling began in the early 1950s closely followed by its extension to embrace land use, it grew after the appearance of the electronic digital computer and computers entered commerce in the form of mainframes, engineers.

Based on this and the appearance of digital conceptions, policy makers began to think about how to use all of them in their problem solving and decision-making.

There have been many classifications of urban models from different perspectives.

Batty (2009) has suggested group them into three main classes:

- Land use transportation model
- Urban dynamics model
- Cellular automata
- Agent-based model and micro-simulation

One of approaches being developed is top-down usually used in land-use and transport models, this approach consists in a multi-scale analysis of the city area from the smallest scale to the biggest and allows to take under account local geographic specificities.

Multi-level, multi-scale model is a challenging necessity in modeling growth of city. However, this issue seems to be highly complicated.

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In recent years, modeling of urban growth has become important to city planners, economists, ecologists and resource managers, there are two main reasons of urban growth modeling:

- The need to improve understanding of the cause-effect relationships in urban dynamic
- Contribute to decision of urban growth management.

From the above statements, modeling of urbanism appears to be an attracting problem and there are many different approaches.

Since then, various urban modelling methods as well as computer technologies, such as econometric analysis and Geographic Information Systems (GIS) technology, have been introduced in an effort to improve models of urban systems, particularly around spatial interaction theory, which has an analogy with Newton's gravity law.

As a result, a variety of urban models are now accessible for use in practical planning. (Donghan, 2012), in the 1950s, the Chicago Area Transportation Study (CATS) laid the groundwork for urban modeling and the scientific planning movement. In the following decade, however, more concrete kinds of urban model appeared.

A model, in simple sense, is a representation of a physical system to simulate reality, it allows scientists to have ability to predict the future evolution of the systems, to study system dynamics and to give hints for data collection and design of experiments, models are built by consideration of the pertinent physical principles, operated by logic, modified by experimental judgment and plain intuition. (Batty, 2009)

According to Batty (2009): *"models act as a vehicle to enable experimentation with theory in a predictive sense, and to enhance understanding which may be prior to predictions of situations"*.

The Lowry model (Lowry, 1964) and its offshoots are widely considered to be the first generation of urban models, also the United States Environmental Protection Agency (EPA) has compiled a list of numerous land use change models in use, as well as modeling approaches to urban systems, and shows how the focus and direction of urban models have changed over time.

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Spatial interaction models are one of the oldest classes of models based on Newton's gravitational law, these models are based on the notion that the interactions or movements between two locations or regions depend on their size and the distance between them.

Like gravitational pull, interactions are proportional to the size and inversely proportional to distance. (Donghan, 2012)

Human movements between one location associated with one land use type and another location associated with a different land use type are considered interactions in this context. Land use types vary as a result of changes in such relationships, and vice versa. Transportation infrastructure is thought to enhance interaction between sites, resulting in changes in socioeconomic activities and/or land usage.

Conclusion

Visualization in planning is more than information transmission, and it can barely be substituted by verbal and written communications in some circumstances, there are various types of visualization in general, the most recent is modelling.

The control of urban growth became an ancient paradigm, nowadays, modelling and stimulating the pattern of growth is considered the key to a successful planning strategy, many studies have shown models of growth in an attempt to suggest development policies based on the suitable and desired growth.

Generally, previous policies of governments are the main influence of the pace between urbanization and industrialization in many developing countries, Governments in developing countries often try to control urbanization, by influencing both the pace of urban growth and the spatial distribution of cities.

Today, the developed regions are entering a phase of urban growth after reaching a fairly high level of urbanization, while less developed regions continue massive urbanization and experience growth the world's fastest urban population.

Governments in developing countries are challenged to find relevant urbanization policies that makes the suitable significant transition to growth.

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A simple but yet clear description of the modern urban growth or urban sprawl was introduced by Glaeser, & Kahn (2004), stated the following hypothesis into approaching the urban growth phenomenon:

- Jobs followed the people: in planning metropolitan areas, decentralized homes usually need decentralized jobs.
- The main cause of the actual sprawl is “the automobile”: whether it is Suburbia or edge cities, sprawl is the natural, result of the technological advancement in the dominance of the automobile.
- Sprawl’s negative quality of life impacts have been overstated, in the most cases, the growth of edge cities is associated with increases in most measures of quality of life.
- “The problem of sprawl lies not in the people who have moved to the suburbs but rather the people who have been left” (Glaeser, & Kahn, 2004): The exodus of jobs and people from the inner cities have created an abandoned underclass whose earnings cannot support a multi-car based lifestyle.

Modelling urban growth is not intended to be a complete copy of reality, only reality itself can accurately depict reality as it is, but it should be able to capture the reality and stimulate future situations or recommend it, however, no model can perfectly capture all aspects of reality, Despite the fact that no model can provide a complete picture of a system, models can provide a scientific foundation for understanding reality because they are often based on theoretical knowledge and analytical procedures that have been verified.

In Algeria urban growth has followed the model of developing countries with historical city’s centre leading up to the relatively similar metropolization in the four largest cities of the country: Algier, Oran, Constantine and Annaba, with only the first one as an international metropolis stating the other three as national and regional metropolises.

After comparing the general metropolization characteristics of the two metropolises in the North East region, we concluded the similar metropolization process: a historic city’s centre, a massive rural exodus in the 90’s, surrounding satellite cities with natural ruptures and major mobility to/from the centre, a promising tertiary sector with an important industrial fabric.

Chapter 02:

Questioning Attractiveness: Concepts and Definitions

Introduction

The desire to reach, search for, exploit, and develop territories is deeply rooted in the evolution of human civilization, and it can be considered a foundation for the development of current and future global infrastructure, of settlement networks, innovative and productive activities, and valuable contributions to cultures.

The attraction of known and undiscovered lands, new paths were opened, new and valuable resources were discovered, and perhaps most importantly, increasing interaction between people and cultures all across the world occurred.

Attractiveness is an interesting phenomenon can be observed all over the world, there are plenty of literature in which title contains the word attractiveness, but they describe it remarkably briefly or too tightly, or use it as a synonym for competitiveness, or do not define it, or equalizes attractiveness with interdisciplinary value (Popovici 2017, Gavrilova et al. 2016, Ezmale 2012).

In this chapter, we elaborate on the notion of territorial attractiveness, its different dimensions, facets and the crucial factors of its governance on a regional scale.

2.1.The Conceptualization of Territorial Attractiveness

The literature on attractiveness is now very abundant, one of the theoretical currents that has largely contributed to its publicity is the new economic geography, and there is a great deal of work on the determinants of attractiveness, the indicators that are supposed to measure it and the policies that need to be implemented to improve it.

The concept of attractiveness is classically distinguished from that of competitiveness, for some authors (Lavenir et al., 2000), attractiveness refers to short-term dynamics and price competitiveness, while for others a territory can only be attractive if it attracts sustainably (Friboulet, 2010).

Therefore, it must be noted that the concept of attractiveness is still not fully stabilized, faced with such a state of affairs and the profusion of literature on this question, the choice was made here to synthesize the different meanings of this notion: “Attractiveness”, beyond the different meanings, a multidimensional concept to be reworked Attractiveness

is a polymorphic concept, however, and quite consensually, we could define this notion as the ability of a territory to attract.

Attractiveness is a complex and multidimensional notion that refers to what is appealing and is now defined as "what exerts or is capable of exerting an attraction.", attractiveness may appear to be a catch-all concept, as its application in many national and international rankings and rankings of cities has been successful for a decade (Cusin & Damon, 2010).

Its relatively new application «refers to the attraction of inhabitants, vocations, and settlements» as cited by Poirot and Gérardin (2010): "Territorial attractiveness is defined as a territory's ability to be chosen by an actor as a location area (temporary or permanent) for all or part of its activities, this attractiveness is a perceived attractiveness that involves only natural persons, individuals, households, or teams, for example, management teams of a company or a public administration" (Poirot & Gérardin, 2010).

Attractiveness is therefore a multidimensional concept that can be approached from different angles and thus with the help of different disciplines, these different dimensions of attractiveness should not be considered as unconnected blocks, However, it remains to be seen exactly what is behind these different conceptions of attractiveness, **the risk of being limited to a very economic approach to the phenomenon and the difficulty of developing a true interdisciplinary approach is always present** (Delorme et al., 2004).

From this point of view, the distinction between subjective/objective and potential/effective attractiveness seems to be crossed with that in terms of generic or specific assets/resources.

2.1.1. The Different Approaches to Exam the Concept of Territorial Attractiveness

Most of the time, the attractiveness indicators developed (Lausanne Global Competitiveness Index, Foreign Direct Investment Rates, etc.) are concerned only with the generic resources of a territory and not with its intrinsic resources which are neither reproducible nor transferable, However, it is these built and territorialized resources that make a territory attractive or not, even though they are relegated to the background when it comes to quantifying the phenomenon of attractiveness, the existing quantification tools

do not measure them, so do not make these dimensions of attractiveness visible or identifiable. (Musson, 2010)

This logically leads us to propose a different approach to attractiveness that requires a review of this concept and the way in which it is quantified, sustainable attractiveness or the “capacity building of a territory” Noting significant differences in performance in terms of attractiveness and sustainable development, Musson (2010) pointed to too great a focus on economic aspects in the study of this issue and the often short-termism vision of development advocated by current attractiveness policies.

The geographical, historical, environmental and social dimensions of attractiveness are rarely mentioned or explained, thinking it in coherence with approaches in terms of sustainable development and wealth indicators.

To achieve this, Friboulet (2010) proposes an approach in terms of “capacity building” that differs from a narrow definition of attractiveness. Integrating into the attractiveness analysis, the negative effects of the polarization of activities in social and environmental terms, and other determinants of a territory’s “health” (participation of the inhabitants, quality of life, improvement of the situation of the poor), its approach aims to reconcile these two components of territorial development.

Abandoning attractiveness as a state of affairs to consider it as a capacity, the challenge is therefore to highlight the driving elements of this «territorial capacity building» in order to enrich the knowledge at the service of political action, this is a shift from a concept of the ability of a territory to attract to a broader approach in terms of capability development (Sen, 1992).

In this way it is conceivable to hope to be able to reveal what makes a territory dynamic or not, if we want to approach the elements of the «social health» of a territory, **we must combine a qualitative and quantitative approach of the phenomenon of attractiveness**, while other approaches have been developed, particularly in the context of the new economic geography or recent developments on sustainable development, they do not necessarily agree with each other and reinforce the polysomic character of this concept.

Serval (2015) also identifies two types of attraction, one behavioral and the other attitudinal, resulting in a hybrid idea, the behavioral register is a physical dimension that pertains to resource attraction and retention (e.g. human, financial, material, immaterial), for example, a region is appealing if it is able to attract capital, tourists, and/or residents by anchoring and fixing itself in space and time.

The attitudinal register, on the other hand, relates to a psychological dimension that alludes to attraction and seduction, that is, the influence that the territory might have on persons' attitudes, awakening their attention (Chamard, 2018), for example, if the territory's appeal extends beyond its bounds, it is appealing.

2.1.2. The Determinants of Attractiveness in Different approaches

The conventional determinants of economic attractiveness are the size of the market of the territory in question, the cost of capital and labour, and the existence of complementary or competing enterprises in the production process (Friboulet, 2010)

In urban and regional studies, the determinants of attractiveness can be reduced to the capacity of a territory to attract productive capital, “economic geography” imposes its importance in particular with the work of Krugman (1991), showing that the territories are not homogeneous between them and that understanding attractiveness does not reduce to an analysis of the differences in installation costs for enterprises between territories.

This leads to the introduction into the analysis of an extra-price dimension taking into account variables such as strategies for integration into trade, the quality of infrastructures and institutions, the level of human capital, the business environment. (Friboulet, 2010, Musson, 2010).

Moreover, there are several types of territorial attractiveness, as the United Nations Conference on Trade and Development (UNCTAD) does mentioned in its annual World Investment Report, it is possible to distinguish actual or potential and/or subjective/objective attractiveness, the effective and objective attractiveness of a territory corresponds.

For example, to the presence of a certain number of infrastructures on it, the quality of life in a territory can be considered as part of a type of attractiveness that will be described as effective and subjective, unrealized investment projects would correspond to the potential objective attractiveness, improved well-being experienced by populations can be categorized as potential subjective attractiveness, in addition, effective/potential attractiveness and subjective/potential attractiveness often work together while attractiveness and competitiveness are mixed together, this is where the phenomenon of attractiveness can be described as a complex phenomenon.

As an example of the complexity of selecting the determinants of attractiveness, we consider the work of Boivin & Tanguay (2019) where they investigated the suitable determinants of the urban tourism attractiveness in two recognized tourist and heritage cities, Québec City and Bordeaux, in an analysis based on a theoretical model of attractiveness, a statistical comparative analysis was done in both cities to examine visitors' perceptions using a questionnaire survey completed by about 500 visitors, his analysis produced an important finding: tourists recognize attractiveness on four levels (context, tourist belt, complementary, nucleus) and emphasize that the complexity of selecting the determinants comes from the multidimensionality of the attractiveness notion itself and the particularities of every case study.

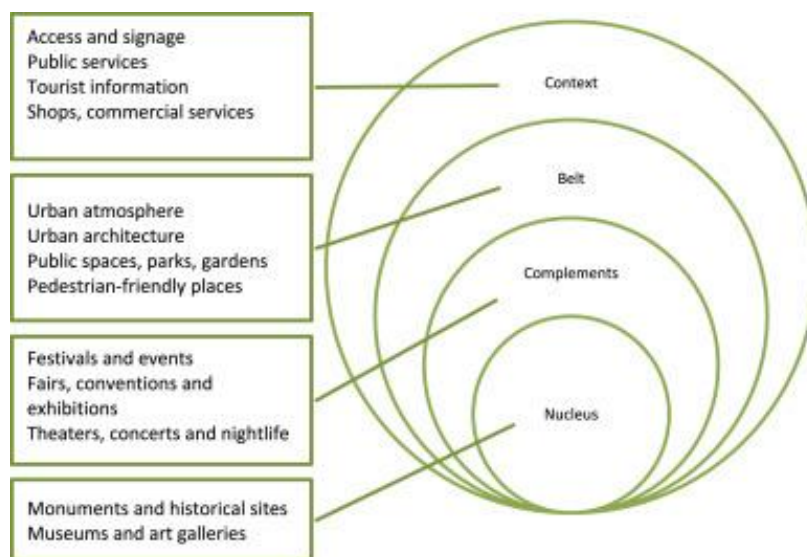


Figure 17: The determinants of the urban tourism attractiveness tourist and heritage cities

Source: Boivin & Tanguay (2019)

2.2. Attractiveness Versus Competitiveness

2.2.1. The Definition of Regional and Territorial Competitiveness

The rise of the global economy has sparked fierce competition and as a consequence a rapid physical transformation of major urban centers around the world, the ancient reasoning of people about settling in a region that offered an economic chance for sustenance is no longer adequate to justify the attraction certain residents have for specific areas.

Through the centuries, territorial attractiveness has been a great motivator for humankind's growth, creativity, and development, as well as the establishment of new aims and horizons, as well as networks and relationships that are ever more complicated. Nowadays, as the global competition and the digital revolution is intensifying, concepts like competitiveness and attractiveness can be found more frequently.

To properly compare territorial competitiveness and territorial attractiveness, we need to analyze fundamental definitions, theories and background processes which form our everyday life about the subject.

Competitiveness is a key concept of economics, business and economic development, the expression itself reaches back to a long time, a huge amount of research arose in academic focuses, and its analyses moved plenty of scientific philosophers and experts, defining competitiveness can be done in various dimensions, plenty of entities exist in economy and in the society.

If we think about the operation of the world, we can see the patterns bending to our present, we can notice an ongoing rivalry in our world, the most common types of rivalry are the following (Lengyel 2010, Batey and Friedrich, 2000):

- Rivalry between creatures for claiming living space and nutrition, and the biological sustenance of the species.
- Social groups, as layers, communities, nations, parties compete with each other over political authority, trying to claim political positions.
- Economic units compete with each other claiming economic advantages.

The first two types of competition focus on aspects, which are not economy-oriented, so in those cases the expression of competition is not practical, the third type is clearly economic, so the concept of competition can be defined (Lengyel 2010), we use this type of competition as a base when we talk further about territorial competitiveness: in the competition between spatial units' long-term growth of income is a key factor (Lengyel, 2010).

We can definitely state that there is no professional consensus about attractiveness, which is a huge problem, because we may define attractiveness in other ways. Serrano (2003) also discusses the meaning of attractiveness and explains that “it is extremely related to the competence for direct investment among local authorities”.

Porter (1996) highlights that talking about regions: “competition realizes where the given spatial units, in an optimal case, aims for the creation of a legal-business background structure and the companies work with an appointed strategy on competitiveness which causes a production with improving tendency in the key sectors”, those, who support this conception, competitiveness is interpreted coextensively in micro- and macroeconomics as well (Lengyel 2010, Martin 2003).

Studying competitiveness, we may reveal a duality by its interpretation, competitiveness itself does not refer to an actual state, rather a projection from a process from the past or from the future, we may conclude our amount of experience in global competition, and we may conclude the pack of activity, which secures the persistence in global competition in the future (Malecki 2002).

The competitiveness of regions is not only their productivity, its measurement cannot be constricted into one dimension (Lengyel & Rehnitzner 2013). According to Camagni (2002), competitiveness can be realized in many ways.

- Firstly, if utilities, legal infrastructures and economy policies are favorable, then every local business activity will subsist it positively.
- Secondly if spatial specializations develop, then a strong cluster environment and a supplier structure may establish.

- Thirdly, if synergies between local factors eventuate, then a complex cooperation over industries may help the development.

By the aspect of Storper (1997): *“a city’s capability to attract and retain companies which are stable”*, the definition of Annoni and Dijkstra (2016): *“Regional competitiveness is the ability of region to offer an attractive and sustainable environment for firms and residents to live and work”*.

Atkinson (2013) defined competitiveness briefly: *“The true definition of competitiveness is the ability of a region to export more in value added terms than it imports”*, according to Huggins et al. (2016): *“identify regional competitiveness as a dual concept that explains relative differences in rates of economic development across regions, as well as an understanding of the future economic growth trajectories of regions at a similar stage of economic development”*.

The standard definition to competitiveness is in the European Competitiveness communication: *“the ability of companies, industries, regions, nations and supra-national regions to generate, while being exposed to international competition, relatively high income and employment levels”*, this definition highlights two quantitative measured economic categories, income and employment, under competitiveness we read a long-term process which aims to reach a future state, vision, competitiveness can be perceived, how companies can maintain their product or services on the curb market. (Lawton,1999)

2.2.2. The Tangible Line of differences in defining Attractiveness from Competitiveness

Over time, semantic evolution has driven academics, professionals, and journalists to **prefer the term attractiveness over competitiveness**, to the cost of their distinction. Indeed, "the huge use of this new phrase has been encouraged by the combination of the dissemination of rankings in the press, political statements of all scalar levels, and the perspectives of journalistic pieces." The content has evolved, particularly as the territory's concentration has increased, with the corporation being just one among several entities to attract" (Houlier-Gibert, 2019).

Attractiveness refers to the ability to catch external flows (exogenous development), whereas competitiveness refers to the quality of internal flows (endogenous development).

Two possible strategies for territorial development are attractiveness and competitiveness as Serval (2015) mentioned: *“attractiveness represents an effort to reinvent or redesign cities in terms of its resources and institutions to obtain a better economic level for its citizens”*, therefore, attractiveness is a social, political, economic, environmental mentality.

By van den Berg and Braun (1999): *“attractiveness is an effort of cities so attractive places can remain, for their citizens, visitors and for the business sphere”*, and by Götz's (2015) short definition: *“attractiveness is usually defined as a set of advantages and disadvantages in the place of investment”*.

By Barboric, Zivkovic and Esposito (2013) *“attractiveness is intended as the interaction of a complex set of characteristics based on the presence/absence of certain forms of Territorial Capital with the attraction of various “audiences”, they do not vision attractiveness an absolute everlasting concept, because it may change how they position the territorial unit. Attractiveness is a relative definition”*.

According to Hamri, Zerouali Ouarti and Sadiqui (2014) attractiveness is the capability of a territorial unit to attract and retain national and foreign companies, However, the factors of territorial growth shift from competitiveness to attractiveness in this environment (Camagni, 2005), Nowadays, attractiveness is defined as *“the condition or result of a certain competitiveness of the territories”* as a result of the increase in capital movements caused by free trade and the productive transformations of the information age (Thiard, 2009).

Attractiveness has slowly evolved into a new slogan for urban development and government strategies, it translates capitalism's mutations into a flexible accumulation system, where capital and human flows are captured as a matter of territorial growth. (Amin, 1994)

Zivkovic et al. (2015) defined territorial attractiveness as: *“capacity of certain Territorial Capitals and Assets to attract and retain target groups (tourists, residents, migrants and companies or investments) by already existing or developed advantages”*.

Zivkovic and Barboric (2017) made an experiment to categorize the indicators of attractiveness: *“it can be seen that attractiveness is concentrated always around two main factors, on one side human factor, on the other business factor”*.

Furthermore, we can see concepts define attractiveness as they contain the words, attract and retain, according to this we need to think about two time sheets **short-term and long-term**, we can see that this standardization relies on the usage of soft factors instead of hard factors and highlights aspects which are not related to economy, attractiveness can be determined more widely than competitiveness and **competitiveness can be interpreted dominantly in economic context, attractiveness defined beyond economic context.** (Friboulet, 2010)

Thus, attractiveness is always differentiated from the notion of competitiveness although the dividing line between these two concepts is porous, from this we can distinguish different forms of attractiveness according to the determinants of it, its effectiveness, its objectivity and the way in which it can be observed.

Attractiveness is conceived as a notion of short or medium term, it is different from the notion of competitiveness which would rather be a notion of long term, the notion of attractiveness today seems to take precedence over that of competitiveness because it is a more consensual notion which seems to be more easily the object of measurement and, in this, to be useful for public action (Friboulet, 2010).

Friboulet (2010) mentioned that debates about competitiveness are intense, the interpretation depends highly on the economic paradigms, the earlier debates sharpened on the basis interpretation of competitiveness, he can differ two main approaches:

One group of experts (such as: Polenske 2004, Dicken 2003, Krugman 1998, Krugman 1994), academics claim that competitiveness cannot be interpreted spatially, only in companies, this approach was back to multiple thoughts: the first is that countries behave differently from companies, if a company performs badly in a competition, it is terminated, in the case of countries, this statement cannot be interpreted.

Second group defends the comparative advantages for countries: companies influence their market share of their competition in a direct method with their own profile and strategies, countries can be parallel winners in the global competition, with this perception, the theory of comparative advantages has a great role, which says, a nation's welfare depends on the existing factor.

The comparison of competitiveness and attractiveness is a challenging task because of the understanding and interpretation of the two concepts, moreover, there is a missing social consensus on attractiveness, therefore, it is easier to characterize the determinants of attractiveness than those of competitiveness, after the proper absorption of these concepts, we can draw the borderlines between competitiveness and attractiveness as followed (Barborič et al, 2018):

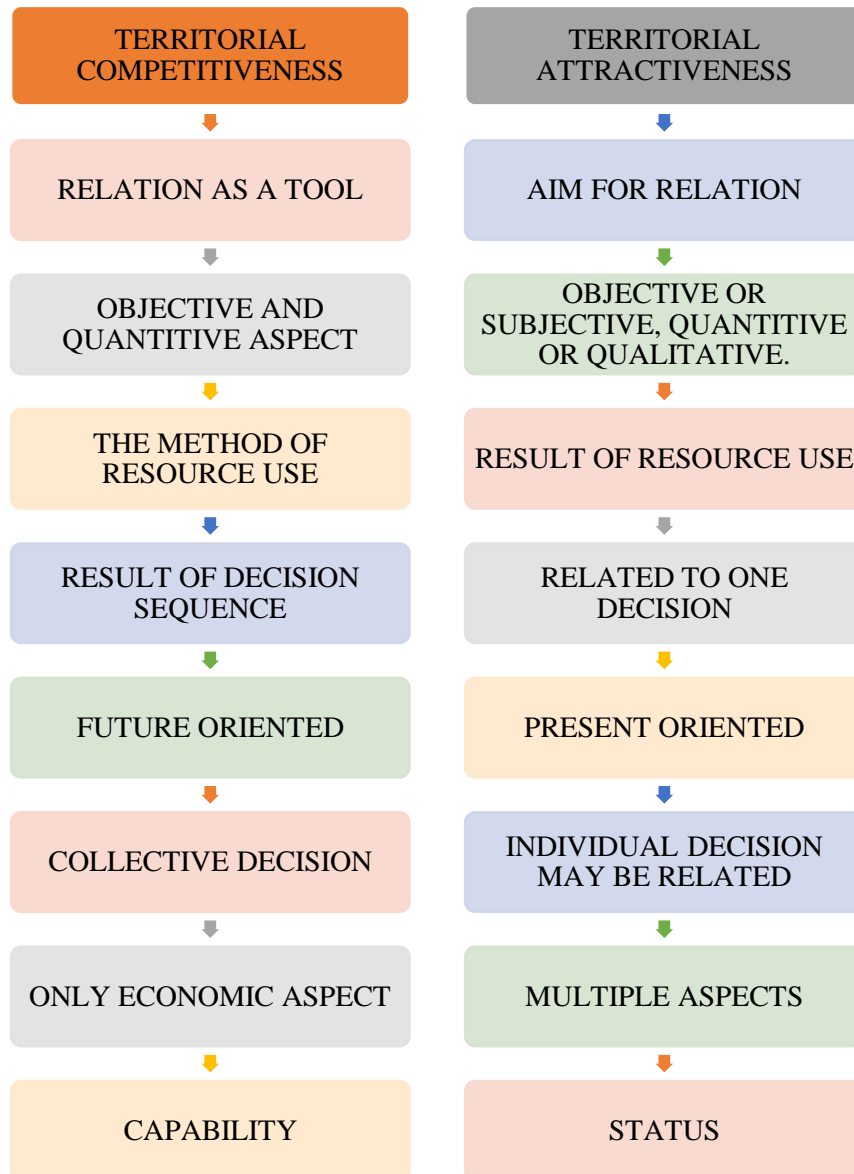


Figure 18: The borderlines between competitiveness and attractiveness.
 Source: Barborič et al (2018) with author's elaboration (2019)

2.3. Facets of Territorial Attractiveness

Attractiveness necessitates the ability of territory and their actors to adjust to changes in society, individual wants, and demands, as a concept it can divided to three major facets, each one of those facets contains various actors, attractors and flows. (Musolino & Volget, 2020)

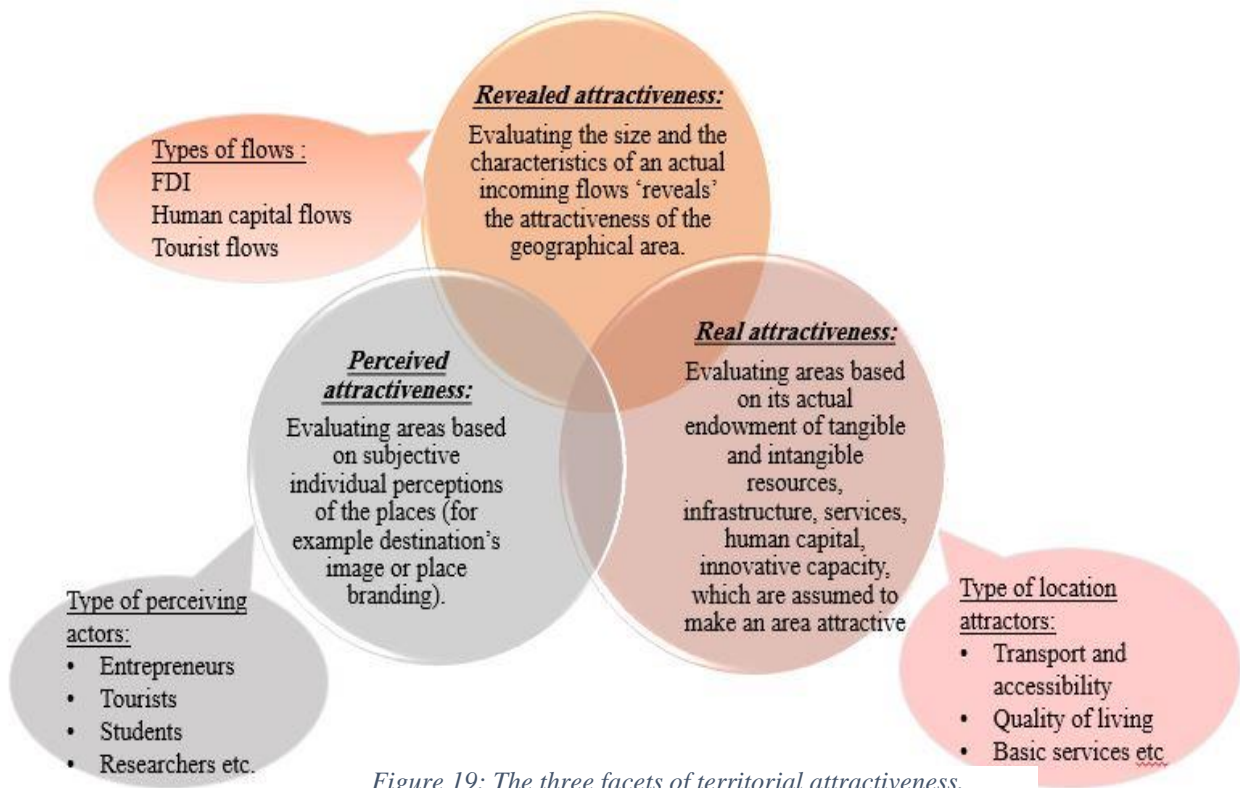


Figure 19: The three facets of territorial attractiveness.

Source: author's elaboration (2021) of Musolino and Volget (2020)

2.3.1. Perceived Attractiveness

In the interaction of man with his environment, psychological and social elements play a role, the environment in which a human being lives has an impact on his or her actions and trajectories.

Some people have a type of closeness with their living area that is expressed as a more or less conscious affectivity and affirmation, sensitivity to location, according to Bigando (2006) is expressed through the landscape's appealing to the senses.

This sensitivity appears to represent an epistemological turning point in the approach to socio-spatial interactions, combining emotional consciousness, spatial knowledge, and another relationship to the field (Feildel, 2010, in this sense, the geography of emotions is concerned with an individual's sensitive interaction with the locations to which he goes, ostensibly in search of happiness.

A territory is not only an objective reporting system is also an elective reporting system, emotional, measured by the desire to settle there, the city appears at the same time as a system of opportunities and a set of affinities, to the strength of desire is added, in addition, the nature of the reasons for this attraction, is it of economic interest (find a job, manage more, get a promotion, spending less, etc.), a taste for a way of life, a desire to be close to family, the desire to be in a central place (where things happen») or the satisfaction of an aesthetic pleasure.) (Volvey, 2016)

Well these reasons may accumulate, the more numerous they are in a greater the attractiveness of the territory to the individual, the individual's attraction to a location may be seen everyday life in the sphere of the exceptional, whether in terms of time (experience rarity) or space (experience confined to certain locations) (Bigando, 2006).

Because adaptation is a protracted process, the capacity to adapt is a faculty of thinking about one's progress over several decades for the good of the community, the relationship to space is explored by what is distinctive to each and by a sensory dimension at the place, perfect rationality is an idealized form of an omniscient decision maker. (Grésillon, 2013)

Tuan (1976) examines the relationship to space through feelings rather than logic, the ability of a person to follow a logic that is his own and very personal calls into question normative relationships with a place in this way, Therefore, sensuality becomes a part of the place's experience (Damery, 2013).

Perfect rationality, as Feildel (2010) points out, is an idealistic form of an omniscient decision maker who masters the complexity of interactions in the real world: *"these are the types of judgments that must be made, and they must be able to predict all of the implications"* Feildel (2010)

As a result, the subjectivity of each individual's decisions must be included into any analysis of this nature, what is unique to each individual, as well as a sensory dimension at the location, call into question the relationship to space.

The reflection of Frémont's concept of living space (1976) confirm that the territory is seen, felt, loved, or rejected by men, who form it by imposing pictures on it, it allow the region to be lived, exercised, or imagined in a different way, Hearing, sight, smell, and, in certain cases, touch and taste all contribute to the development of human-space interactions, in a more or less conscious way, a person's attraction to a location declare the attractiveness of that area, this helps us to have a better understanding of how feelings and emotions are generated.

Nevertheless, depending on the temporalities, the presence of a location might generate greater or less powerful effects, the Anglo-Saxon school of Emotional Geographies connects an essential portion of a qualitative geography to this sensitive approach to space (Volvey, 2016), some recent studies have attempted to convert emotions into a "sensitive" type of mapping (Mekdjian & Olmedo, 2016) (Rekacewicz & Tratnjek, 2016), this visual report is particularly relevant to understand how people sense space.

The individual observes and analyzes feels and directs his decisions depending on other locations, it creates a sense of competitiveness among various locales (Ansel and Frankhauser, 2012). Qs cited by Boesch et al (2011): *"In a cognitive and/or emotional manner, beauty is a force that attracts all types of investments, both private and public, monetary, material, and institutional"*

Dardel (1952) argue: *"that man feels and understands himself tied to the Earth as being obligated to actualize himself in his terrestrial state"*, people develop a desire to settle down and dwell in one location over another, while continually contributing to its progress (change of landscapes, building of representations, etc.).

What is this attraction, this "attractiveness"? This concept, like migration and installation, contains a component of subjectivity and varies in strength depending on the space (Raymond in Barthe et al, 2007), each area has its own set of goals and objectives. The scientist's task is to discover the objective characteristics of attraction, according to Pineau

(2013), a territory's attractiveness must link economic (job offers and activities) and residential appeal (offer of executive and quality housing).

2.3.2. Revealed Attractiveness

Revealed Attractiveness is the result of attraction: the amount of foreign direct investments, human capitals and tourist's flows, the attractiveness is assessed in terms of the intensity and the diversity of motives of the actors involved in these inflows. (Servillo, 2001)

In evaluating the movement of flows, competitiveness and attractiveness are relinked, attractiveness becomes a necessary condition for competitiveness: a territory that is no longer competitive is exposed to population relocation, divestment and relocation of companies, the two concepts therefore appear more and more complementary in a more competitive universe. (Servillo, 2001)

To concentrate on the urban and regional vision of the thesis, we provide here an overview only on population flows and factors of territorial attractiveness and address the issue of tourism attractiveness.

Human mobility is a heterogeneous phenomenon, articulated at different and multiple levels with place and development processes, including the existence of 'fast movers' and 'slow movers' who are characterized by different capacities to reconfigure places according to their lifestyles and habits. (Servillo, 2001)

In terms of what drives mobility in the contemporary age, and who is 'on the move' and with what consequences, we need to understand the complexity and variety of factors such as work, civil freedoms and convenience that underlie migration (Perrons, 2010).

In this approach, different 'audiences' may be attracted to a city or region for different reasons and according to varying patterns of 'transience' (Martinotti, 1993), which may qualify both the duration of their stay in that area once attracted there and the 'stability' of the relations that they establish with places.

In our mobile society, the simple binary of extreme volatility (for example, traditional tourism) and sedentary livelihoods has been overlain by several other ‘fluid’ and interstitial forms of mobility such as nomad digital¹.

Several factors may attract flows of varying scope and thrust that were once believed to be associated with distinct spheres: hence the disappearance of the ‘absolute worker/resident’ in contrast to the ‘absolute tourist’, and the appearance of mobile denizens or consumers characterized by varying degrees of transience: specific groups of ‘fast movers’ are more willing and able to switch between places on the basis of emerging opportunities, whereas slow movers are ‘locked in’ to their work or social context.

Such flows are mobilized by a much wider palette of pull factors than good employment or leisure amenities, encompassing intangibles such as social and cultural vibrancy, safety and tolerance, and good public services. (Servillo, 2001)

A certain balance should be maintained between people flows whether locals or visitors, a territory is attractive when it can retain its residents and attract visitors in parallel, any choc to the balance should be calculated in future development policies. (Servillo, Atkinson & Russo, 2011)

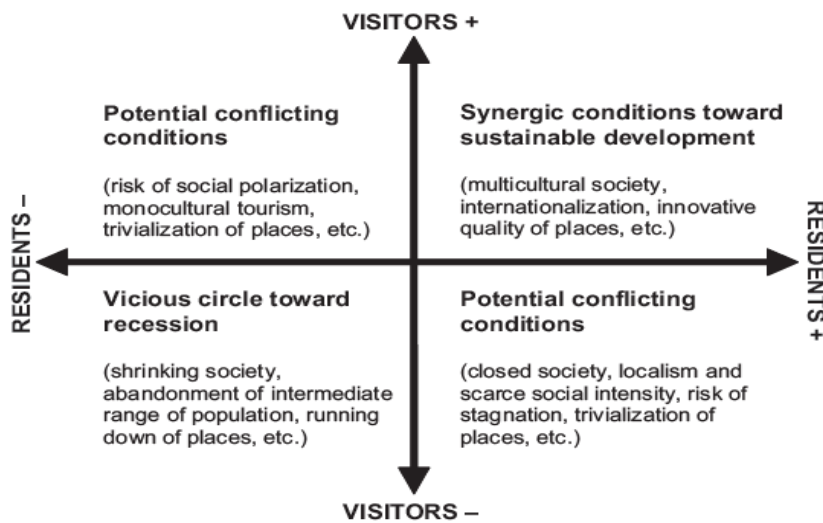


Figure 20: Residents/ visitors externalities balance

Source: Servillo et al, 2011.

¹⁰ An expression that explains the modern way of life where workers can work remotely, through the Internet, which connects them to all people related to their work.

Iatu & Bulai (2011) argue that territorial attractiveness is in human capitals mobility is divided on two bases:

- A standard global base: a territory must be conforming to the requirement of global or homogeneous standards that external investors and skilled workers ask.
- A distinct local identity base: To be a territory attractive for tourists, local identity is a fundamental condition for its national and international promotion and a major lever of tourism.

2.3.2.1. Tourism as the Temporal Aspect of Revealed Attractiveness

Tourism as the temporal form of population attractiveness implies the circulation of flows in specific places where users consume both the atmosphere and the functions offered by these spaces. (Iatu & Bulai, 2011)

In this case, territories should provide a sort of virtual and ephemeral identity, people can identify themselves instead as long as they stay in that space, this is one of the most sought after aspects by designers of consumer spaces as it can enhance the marketing effect.

Who to attract? The target clientele with a territory attraction can create a new centrality in the city by offering a new place of conviviality and new economic perspectives for the locals and permanent residents, However, even if it succeeds in attracting large numbers of tourists, to improve the urban landscape and stimulate economic dynamics, this space always carries the risk of generating some social segregation, as a result, populations in close proximity to these places but not having the required characteristics are excluded. (Iatu & Bulai, 2011)

Iatu & Bulai (2011) argue that tourism is a source of growth and creation jobs because it allows the emergence of a real policy of valorization and of territorial coherence, priority should be given to core of urban policies, actual studies in geographical literature on tourism illustrate two main approach in to the tourism studies: approaching tourism by demand (tourist arrivals, no of overnights, mean stay duration, visitor tax, overall budget, motivation etc.), or by potentials, those potentials are the future territorial attractors.

Glăvan (2006) defined potential tourism as: *“the sum of possibilities that the natural and social environment puts at disposal of tourism activities”* also as *“basic condition, tourism development is also conditioned by a series of social factors, as not all communities easily accept strangers on their territory, next to initial transit needs, people in large cities have created a need for leisure activities, for health and no-stress time, out of their regular places, in contrast with work or restrictions”*. Thus, mountainous territories, water bodies, green or protected areas, main transport axis or high cities have become attractive factors for the localisation of tourism activities. (Iatu and Bulai, 2011)

2.3.3. Real Attractiveness

Attractiveness can also be broken down according to whether it is effective or potential, this distinction highlights that the attractiveness of a city depends not only on the flows observed, but also on its propensity to generate new flows in the future, at the residential level, an attractive territory is not only a territory with a significant net migration, an attractive territory is where one would like to live in the ideal, where one plans to move in one day, or a place that one visits for lack of be able to live there. (Cusin & Demon, 2010)

This distinction between effective and potential attractiveness can be crossed with the distinction between the objective dimension of attractiveness (attraction) and its subjective dimension (attractiveness), the power of attraction can objectively by accounting for population or capital flows. (Cusin & Demon, 2010)

2.3.3.1. Residential Attractiveness

In the real attraction facet, we explore the “Residential attractiveness”: as the most relatable concept to urban studies, it was first viewed in the early 1980s (Noisette & Vallérugo, 2010), residential attractiveness is defined, **as a territory's potential to attract and maintain new residents by providing a high quality of life and job opportunities.**

Attractiveness is not limited to the economic functions of territory, it goes beyond the scope of exchange and production activities, and refers to the geographic, urban, social, cultural and political dimensions of territories, if the territory can be associated with a production function, it is also an identity support and a place offering well-being and quality of life to inhabitants who populate it, the residential sphere illustrates the complexity of interactions

between economic and non-economic dimensions of attractiveness territories. (Cusin & Demon, 2010)

For cities in particular, the quality of life is an issue that grows with the increase the propensity for household mobility, however, when they are in a position to arbitrate, they are increasingly looking for the best compromise between job opportunities and quality of life, new trends are emerging as a result of the organization of work (subcontracting, occupational nomadism, teleworking, etc.) which are likely to alleviate the constraints of localization, resulting in a growing disconnect between where you work and where you work lives. (Cusin & Demon, 2010)

In fact, companies who wish to establish a new establishment in an urban area increasingly take the quality of the residential and urban offer into account, the quality of this supply depends on the ability of these companies to attract and stabilize their on-site workforce, However, job opportunities and the quality of living do not are not the only factors explaining the residential attractiveness of a territory. (Cusin & Demon, 2010)

Territories also attract because of their cultural influence or, more prosaically, their “brand image”, this cult influence depends on their integration into communication and information networks, the springs of residential attractiveness intersect here with those of attractiveness tourism. (Cusin & Demon, 2010)

Serval (2015) argue that today, competition is increasingly based on flexibility, variety, quality and innovation, rather than just the cost variable, Attractiveness (including residential) is all the more essential for the competitiveness that cities and territories must attract new economic elites: **The “creative class”**, as Richard Florida (2006) put it *“These elites are both more mobile and more attentive to the living environment, especially since, for them, professional socialization and personal socialization are often intimately linked”* also Serval (2015) explain: *“Economic and residential attraction cannot be spared from conversation and complementarity in the twenty-first century, these two sorts of attractiveness must be thought of in an interdependent logic”*.

Poirot and Gérardin (2010) identify two sorts of players who are likely to be drawn to a territory: natural humans with or without housing on the land, and managers and management teams of organizations (e.g. administrations, companies, associations).

First, economic attractiveness refers to the long-term viability of the territory's chosen economic growth strategy (Arnaud, 2012, Serval, 2015, Soldo, 2018), external attractiveness refers to the ability to attract temporary or long-term resources in order to develop the economic and social fabric (Serval, 2015, Vallérugo & Noisette 2018, Alaux, 2018).

The goal is to evaluate the direct and indirect economic benefits, as well as the ties to the territory's image, reputation, and influence (Meyronin, 2009), political attractiveness refers to the general interest's long-term viability, which is determined by the political legitimacy of the acts taken and the coherence of the governance modalities adopted (Soldo, 2018).

Geography is in itself an attractive factor due to the location of cities (country, region, proximity to other cities, etc.) and the resources provided by this location (proximity to the sea, mountains, a river, etc.), the size of the territory and its possibilities of extension and, finally, the landscape value of the location. Climate is also a determining factor, as shown by the force of heliotropism. (Alaux, 2018)

As cited by Cusin and Demon (2010), there are 11 components of residential attractiveness. Each brings together a set of resources that are both objective and symbolic of cities and territories, some qualitative variables are difficult to through quantitative indicators, this is particularly the case for at the heart of urban marketing strategies, these 11 components are proposed to organize the rigorous debate as if to fill in dashboards.

Not all are necessary and their order does not matter, in the next figure we classify those components based on their Objective and Symbolic Resources:

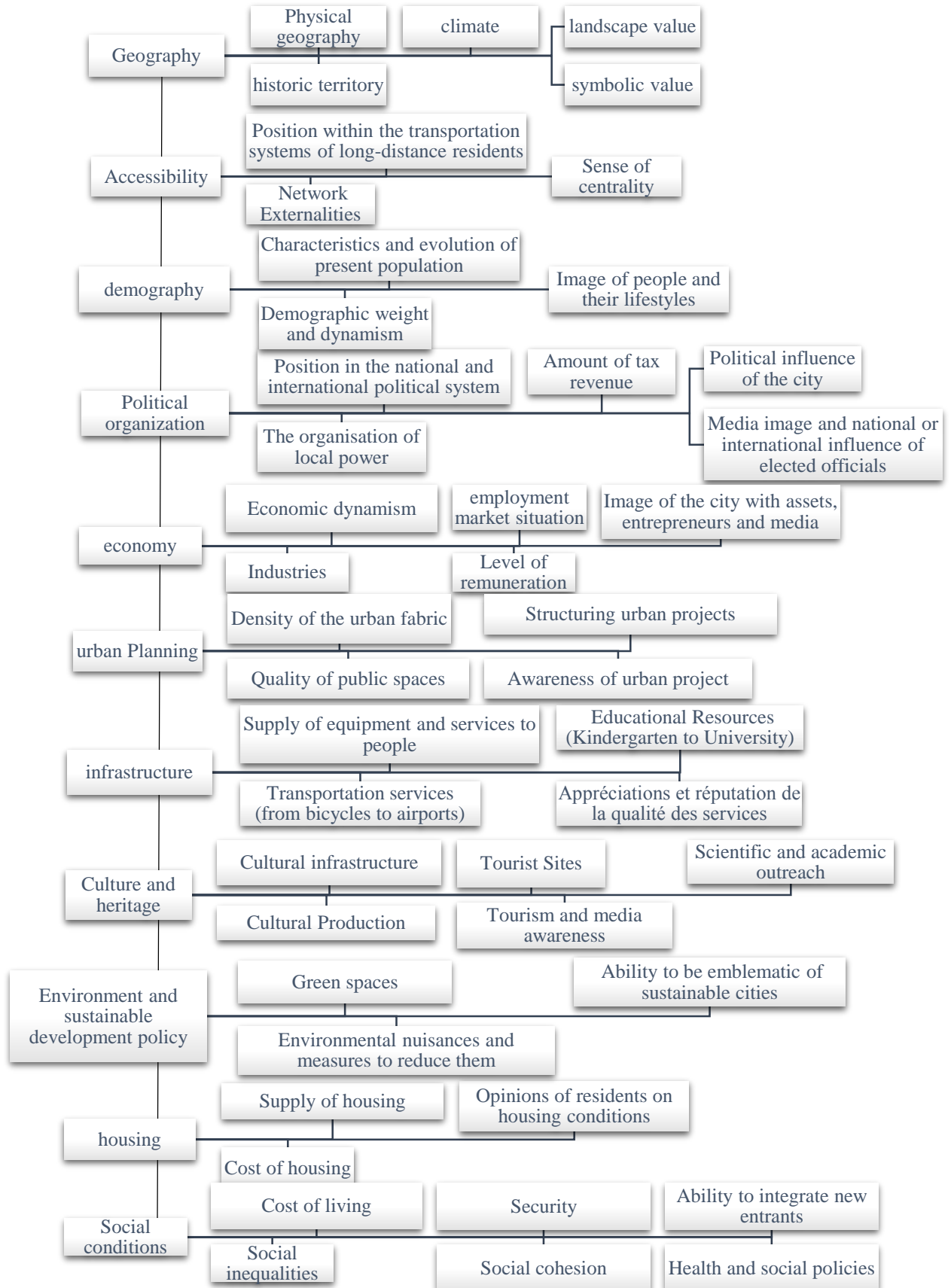


Figure 21: The components of Residential attractiveness
 Source: Cusin and Demon (2010) with author's elaboration (2020)

2.4 The Governance of Territorial Attractiveness

The new approach to attractiveness considers this to be a multidimensional phenomenon, with globalization, the speed of flows undergone major changes that are forcing destinations and territories to seriously reconsider, the first issue is studying the attractiveness of territories. However, the concept of territorial attraction is not new (Roncayolo, 2009), it is described by Hatem (2004) as: *"a territory's ability to supply actors with conditions that persuade them to locate their projects on their territory rather than on another's"*.

It is related to the development of the capitalist accumulation system into one that is more flexible and globalized, prior to the globalization process, competitiveness was created on a worldwide scale *"while excluding factor migration"* (Thiard, 2009), attractiveness had minimal impact on territorial competition and development dynamics (Thiard, 2009), Therefore, territorial competitiveness reflects a territory's ability to create an absolute comparative advantage, primarily through pricing, which leads to a development process. (Camagni, 2006)

Globalization is defined as a process of extremely rapid cross-border economic interdependence led by multinational corporations and significant financial institutions (Corpeaux and Crevoisier, 2011), as transnational enterprises form, that is, firms constructed on a worldwide size and for a global scale, it leads to a more linked and interdependent *"globalized economy"* (Hirschman, 1970) in which finance plays a key role.

The increasing openness of economies and territories places attractiveness on at the heart of the strategies of the city's political and economic decision-makers. Face increased competition and new challenges of attractiveness, countries are engaged in strategies to achieve standards international in terms of metropolitan equipment. (Veltz, 2008)

The attractiveness policies therefore aim not only to improve the urban offer, but also to promote this offer and promote the image of territories, market processes are playing an increasing role in local development and elected officials are increasingly *"entrepreneurs"* seeking to create value within their territory.

Alongside economic value, aesthetic, cultural and symbolic values are all the more taken into account since they can be converted into market value (valuation of land, investors, commercial space rental, etc.), for the sale of “products of the city” (goods and services), or that of the city as product.” (Cusin and Demon, 2010)

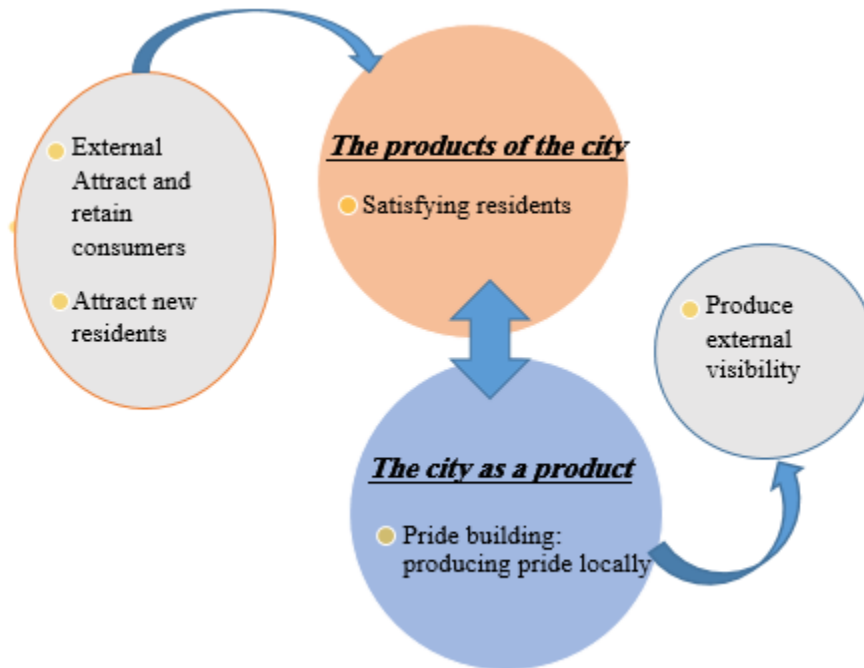


Figure 22: The four dimension of territorial attractiveness policies.

Source :Author's elaboration (2019) of Cusin and Demon, 2010.

2.4.1. Regional Identity in Territorial Attractiveness Planning Strategies

In order to develop the suitable attractiveness strategy for any territory, public authorities need to identify the regional identity of territory, before initiating a benchmark strategy or a territorial marketing process, the regional identity is a macro level of urban identity.

Regional identity is able to emphasize the local cultural and regional characteristics and to contribute to the overall reputation of the region, hence attracting investors, capital and skilled workforce (Lukovics, 2004).

People simply like to live in regions with a strong identity, due to the family traditions, common culture and historical heritage, these regions can also serve as potential territories

for innovative activities, as basic factors are present that are necessary to foster these activities.

Beside the presence of developed infrastructural networks, it is also inevitable that a critical mass of highly qualified workforce with easily convertible knowledge resides in the given region, in order to carry out innovative activities, the existence of specific factors is crucial beyond the basic factors (Lukovics 2004).

In territories, which provide competitive edge from multiple aspects in the end, we can identify a self-catalysing process, the continuous and effective transitions in regional framework can provide a stable, competitive economic structure and the realized level of growth that can be achieved remains sustainable. (Lukovics 2004)

These circumstances bring forth social and cultural advancement in the region, which further contribute to the image, reputation and attractiveness of the region. The cycle of positive aftereffects continues with the migration of talented workforce into the region, the developing competitiveness of enterprises and the region itself.

Regions can have a strong identity in case the economic structure has traditional features instead of innovative ones, these regions have only a few competitive advantages in best cases and are dominated by industries and sectors that generate a low amount of added value, some of the competitive advantages are the cost-efficient workforce and raw materials, basic infrastructures are necessary to be fully evolved, there are no creative industries or sectors generating high amount of added value. (Lukovics 2004)

This means that industries that could drive change and make crucial difference, are missing as the qualified workforce and specific factors necessary for initiating innovative activities are missing. (Lukovics 2004) also argue that in regions with **fragile regional identity**, the number of people who would remain in the region in case of constant economic challenges, is low, in these regions the competitive advantage mainly comes from the availability of natural resources and cheap workforce.

Due to this, they can only realize benefits that are derived from being cost efficient, the other differentiation of products is unavailable, and the integration of established industries into the economic activities of the region is insufficient in general, **regional identity is a**

mixture of spiritual, psychical, cultural, attitudinal factors should be considered when it comes to economic development, when planning regional development strategies, the level and characteristics of regional identity is a crucial and influential factor (Lukovics 2004).

Regional identity could be a crucial definition and an explanatory factor when it comes to analyzing territorial attractiveness, it can be interpreted as harmony and synergy between the specific region and its inhabitants and strongly determines the core characteristics of the given territory, the presence of regional identity is a key factor which influences the social and political maturity of the region. However, the precise determination of elements of regional identity and their exact influence are challenging to identify (Lukovics 2004, Keating 2001).

It is also a balance of massive globalization. This idea also supports the global-local paradox of Porter (Lukovics 2004), globality emphasizes the role of local regions, however only those regions can be considered as successful in the changed competitive environment that are able to phrase and execute strategies, which serve as a framework for long-term development (Lukovics, 2002, Amdam 2002).

The concept of regional identity is widely interpreted in scientific literature, regional identity can mean concepts, cultural characteristics, historical heritage, dialects, artificial constructs, economic success ... etc, **for a region to be attractive, it has to have a strong and differentiated regional identity**, meaning it should possess distinctive features compared to other regional territories and identities, the distinctive features can be strategic, cultural and functional (Lukovics 2004).

The cultural identity concept is not a static, but a dynamic development path on which the sense of common belonging to a certain community is manifested, this development path is characterized by crucial elements, like the name, common symbol system of the region which all suggest the unity of the region in some way (Lukovics 2004).

The functional identity concept considers the socio-economic networks, connections and factors of the given regional unit, in this case the focus is on discovering already present connections and identifying the characteristics of these connections, in most cases

however, a region cannot be interpreted as fully homogenic, even in a region, there can be differences in the level of development (Lukovics, 2004).

The strategic identity concept builds on the fact that the inhabitants of the region should have a common long-term plan and goal for the given region. This aim should be future-oriented and driven by the ability to constantly adapt in a competitive world. (Van Houtum & Lagendijk, 2001)

These goals and aims should be well-documented, as with this, the common preferences can be openly distributed and can be accessed in a transparent way. This is also a source of information for potential investors in the region (Lukovics, 2004), these three dimensions of regional identity are closely connected to each other and each dimension has an effect on the other two (Lukovics 2004).

The region itself can be interpreted as a set of cultural connections between certain communities in a certain space (Lukovics 2004), the formation of a region's identity takes place in four different steps that do not follow any given order, moreover they can be realized in a parallel manner, the four different steps are the following (Lukovics 2004):

- the formation of regional structure
- the creation of common symbols
- the creation of institutions
- the creation of regional identity

The creation of the regional identity is a result of all past and present processes, events within the region, with the sense of belonging somewhere, **the person can feel that he or she is a true part of the regional society can find the region more attractive.** The consideration of the above four steps may positively affect the attractiveness factor of a region. (Lukovics 2004)

In order to accomplish successful development strategies, it is inevitable that regional actors cooperate with each other, cooperation is an element of strengthening social structures within a region, hence contributing to the social aspect of attractiveness (Lukovics 2004).

2.4.2. Clusters and Territorial Capitals as Generators of Attractiveness

In mention of cooperation, one of the best examples of powerful cooperation in term of territorial capital in economic sector is Clustering:

The concept of cluster was introduced by Porter who defined it as *“a spatially concentrated group of firms competing in identical or related industries that are linked by vertical and horizontal relationships”* (Porter, 1996), Rallet and Torre (2005) added that geographic proximity is not enough to explain the singular dynamics of these territories, this geographic proximity must be activated by another form, **‘organized proximity’**.

As Torre (2010) reminds us: *“Geographic proximity is neutral in its essence, it is the way actors take it that is important.”* It enables organizational proximity in two dimensions: membership (networking, relationships) and similarity (languages, codes, and common representations), facilitating networking and integration, this is the whole issue of the networking of actors, which sometimes requires the presence of intermediary institutions (Clergeau & Violier, 2011).

A Cluster is therefore an economic system characterized by a local dimension and by its forms of relation with the other elements of the territory in which it fits, this system is open and complex.

The relationships between the elements of the cluster and with the external elements vary over time, the composition and dimension of the cluster are dynamic, literature on clustering (Porter, 1990, Krugman, 1991) suggests a link between **geographical location and economic performance, economic and technological activities tend to agglomerate in some places, leading to regional models of specialization.**

Considering the notion of territory as broad one, it is necessary to identify the many components, or the many capitals, necessary to frame the concept of territorial capital, this concept has been used in several ways (Clergeau & Violier, 2011):

- An assessing concept (to understand state of play and potential of specific region)
- A comparing notion (to compare the different state of play and the different capability to react to specific policies of different regions)

- As catalyzer for organizing operational development tools (designing strategic tools to activate, re-activate, sustainable development processes and make EU territories more competitive)
- As a measure to balance the distance between EU regions' different state of development (in order to take measure to reduce the distance in the socio-cultural, environmental and economic parameters between the European territories).

According to an OECD² study (2001), there are several factors such as geographical location, size, factor of production endowment, climate, traditions, natural resources, quality of life or the agglomeration economies provided by cities that define a specific capital of given territorial units.

These factors can be synthesized under the expression “**territorial capital**”, they may include the place's characteristics but may also include its business incubators and industrial districts or other business networks that reduce transaction costs.

Other factors may be “untraded interdependencies” such as understandings, customs and informal rules that enable economic actors to work together under conditions of uncertainty, or the solidarity, mutual assistance and co-opting of ideas that often develop in clusters of small and medium-sized enterprises working in the same sector (social capital).

The link between territory and its attractiveness, or competitiveness, is not immediate or even obvious. For instance, Porter (1990) associates the ability to compete with that of producing, but this assumption appears as one transposition of typically business methodologies to territorial analysis.

However, since the end of the 19th century, scientists emphasized how it is possible to obtain advantages from the point of view of production efficiency not only through large-scale production (and, therefore, with the construction of a few plants large scale), but also through the spatial concentration of companies. This evidence how “place matter” in being competitive.

² The Organisation for Economic Co-operation and Development.

The importance of localization, and the ability to network small industries, as assets for the competitiveness of a specific territory.

The possibility of effectively and efficiently using the main factors of production are the main elements of success of the cluster model, this model gives great importance to intangible factors, such as social capital, relational networks, the institutional environment, assuming them as central to the misunderstanding (and determination) of the competitive level of an area. (Clergeau & Violier, 2011)

All those factors that Storper (1997) summarizes in the expression: "**untraded interdependencies**".

In 2005, the European Union build upon this concept of territorial capital, in the document "Territorial State and Perspective of the European Union" (June 2006), the concept is used to assess the "growth potential" of the new member states:

"Each region has a specific 'territorial capital' that is distinct from that of other areas and generates a higher return for specific kinds of investments than for others, since these are better suited to the area and use its assets and potential more effectively, territorial development policies (policies with a territorial approach to development) should first and foremost help areas to develop their territorial capital".

Since that document, more often the expression territorial capital is present in many EU policies related documentation and debates, it becomes a new "aggregator" of ideas, actions, programs, policies orientated to frame or promote regional and urban development.

Conclusion:

Who want to attract What? and Why? These questions have captured the attention of geographers, economists, sociologists, politicians and other researchers from various disciplines. (Hatem, 2005), faced with a concept that is still poorly dimensioned (Hatem, 2005), in this chapter we questioned its theoretical foundations and representations of territorial attractiveness in order to understand its components and its stakes.

'Attractiveness' is a complex and multifaceted set of characteristics, the relative balance of factors that attract varies depending on the groups that are at the centre of attraction strategies, territorial attractiveness recently became a key component of research into

regional development, therefore, the identification of the roles of environmental, physical and social attributes is essential in reinforcing the attractiveness of regions for each group and for every territory, a region's development depends on its ability to retain existing business activities, residents, investors and attract new ones with maintaining the sufficient balance for an attractive growth, losing the balance can create contrary repulsiveness. (Cusin & Demon, 2010)

This ability depends on the identity of a region and its overall image, the image express the region's current state of development, its territorial capitals, its clusters and external attractors and its future prospects, it can guide the public authorities to the needed development policy, the wealth of the territories comes not only from the production sector but also from spending, spending wealth in a territory needs strong elements of attraction depending on the group of wealth considerations.

Any policy aimed at increasing the attractiveness of a territory must no longer be limited to encourage the influx of capital and business, but it must target in parallel and with the same degree of interest, the attraction of income from non-permanent populations such as tourists and students and the diffusion of a strong territorial image based on the region's identity.

Chapter 03:

The Urban Systematic Approach

Introduction

Cities exist since there was history, civilization and progress, we find and found them in all latitudes, planners tried to define the city as a special and specific form of organization of society, or a device, capable of self-organization, for the achievement of the maximum welfare and development of human society.

A great historian like Fernand Braudel long ago gave us his relevant conclusion after years of analyses of historical developments: «A city is always a city, wherever located, in both time and space, Cities speak necessarily the same fundamental language: the continuous dialogue with the countryside, first requirement for daily life, the provision of people, their self-respect and willingness to distinguish from other cities, their necessary position at the center of short and long-distance networks, their relationships with suburbs and other cities» (Braudel, 1979).

The analysis of groups of cities in the same country, with the use of the concept of a system of cities, became formalized from the 1960s in the United States, then during the following decade in Europe, Berry (1976) proposes, in a formula that has remained famous, to analyze cities as “**systems within cities systems**”.

This systemic approach made it possible to **renew the study of inter-urban differentiation in terms of hierarchy of sizes and functions**, first according to static approaches, with the deepening of the principles of classification of cities (Berry, 1976), and then from a dynamic perspective, where the concept of a system becomes very interesting.

In this chapter, we will try to discuss the urban systematic approach, explaining at first the origin of the concept coming from the hierarchic distribution of cities into the models and cities systems' forms worldly distinguished and summarizing the theoretical examination by the elaboration of the regional cities system in the North East of Algeria.

3.1. Cities as Dynamic and Multilevel Systems

3.1.1. Theories on the Hierarchical Distribution of Cities

Cities are interdependent entities, which maintain exchanges, compete and imitate each other, these links are materialized in space by roads and railroads, and are also identified by intangible relationships: telephone or financial flows, but also information exchanges, it is the interactions between cities that guide their evolution and that of the system they form.

Cities, through the actors that make up them, compete, imitate each other, cooperate, so that the way they integrate change can be understood in terms of co-evolution, in this regard, Pumain (1997) clarified the interpretation of the “significant change” which affects other cities: “Indeed, it is not just any local transformation that is likely to affect other cities in the system.” (Pumain, 1997)

The fluctuations of cities over short periods of time to adapt to change (advances and delays) do not alter the structure of the system, it bifurcates “when one of these fluctuations persists and amplifies to the point of sustainably altering the position of a city or group of cities, associated for example with the development of a specialization” (Pumain, 1997).

This “hierarchical distribution of cities” has been formalized during the 20th century by the successive contributions of the geographer Felix Auerbach (Pumain et al., 2006), by statistician Robert Gibrat (1931), who developed the law of proportional effect and finally the linguist George Kingsley Zipf (1949).

These previously cited studies outline the contours of an evolutionary theory of cities, the hierarchical dimension, that is to say the inequality of the sizes of the cities, is considered the major fact which characterizes an urban system in so far as this hierarchy offers a quite remarkable regularity, which can be summarized simply by a statistical and spatial model (the law of rank-size, formulated by G. Zipf, 1949).

The application of this rule has been verified empirically for all countries of the world for the recent period and for other historical periods, the regularity of size inequalities is complemented, in the analysis of urban systems, by another dimension, which is not

directly related to it, it is the persistence, in the medium term (several decades), in the same cities, of an economic specialization. (Moriconi-Ebrard, 1993)

In the first half of the 20th century, Walter Christaller and August Lösch built the theory “**central places**”: the larger the size of the cities, the greater the assets and services they offer are scarce, and the more their spatial scope, which expresses the distance that individuals are willing to travel to obtain these goods is important (Christaller, 1933, Lösch, 1940).

Central Place Theory sought to explain the economic relationships of cities with smaller settlements, it also seeks to explain why cities are located where they are geographically and how they serve the surrounding smaller settlements with a specialty of goods and services, the theory was used to explain a generally isotropic landscape, that is a flat and homogeneous surface, and how varied urban locations dispersed on such surfaces, the population was seen as generally evenly distributed with settlements being generally equidistant. (Shi et al, 2020)

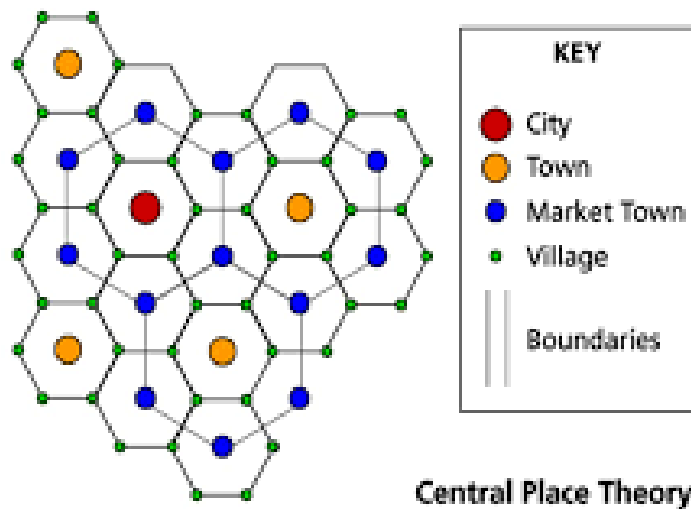


Figure 23: The hexagon pattern formed by the distribution of different order settlements in Central Place Theory.

Source: Shi et al (2020)

Central place theory actually uses only part of the jobs of cities (services to the population) in its interpretation of urban inequalities, other activities, classified as specific or anomalous, are not intended to satisfy the needs of the surrounding population but are part of production and distribution networks whose area of relationship is national or even global. (Pumain, 2004)

The observation of cities and the networks they form highlights several morphological and functional regularities, the number of cities inverse geometric progression of their size Zipf's law (or Rank-size law) is one of them, this strong characteristic can be observed in all systems the political, economic and cultural environment within which cities evolve, the spatial patterns that cities form is one of these regularities. (Pumain, 2004)

Cities of the same size are then regularly spaced and serve areas of influence whose population (more than the area) is proportional to their size, another remarkable regularity is the articulation of cities of different specialties in all the regions, reflecting the interdependencies between them, However, certain types of activities, such as those dependent on localized resources specific activities (such as tourism or mining), may be more concentrated in space. (Pumain, 2004)

Even today, it arouses the theoretical interest of geographers, economists and even physicists, who see in it possible interpretations in terms of scaling, or algometric growth, by analogy with other works (Pumain, 2004).

3.1.1.1. The Application of Rank-size Law Zipf on the Algerian Urban System

The outlines of the regional urban framework in Algeria have been drawn since independence declaring a very rapid growth and deep disparities in its spatial arrangement, Algeria had and still experiencing an accelerated urbanization process, with a scale unsurpassed for several decades, Nowadays, the urban structure is dominated by the development of the biggest city of Algiers and other coastal big cities such as Oran, Annaba and Constantine. (Bousmaha et al, 2021)

The application of Zipf's law on the Algerian urban system showed the existence of a macrocephalic system due to gap between the first city (Algiers) and directly lower hierarchical levels declaring an imbalance urban system, the cities system in Algeria is also

marked by the dramatic expansion of small cities through the transition from rural to urban and the residential loosening of large cities have influenced the trend towards the balance of the urban system in Algeria. (Bousmaha et al, 2021)

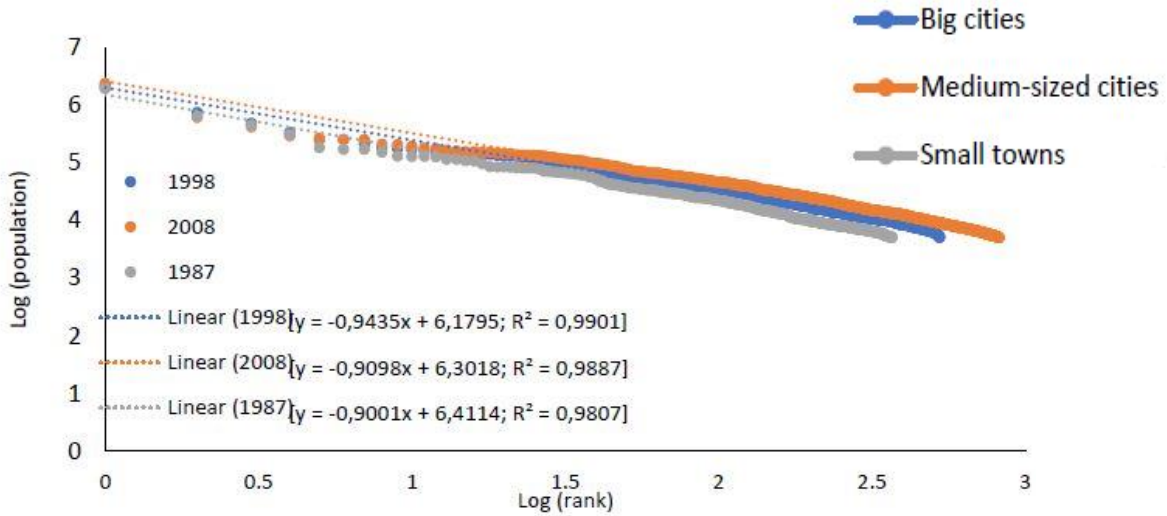


Figure 24: the evolution of the urban population by category of cities from 1977 to 2008

Source: Bousmaha et al (2021)

The classification of urban agglomeration in Algeria is previously explained in chapter01, page 27, figure 07.

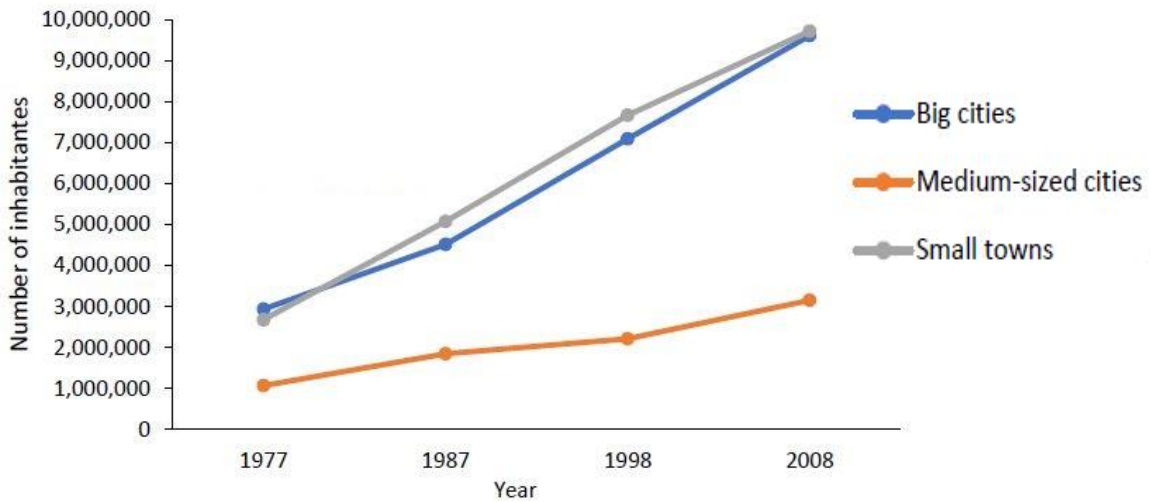


Figure 25: the hierarchical distribution of cities with more than 5000 inhabitants in Algeria during 1987, 1998 and 2008

Source: Bousmaha et al (2021)

In precedents figures illustrating the evolution of the urban population by category of cities from 1977 to 2008 and the hierarchical distribution of cities with more than 5000 inhabitants in Algeria during 1987, 1998 and 2008 we can confirm that Algiers' demographic dynamism is fading to the benefit of other cities. (Bousmaha et al, 2021)

3.1.2. The Introduction of the Cities System Concept

Earlier works, at the beginning of this century, were mainly addressing the relatively new theme of urban sustainability, underlining the specificity of the concept with respect to the general accepted definition linked to natural environments (Paddison, 2001) and sometimes trying to include the theme as a new dimension in self-organizing complex systems analysis (Bertuglia et al., 1998).

Later on, it was the turn of a new general issue, namely the role of cities in the new globalization era (Taylor et al., 2007), while other contributions tried to include new conceptual approaches coming from other, less formalized disciplines, particularly sociology pointing out the results that could derive from a scientific convergence among differentiated conceptual and methodological codes (Capello, 2015).

In the 1960s, Brian Berry formalized the analysis of cities of the same countries through the concept of “City Systems” (Berry, 1964), which allows to understand the city as the product of interactions that take place at different temporal and spatial scales.

Since the first model was proposed by Henderson (1974), the literature on cities systems have been enriched by a variety of contributions (Anas, Xiong, 2003) where the concept of cities system was developed to reflect the intertwined nature of the growth of living organisms, appears adequate to characterize urban development, as cities co-evolve, they tend to maintain their relative positions within the system, so that the differences acquired long before then persist (Pumain, Saint-Julien, 1996).

The simplest model of a cities system is based on identical cities, between these cities, there is no trade, however, the residents have complete mobility, the system of balanced cities results from competition between private sector maximizing their profit or between local governments maximizing the common level of utility of residents. (Capello, 2015).

Nevertheless, Black and Henderson (1999), argue that the system of cities is no longer composed of cities identical and “isolated”, a cities system can be composed of cities of different types, specialized or diversified in different industrial sectors, of location varies between industries and that the degree of urbanization economies between industries also vary between cities of different industrial structures.

Cities systems can be defined as the result of the different forms of exchanges and interactions that occur between cities at a greater or lesser distance because of their mutual dependence, their complementarity and their competition, also Cities systems are characterized by long-term persistence of their “morphological” structure, understood as the configuration, the hierarchical and spatial nature of the network, rather than “qualitative”, is of a functional nature. (Capello, 2015)

This relative stability can be explained by a “distributed” process of dissemination of growth where all cities have on average the probability of grow at the same rate at each time interval (Gibrat, 1931), such “random” character stems from the connections that, in a territory where common rules of political, economic and social functioning are shared, integrate cities in complementary and competitive relationships. (Capello, 2015)

Cities engaged within a network, connected and mutually they are informed and try to adapt to changes in order to capture the profits they generate, innovations spread according to a size hierarchy of population and functional diversity of cities, accentuating the gaps already between cities (Pumain, 1998).

3.1.3. Types of Cities System and its Models of Growth

Globalization is characterized by the mobility of capital, investment, and corporate strategies, it create a space of flows that draws a society into a network, consisting of a collection of threads, networks of exchanges, and nodes, a temporary anchorage, redistribution platform, and flow bursting. (Castells, 1999)

Therefore, the evolution and the hierarchical structure of city systems seem to be universal geographic environment, economic system and organization socio-political in which they take root, nevertheless, beyond organizations common structures and dynamics of systems

formed by cities in different regions, singularities can be observed as of the evolution of cities in historical and political contexts different. (Castells, 1999)

Castells (1999) argue the existence of three main types of cities systems have been identified, related to a specific historical context and differentiated by their hierarchical and spatial configuration:

- First type characterizes the countries old and regular urbanization where cities have formed in a quasi-simultaneous way, urban growth is “distributed”, that is to say distributed globally in proportion to the size of cities.
- A second type is specific to countries with old urbanization but with a break-up, for example, countries that have experienced a period of colonization, it is characterized by dual growth with macrocephalus often very accentuated.
- A third type relates to the evolution of urban systems in “new” countries where “the city” was imported by settlers and where the urban growth occurred in waves along pioneer fronts.

Several studies (Swerts, Pumain, 2013) have shown that the systems formed by the cities in different regions of the world present common dynamics and organizations, in a regular hierarchical distribution of the size of cities (Zipf) according to the Gibrat model is systematically found, the maps of the distribution of activities between cities and the specializations they form give similar images from one census to another, the economic activity is therefore at the heart of inter-urban differentiation.

The way in which cities systems were set up was very different from one country to another, three main types of historical context can be identified (Swerts, Pumain, 2013):

- Legacy Systems and Stand Continuity: in this first type, the cities have emerged more or less simultaneously in all parts of the territory and the systems are characterized both by the age of urbanization
- External shocks and systems reorganization: other urban systems are just as old but are characterized by a major rupture followed by a phase of reorganization.

- New systems and conquest of the territory: in the new countries, the city is a model imported by the settlers and gradually spread by waves of penetration, impelled or accompanied by the railway.

The three types of systems differ not only in their history, but also in certain features of their hierarchical and spatial configuration still perceptible today, urban transition refers to a period of massive urban growth, during which settlement, largely made up of villages, was relatively homogeneous and dispersed, and became much more heterogeneous by concentrating around urban centres. (Swerts & Pumain, 2013)

This transition is complete in the former industrialized countries, continues in the countries of Asia and begins only in some countries of Africa, while the flows of new urban residents came mainly from rural areas during the urban transition of the 19th century, it was also fuelled by the natural population growth of cities in the transition of the 20th century, the resulting increase in population is distributed in the cities in three ways. (Swerts & Pumain, 2013)

In the countries of old and continuing urbanization, urban growth has been distributed, that is to say distributed globally in proportion to the size of the cities, although there is a very slightly stronger relative growth in large cities.

In the systems characterizing the new countries, urban growth has occurred in waves, with very high rates in newly created cities, in contrast to countries with older urbanization, the growth rates of cities are often inversely correlated with their size (or the age of cities). (Swerts & Pumain, 2013)

The structure of city systems, understood as the hierarchical and space of cities on a territory, their size and spacing, therefore results the social, functional and technical adjustment of cities in accordance with the anthropological evolutions of the space in which they take root and the more or less continuous adaptation of cities to changes in dimensioning of space by the evolution of circulation speeds and by that territories become a multilevel systems within itself. (Swerts & Pumain, 2013)

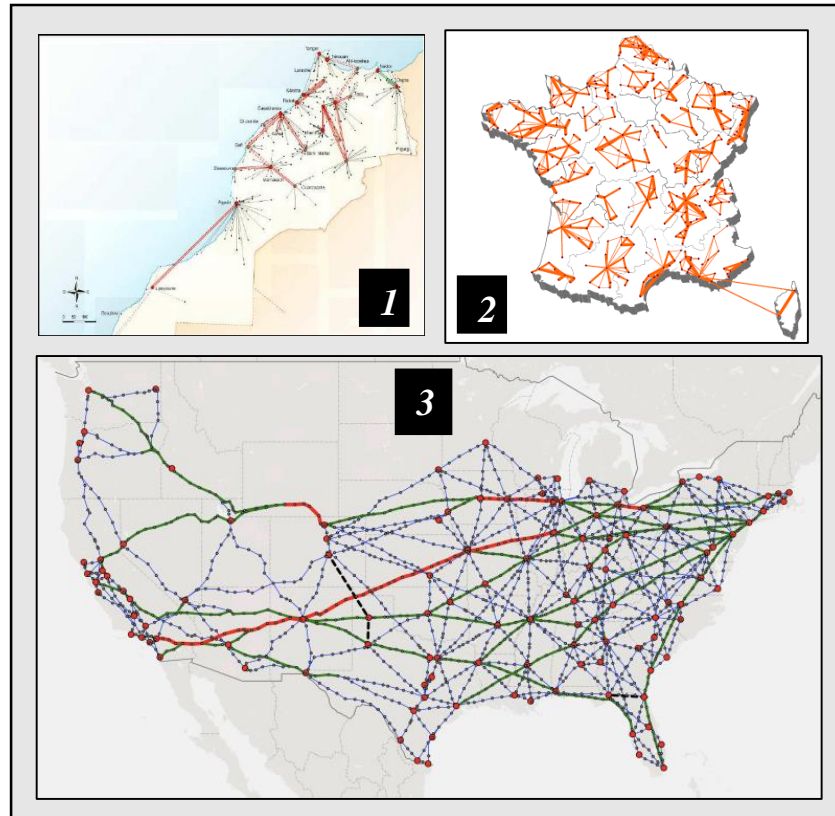


Figure 26: International examples of cities systems.

1: The national cities system in Morocco 'Second type'. Source: *geoperspectivas* (2020)

2: The national cities system in France 'third type'. Source: *EXTRATERRITORIAL* (2020)

3: The national cities system in the United State of America 'First type'. Source: *look-travels* (2022)

Krugman (1998) suggests applying the physical theory of percolation to model the emergence of urban hierarchies as the result of a diffusion process, neglecting the fact that urban diffusion processes are often «hierarchical», in the sense that the adoption of innovations often “jumps” from one big city to another big city, before reaching the smaller ones closer (Pred, 1977), which in no way corresponds to a process of passive diffusion from close to close.

The aim is to develop the models needed for simulation experiments, which can validate what we believe to have been understood by the evolution of these systems, and possibly allow us to make forecasts (Pumain, 2006).

Simon (1955) proposed another growth model, which could be interpreted as a deterministic version of the process described by Gibrat, but it results in a power function

type distribution, it is a distributed (or distributed) growth process that can be interpreted as the result of competition between cities for population attraction (human flows attractiveness), and therefore depends on their interactions (particularly in terms of adoption of innovations or adjustment to changes).

Simon (1955) realized that cities are constantly in competition for the capture of resources and innovations, which enable them to continue to value the gains they have accumulated and to maintain or increase their weight and influence in the system of the cities with which they are connected, this competition explains that innovations spread very rapidly from one city to another and that the resulting qualitative and quantitative transformations are of about the same magnitude, over short periods, in the integrated systems.

The consequence of this mode of growth is that the hierarchy of the size of cities is maintained, and that the inequalities that occur as a result of various political accidents (wars, choice of capitals) or economic (functional specializations, for example during the industrial revolution) are maintained over much longer periods than the events that gave rise to them.

A gap often found in the Gibrat model is that growth inequalities are not totally independent of the size of cities: over time, large cities grow a little faster and small ones a little slower than the average, and size inequalities are increasing more strongly than would be expected by the model (Bretagnolle, 1999).

3.2. Scaling Complex Systems: From cities systems to Cities as a system

A functional interpretation of the urban organization can be given in two levels, as if it had been designed for the articulation of territorial entities on different geographical scales, a territory can be observed as separate units as a **CITY** or as an attached **CITIES SYSTEM**, based on the definition of the focus area in the study. (Clergeau, 2007)

Defining the city, delineating its contours and following its spatial evolution over time is one of the formidable problems faced by any researcher working on this dynamic and complex space, as Lajoie (2007) observes: *“the definition of the city is constantly recomposed in the rhythm of the ever-changing territorialities that constitute it.”*

The city, no longer defining itself as a simple geographical unit separated from its peri-urban environment, no longer conceives itself outside its environment, the city is therefore caught up by its environment in which it evolves and which is both the physical environment and the result of human action. (Clergeau, 2007)

The end of the urban transition in developed countries and the explosion of the cities of developing countries raise questions about the possible transformations of the urban frameworks of these territories.

Nowadays, **the functional approach to the nature of cities represents the traditional one**, and encompasses both a spatial and a network point of view, **in the first case the city is equated to an agglomeration and urban externalities, in the second case, the city is perceived as a node**, or better an interconnection inside differentiated long distance networks physical networks, communication networks, cultural and power networks (Scott, Storper, 2014).

One of the central features of urbanization has always been its efficiency generating qualities via agglomeration and the fact that: «cities have always functioned as nodes in systems of long-distance trade» (Scott, Storper, 2014).

3.2.1. Cities Systems' Dynamics and Spatial Configurations

Pred (1973) observes that a system of cities is conceived as a set of cities which are interdependent in such a way that any significant change in economic activities, professional structure, the income and/or population of one of the cities will cause, directly or indirectly, any change in the economic activities, occupational structure, income and/or population of one or more other elements of the set (Pred, 1973).

Even if local or regional concentrations of the same type of town (for example on mineral deposits or in tourist areas) are sometimes noted, the rule is the interweaving of towns of different specialty within the different regions, attesting to the interdependencies which are established between them, and thus of their functioning as a system.

The main functions of this everyday territory represented by each urban entity are housing and production (of goods and services). However, in most cases, these two major functions are no longer regulated locally. (Bretagnolle, 2007)

For another other level of territorial organization, it is the modalities of circulation that regulate the spatial framework of the settlement system, according to a network morphology defined by the spacing and the size of the cities, as the geographer Elisée Reclus had noticed as early as 1895, it is about the length of a day of travel that determines the spacing between the major nodes of the system, those that concentrate a certain decision-making power. (Bretagnolle, 2007)

In historical times, the diameter of an hour of travel represents the standard extension of the maximum urban field, this distance-time has always encompassed most of the activities grouped around an urban centre.

The importance of this urban structure results from the compromise between the force of the constraint linked to the advantages of centrality (the accessibility to numerous and diverse activities) and the necessary "obligation of spacing" ("two constructions cannot occupy the same place" (Reymond, 1981)), coupled with a secondary development of the "natural" environment, at the margins of the agglomeration and its advantages (Frankhauser, 1993). (Bretagnolle, 2007)

The morphology of cities tends to become a little less compact than in past centuries, since the generalization of the use of the automobile, a certain morphological duality has even been established, in cities with a centuries old history, between the central agglomeration, built in continuity, which retains a strong gradient of densities and peripheral urban areas, developed with the use of the automobile. (Pumain, 1997)

We see that the spread of the automobile and rapid transport techniques has allowed a certain spread of urban agglomerations, but the speed of circulation within urban areas remains much lower than that of inter-urban transport so the extension of these territories of the daily life rarely exceeds today a radius of 30 or 40 kilometers around a center. (Bretagnolle, 2007)

The spatial extension of this daily territory remains very strongly constrained by the duration of internal movements, whose speed is itself slowed by the high density, the average time allowed for daily travel in a city is about one hour, sometimes between one and two hours, for the sequence of activities located on average in a little more than three different places during the day. (Pumain et al., 1999)

Even if this time can vary considerably from one individual to another, and depending on the cities, it does not constitute less, in these orders of magnitude, an invariant for the organization of the territories of daily life (10 to 15% of working time) represents a strong constraint to their maximum spatial extension (Pumain et al., 1999).

This daily temporality determines a much greater possibility of spatial extension for the territories of power than for those of daily life, in fact, not only the length of time that regulates the spacing of knots in the same territory, but also the speed of circulation between these knots. (Pumain et al., 1999)

Hierarchical inequalities are another spatial configuration of cities systems: François Moriconi-Ebrard (1993) compared the degree of inequality of cities in the different countries of the world by means of a harmonized database established that the degree of inequality in the size of cities did not depend on the level of development of the countries, but on the conditions prevailing at the time of the establishment of the system of cities.

For example, countries with older urban settlements have a denser urban fabric, in which there are many small towns and inequalities between the sizes of smaller towns, the slope of the line adjusting the size-rank distribution of cities gives a convenient measure of the degree of hierarchical inequality.

In addition, in systems reorganized because of a colonial shock (such as Asia or Africa), urban growth has been dual: to the endogenous growth of local markets and administrative and handicraft centers has superimposed a very high concentration in large cities, often the capitals, which played an interface role with the metropolis, when cities settled at times when the means of circulation were very slow, by the spontaneous emergence of agricultural markets or by the stages and relays on major routes of communication, they are very close to each other. (Moriconi-Ebrard, 1993)

This also means that these formerly settled cities have for the most part not disappeared: the cases of ghost cities, or even decline, are relatively rare, the new countries, in which city systems have been established in the last two centuries, have a wider spacing between cities, high concentrations in larger cities and an urban hierarchy characterized by greater inequalities. (Moriconi-Ebrard, 1993)

A third type of city system corresponds to systems that have been disrupted in their organization, when a colonial regime altered the interactions that built the city system (**for example Algeria**), by intensifying the relations of certain cities (often ports) with an external metropolis, or by moving political or administrative centres.

It often results from the history a duality of the system of cities, the endogenous part appearing less developed compared to extrovert metropolises that are somehow «oversized» in relation to the urbanization of the country. (Moriconi-Ebrard, 1993)

The concept of space production by Lefevre (1974) is already part of this idea, Pinchemel (1988) distinguish between two types of interaction depending on whether they involve artificialization, the transformation of the natural environment by societies, or the spatialization or planning of territories according to the rules of the spatial organization of societies.

It might be thought that such strong differences result in different urban dynamics, and that each major type of system of cities thus identified follows a development that is unique to it. In fact, once the cities systems are in place, the similarity of their evolution is remarkable, paradoxically, it is even because all the systems of cities once constituted evolve in the same way that they continue to bear the traces of their history, these are therefore not indicative of an “inertia” of geographical structures, but rather of their extraordinary capacity to adapt. (Pumain, 2020)

The dynamics of these systems is a perfect example of the historical chain (path dependence) that characterizes the evolution of complex systems, the similarity of the evolution thus represented is striking, and cities grow on average in proportion to their size.

This explains why initial inequalities tend to persist over very long periods, the reference model is that of Gibrat, which explains the dissymmetrical distribution of the size of cities

(a lognormal distribution, slightly different from Zipf's law) by a random growth process where all cities have on average, at each time interval, the probability of growing at the same rate.

The size of cities, as measured by their population, is a synthetic indicator of their importance, which must however be complemented by other measures when the comparison is extended to cities in countries of unequal economic development.

The measurement of the population of a city is delicate because of the difficulties of delimitation of urban entities, which extend spatially at the same time as their number of inhabitants increases. (Pumain, 2020)

More complete versions of this distributed growth model are now being developed, for example by simulating the construction of networks of relations between cities according to simple rules whose effect is similar to that of Gibrat, but that allow growth to be spatialized. (Moriconi-Ebrard, 1993), therefore, it remains much more difficult to determine a typical spatial extension for city systems than for cities. Indeed, delimiting a system of cities is a necessary but never entirely complete operation. (Pumain, 2020)

If an attempt is made to apply a criterion often used in systems analysis, which consists of putting together subsystems that have more exchanges between them than they have with the system environment, **the peculiarity of the territorial functioning of cities gives them a spatial scope that varies according to their position in the urban hierarchy, a small city will generally have local exchanges, a large city regional exchanges, while metropolises can have important exchanges at a much longer distance.** (Moine, 2006)

3.2.2. The City as a System

Approaching the city as a System refers to the infrastructures of housing, roads, transport, pipes and cabling, etc. specific to an agglomeration, or as it called in current studies 'technical urban networks', limiting the borders of study area can generate multiple systems also interfering and cooperating in the same scale.' The City'. (Bailly, et al, 2016)

Today, the functioning of the city depends to a large extent on the functioning of the urban technical networks, any slightest failure can have cascading consequences on urban functioning (Bailly, et al, 2016)

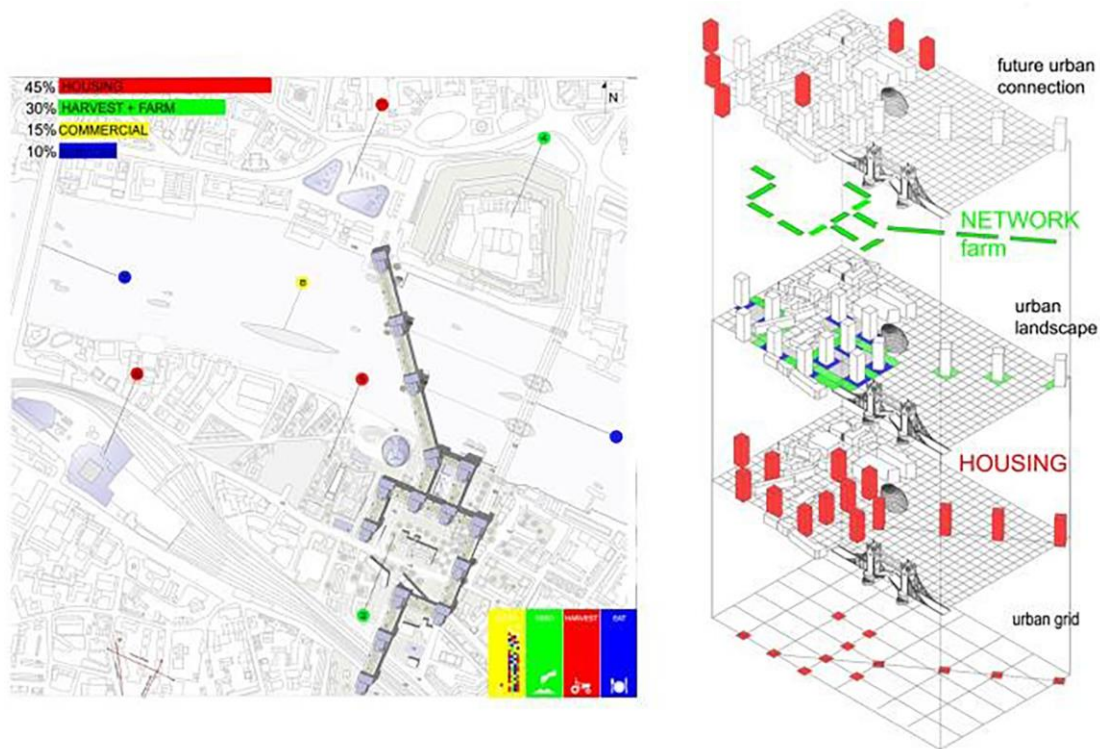


Figure 27: Example of a conceptual diagram of urban networks

Source: Losco & Figliola, (2015).

The form of city plans plays a vital role in conception of technical urban networks, whether radio-concentric or checkered, the mono or polycentric character, the greater or lesser symmetry of the form, its compact or dendritic appearance, the architectural peculiarities that make up the urban landscape, are attributes that refer to this global entity that is the city. (Losco, Figliola. 2015)

The high value of the central area comes from its compactness, it has the best accessibility, and includes a significant proportion of the production function, in particular in its most elaborate and recent forms, rejecting part of the residential function towards the periphery, is the main characteristic of the organization of these territories of the daily life, and this all the more because they are of great dimension. (Losco, Figliola. 2015)

3.2.3. Mixed Hierarchies: Actors of Multilevel Interactions

From a static point of view, at a given moment, it can be noted that each level of urban systems lends itself to a different use by the inhabitants of a territory, cities being considered as the place where the usual activities take place for the most part during the day, while the system of cities operates for less frequent but longer spatial exchanges, and which also have a strong impact. (Watts & Strogatz, 2003).

The theory of complex systems, which applies in particular to living systems and social systems, interprets the appearance in these systems of persistent and identifiable levels of organization, with their emerging properties, from the interplay of the lower-level elements or subsystems, the level thus constituted orienting, limiting, or constraining those interactions. (Watts & Strogatz, 2003).

Between the two main hierarchical levels of urban systems, that of the city, and that of the system of cities, there are interactions which do not only involve each of these two entities, since, for example, urban actors can intervene simultaneously at all scales, on all or part of each system. (Watts & Strogatz, 2003).

It is for the sake of simplification that the interactions which are mainly involved in the formation of each of the two levels of organization can be identified, bearing in mind that the overall structure is probably more similar to that of organized “small worlds” (Watts & Strogatz, 2003).

In this respect, another process takes shape from the interactions that are created in cities, and it seems that it continues indefinitely since cities exist, it is the process of social division of labour, which makes cities the main actors of social change, according to the sociological theories of the city. (Moriconi-Ebrard, 1993)

Although the design of a "network of cities" has enabled great progress to be made in analysing the determinants of the development of cities, showing their strong interdependencies, and a quasi-autonomy of the system in its tendency to be self-governing, perpetuate in its hierarchical and spatial organization.

This concept has the disadvantage of considering cities as islands emerging from an undifferentiated ocean and constituting the "system of cities" in an urban archipelago isolated from the rest of the territory (Veltz, 1996).

3.3. The Systematic Approach in the North East Region of Algeria

In this part of the field work we initiate the study of a possible cities system on the North East region of Algeria by declaring its structure, demographic distribution based on the RGPH 2008 then creating the urban network for each wilaya, as a final step we attempt to offer a classification of causes, models and interpretations of urban growth based on the studies previously explained in Chapter 01.

3.3.1. The Structure of the Regional Space in the North East Region

The distribution of cities in this region corresponds globally to that of natural resources, thus, the coasts are urbanized from the main port sites: Jijel, Skikda and Annaba are the outlets towards the sea, Constantine, Mila, Guelma and Souk-Ahras are in the center of the main agricultural areas of the region.

If we examine the territorial distribution of agglomerations larger than 25,000 inhabitants, the Northeast region appears as a de-structured territory with a central space, articulated around the RN5, RN3 and RN44 linking Algiers to the Tunisian border and between the two poles of Constantine and Annaba.

(Raham, 2001) argue that the industrial investments made by the State from the 1970s is the main factor in de-structuring regional space, by wanting to get closer to the populations and the workforce, were established in the middle of the best agricultural lands and created the bases for a continuous de-structuring of the rural world through the competition that industry maintains with agriculture on land, water and labor.

The second factor in the de-structured regional space is schools and health facilities in major towns: it has drained in large numbers the rural populations surrounding the cities and even urban populations from other cities in the region or outside and less well provided with socio-collective facilities.

Finally, the last factor, which has appeared in recent years, the insecurity of the countryside, which prevailed during the decade 1990-2000 largely, contributed to the re-composition of the urban reality.

the migratory movements of the decade of insecurity (1990-2000) largely explain the current urban structure and for the future, new logics seem to be put in place based on the economy (formal and informal), and on major university facilities in particular, tend to stimulate new urban dynamics, the major housing programs initiated by the state also played a large part in the reshaping of the regional urban structure. (Raham, 2001)

3.3.2. The Demographic Distribution of the North East Region Cities'

Compared to the national level, the demographic dynamics of the Northeast region were increasing at a much slower rate than that observed at the national level (RGPH 1998 and RGPH 2008). The observed gap is mainly linked to the massive exodus of rural populations to urban areas, particularly to large cities and metropolises (confirmed by the age structure of the under-equipped mountainous wilayas - Mila and Jijel - and that of the wilayas. well-equipped and with high industrial potential)

Examination of the distribution of agglomerations by size shows that if, overall, all categories are represented in different wilayas:

	> 100.000 inhabitants.	50 à 100.000 inhabitants.	20 à 50.000 inhabitants.	10 à 20.000 inhabitants.	Total inhabitants.
Northeast	1 300 575	171 269	496 927	473 934	2 442 705
region	53,2 %	7 %	20,4 %	19,4 %	100

*Table 3: the distribution of agglomerations in the north east region
Source: RGPH General Population and Housing Census, 2008.*

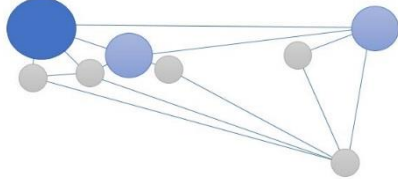
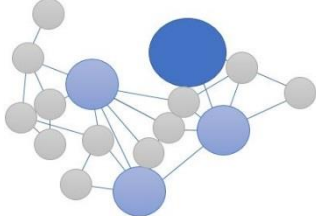
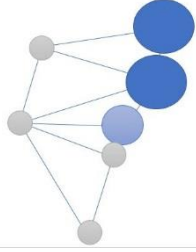
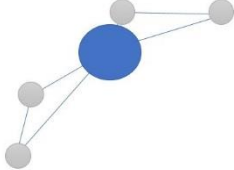
Wilaya	Population in 2008	Surface km ²	Density (inhabitants/km ²)	Rate of demographic growth
Jijel	379156	2577	266	3.94
Skikda	516617	4 026	223	2,37
Annaba	512411	1439	424	1.30
Guelma	300679	4101	118	2.13
Constantine	836977	2 187	427	1.73
El Tarf	240697	2 912	122	2.87
Souk Ahras	256963	4 541	95	3.03
Mila	446939	9 375	220	4.52

*Table 4: Demographic data for the wilayas of the north east region
Source: Author's elaboration (2019) of the RGPH 2008.*

3.3.3. The Urban Networks in the North East Region

In modeling the urban networks of the north east region, we refer to the classification of cities cited in 2006-06 law of 20/02/06 on the city orientation (chapter 01, page 29, figure 07), in the following table we present the urban models of representation of the three dimensions of agglomeration:

Chapter 03: The Urban Systematic Approach

Wilaya	Number of Big cities	Number of Medium cities	Number of Small cities	The actual form of the urban network
Jijel	1	2	5	
Skikda	1	3	12	
Annaba	2	1	4	
Guelma	1	/	4	

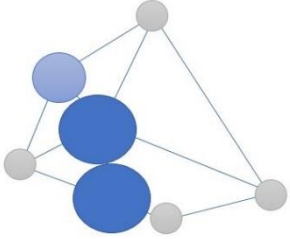
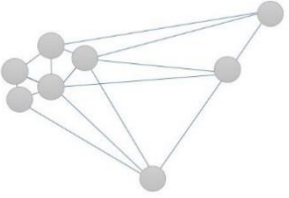
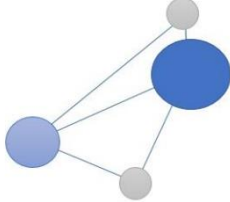
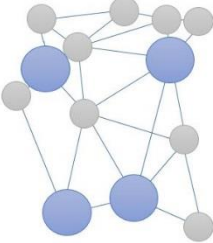
Constantine	2	1	4	
El Tarf	/	/	8	
Souk Ahras	1	1	2	
Mila	/	4	10	


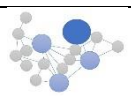
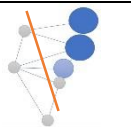
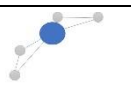
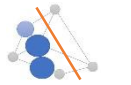

Table 5 classification of the wilaya's agglomerations in the north east region based on official demographic dimensions

Source: Author's elaboration (2021) of the RGPH 2008.

As a first observation of the previous table we notice that the wilaya of Skikda and Djijel with the biggest number of small cities (usually an indicator of agriculture or touristic allocations or social particularity) contradictory to the fact that both wilayas were programmed as a future industrial pole, As a first observation we notice the two metropolises dispose of several small cities which if integrated to the right development strategy can produce future urban centers.

3.3.4. Possible Causes, Models and Interpretation of Growth for the North east Region's networks

In the following table, we suggest an explanation of causes, models and interpretations of growth based on the wilaya's network and urban structure:

Wilaya	The urban network	Interpretation of growth ¹	Possible Causes of growth (or sprawl) ²	Model of growth ³
Jijel	1  2	1 continuists 2 ruptirists	1 periodical effects (or/and) governance 2 the perspective of deconcentration	1 linear strip corridor 2 scattered discontinuous
Skikda		Continuists	the perspective of deconcentration (or/and) regional restructuring	Leap frogging
Annaba	1  2	1 ruptirists 2 continuists	1 the perspective of deconcentration (or/and) regional restructuring 2 governance (or/and) the cost of housing	1 linear strip corridor 2 polynucleated nodal
Guelma		ruptirists	the perspective of deconcentration (or/and) periodical effects	Scattered discontinuous
Constantine	1  2	1 continuists 2 ruptirists	1 governance (or/and) the cost of housing 2 the perspective of deconcentration (or/and) regional restructuring	1 linear strip corridor 2 polynucleated nodal
El Tarf	1  2	1 continuists 2 ruptirists	1 the perspective of deconcentration (or/and)	1 polynucleated nodal

¹ Figure 2 : interpretive logic of urban sprawl (Source: Docampo, 2014)

² Figure 1: the causes of urban sprawl (Source: Bierens & Kontuly, 2008)

³ Table 4 classification of the urban growth model based on the density and spatial form (Source: (Galster, et al., 2001)

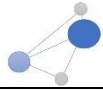
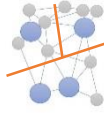
			and) regional restructuring 2 the perspective of deconcentration	2 linear strip corridor
Souk Ahras		ruptirists	the perspective of deconcentration	Scattered discontinuous
Mila	1  2	1 continuists 2 continuists 3 ruptirists	1governance or regional restructuring 2 1governance or regional restructuring 3 the perspective of deconcentration	Leap frogging

Table 6: the classification of urban networks of the north east region
Source: Author's Elaboration (2021)

We notice a variety of urban networks in the northeast region of Algeria, which usually indicates the existence of several factors of growth with differences in time and scale of each agglomeration in the network:

- **Jijel:** we can identify two separated forms of networks the first was is more compact which indicate a continuists growth in the linear strip corridor model, the reasons behind that could be periodical effects (the rural exodus in the decade of the insecurity 1991-2000) or/ and governance issues that took place in dealing with that population density change, the second one is on a ruptirists form, a scattered discontinuous model that probably took place before the rural exodus due to the perspective of deconcentration (personal preferences)
- **Skikda:** the urban network in skikda is compact with a variety of scales, which suggests continuous growth, even though the wilaya suffered from insecurity in the 1990-2000 decade, the morphology of the wilaya is also a factor that could slow down the growth but on contrary, it kept a continuous rhythm driving us to wonder about the rate of consuming agricultural lands and the natural environment in the wilaya.

- **Annaba:** in the case of Annaba metropolis, we observe two detached models in the network, the first one is more of a hinterland, a polynucleated separate nodals of small cities. The second one is the conurbation of two big cities in a linear strip corridor with medium and small cities in their peripheries, for the first one, the causes could be multiple from regional restructuring (projects initiated by the state in heavy industry) to the perspective of deconstruction, the second one, governance issues or cost of housing in the cities are probably the cause of growth.
- **Guelma:** the network of Guelma (along with Souk Ahras) is the smallest (in terms of elements number), it is also the only one with no medium city, the growth is ruptirist, a scattered discontinuous model of small cities that has grown from rural agglomerations due to periodical effects.
- **Constantine:** the second metropolis in this list is Constantine where we also can distinguish two networks, the first one is a continuist growth in a linear strip corridor with a conurbation of two big cities, usually, the causes for such growth are governance issues or the cost of housing in the metropolitan area, the second one is two detached small cities forming a ruptirist growth where the cause of growth is the perspective of deconstruction, the exodus from the neighbouring agglomerations.
- **El Tarf:** this wilaya has a unique network, with the absence of big and medium cities, there are only small cities in this network, we notice two separated groups: the first is polynucleated nodals on the borders of other wilayas in a continuist growth model, the second one is a ruptirist growth forming a linear strip corridor parallel to the Tunisian borders, the possible causes for this growth are the perspective of deconstruction based on personal preferences.
- **Souk Ahras:** the wilaya has a simple network with a representation of the three dimensions of agglomerations, a ruptirist growth on a scattered discontinuous model probably due to the perspective of deconstruction from the small agglomerations to the nearest bigger ones.
- **Mila:** In this complex network, we notice three units, two in the north and one in the south, the two in the north are compact continuous growth where the southern one is a ruptirist growth, a scattered discontinuous model, the causes of similar

growth go back in general to the perspective of deconstruction from neighbouring wilayas to or from the detached model.

Attaching the urban networks of the eight wilayas in the North East Region while result the following regional network:

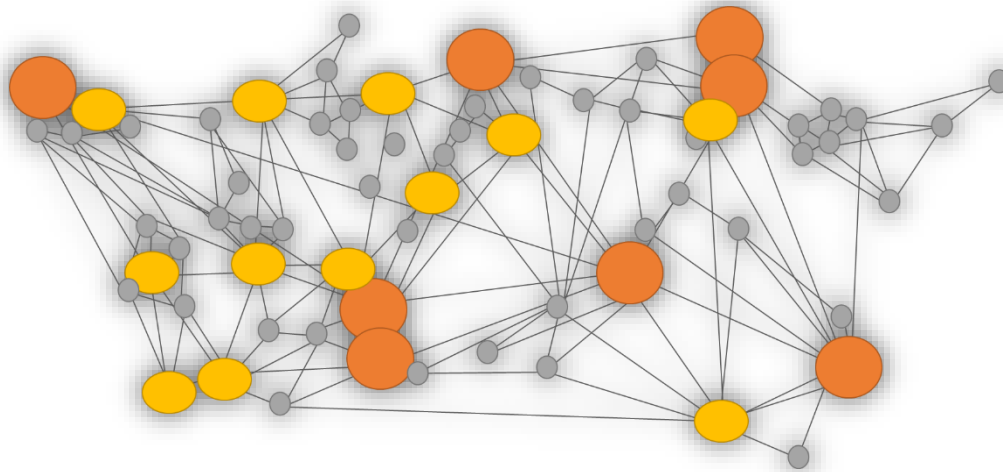


Figure 28: the regional network of the North East region

Source: Author's Elaboration (2021)

Conclusion

Cities are interdependent entities, which maintain exchanges, compete and imitate each other, these links are materialised in space by roads and railroads, and are also identified by intangible relationships: telephone or financial flows, but also information exchanges, it is the interactions between cities that guide their evolution and that of the system they form. Cities, through the actors that make up them, compete, imitate each other, cooperate, so that the way they integrate change can be understood in terms of co-evolution.

The analysis of groups of cities in the same country, with the use of the concept of a system of cities, became formalized from the 1960s in the United States, then during the following decade in Europe, this systemic approach made it possible to renew the study of inter-urban differentiation in terms of hierarchy of sizes and functions, first according to static approaches, with the deepening of the principles of classification of cities, and then from a dynamic perspective, where the concept of a system becomes very interesting.

When discussing the urban network concept, (Ducruet, 2020) declares the existence of dispersal of approaches and definitions, multiple scales of analysis, disciplinary perspective, and intended audiences, the crossing between network science and urban studies made it possible to consider urban networks as where cities are nodes or vertices and their mutual connections are links or edges

Theorizing the urban network, lead to a wide diversity of definitions and empirical studies, defining the concept of urban network implies a certain degree of interdependency among cities that are connected by various linkages at different spatial scales where mostly in hierarchical tendencies the larger cities are first adopters before redistribution to smaller cities. (Derudder, 2019)

The academic spectrum features the city network concept differently, from city network, city system, system of cities, urban system, where the variation among existing studies comes from three main elements:

- The scale of analysis adopted
- The urban processes captured
- The ontological status ascribed to the
- Network under study.

The co-evolution of cities belonging to the same system covers a set of processes that describe the interdependencies of their evolutions, both quantitative and qualitative, models are available here which clearly relate the interactions that occur between cities and the resulting structures at the level of urban networks, starting from the size of cities to the Gibrat model and to more complete versions of this distributed growth model that are now being developed, for example by simulating the construction of networks of relations between cities by computer patterns.

Based on the relative urban dynamics, the decisive interdependencies for Algerian regional metropolises (Constantine, Annaba and Oran) are sometimes played out among themselves, sometimes with other major north African cities, while Alger is measured with other «world cities», emphasizing our hypothesis about the necessity for a comparative study on the potential attractiveness as a pre-planning phase in regional strategies.

Finally, by applying the systematic approach on the North East region of Algeria, and after an attempt to analyze the eight networks separately based on three recent studies, we declare the possible causes, interpretation of growth and models of growth from three past studies on urban growth, we come across several conclusions:

major differences between the eight networks from complex ones such as Skikda to simpler ones like Souk Ahras, the growth in most networks was rupturist specially in the least populated wilayas, some networks (Ex: El Tarf) showed the absence of one or two dimensions of agglomerations.

The two metropolises Constantine and Annaba dispose of several small cities which if integrated to the right development strategy can produce future urban centers.

The wilaya of Skikda and Djijel with the biggest number of small cities (usually an indicator of agriculture or touristic allocations or social particularity) contradictory to the fact that both wilayas were programmed as a future industrial pole

The wilaya of Mila is the most detached network with three 3 noticeable separate units, each one has its form and model of growth.

Chapter 04:

The Case Study: North East of Algeria and its Two Metropolises

Introduction

The programmed region of North East of Algeria is the only of the country's nine (09) regions to have two metropolises: Constantine and Annaba, according to the results of the 2008 RGPH, it is home to 583 agglomerations, administratively, the Northeast region is organized into: 08 wilayas, 76 Dairas, 206 municipalities.



Figure 29: Administrative Structure of the North East region, Algeria.

Source: SRAT 2005 with author's elaboration (2019)

On both the physical and socio-economic level, the northeast region has a multitude of potentials for development which gives it diversified optional planning strategies, Nevertheless, the region is facing several natural constraints and human pressure (Ex: high demographic concentration on coastal plains), this situation has created over the past years an ambiguous economic-urban dilemma which we be explaining this chapter by declaring the characteristics of the region, its assets able to create development and the constraints that can slow it or even stop it, we also critically discuss the prospective giving to the region by previous regional an metropolitan planning documents (SNAT, SRAT, SEPT, SDAAM)

In this chapter, we provide a summarized profile of the North East region declaring the interesting characteristics, assets and planned growth in/from official regional and urban planning documents.

4.1. Characteristics of the Region

The Northeast region covers a total area of 24,475.50 km² or 1.03% of the total area of the national territory, includes eight (08) wilayas, of which four coastal wilayas: Jijel, Skikda, Annaba and El-Tarf and four wilayas from the hinterland: Mila, Constantine, Guelma and Souk-Ahras, it is delimited:

- In the North by the Mediterranean Sea (515 Km of seafront),
- In the South by the Highlands East region (wilayas de: Batna, Oum-El-Bouaghi and Tébessa),
- In the East, by the Algerian-Tunisian border,
- In the West, through the North Centre (wilaya de Bejaia) and Highlands East regions (wilaya de Sétif), among all these agglomerations, some play important roles in the administrative hierarchy: 08 Wilaya city centres.

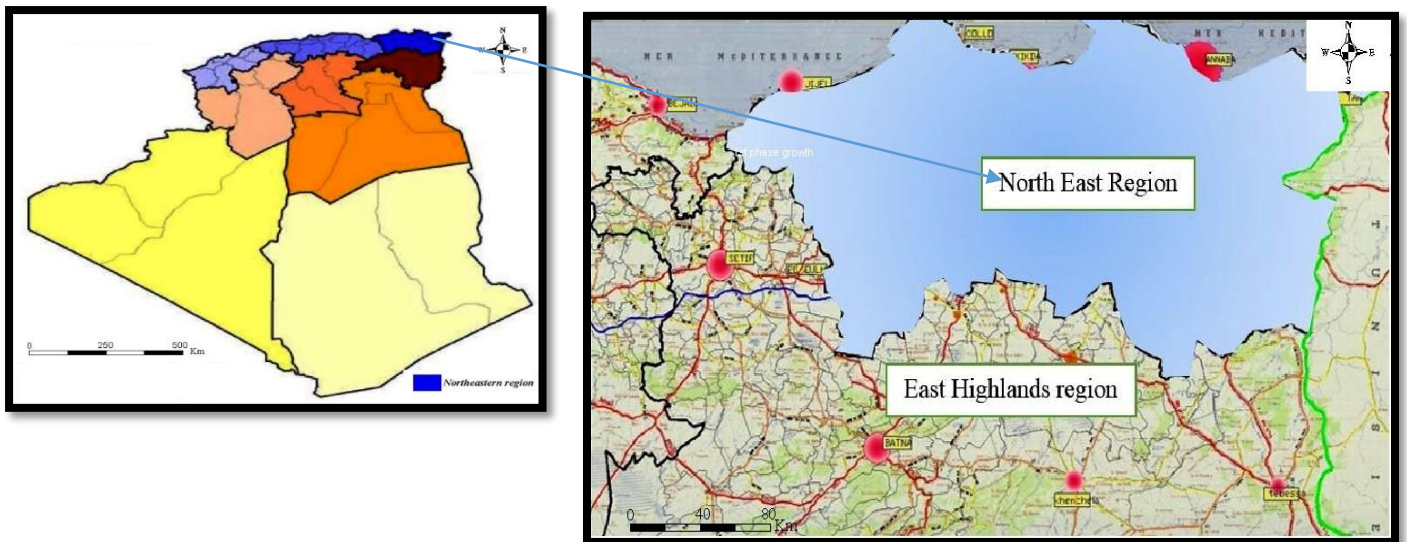


Figure 30: The geographical position of the North East region of Algeria

Source: Author's elaboration (2019) of the localisation map, SDAAM Constantine, 2008

In this part our focus is mainly on the characteristics and the assets that is able to generate attractiveness for the region, the data was collected from multiple official planning documents of different wilayas in the North East region such as SNAT, SRAT, SDAAM,

SDATW, PAW, SCU, PDAU..etc, also some more recent data is mentioned where the source was the URBACO administration in the wilaya of Constantine.

4.1.1. Natural and infrastructural Characteristics and Assets

4.1.1.1. Natural Characteristics and Assets

The Northeast region is distinguished by a wide variety of physical and natural environments, its reliefs mountainous, heavily watered and dissected by a dense network of the north, on the one hand, and have allowed to develop a natural and perennial plant cover very appreciable both in terms of the environment and biodiversity and socio-economically, and on the other hand make one of the best resourced regions of the country water.

In terms of **soil resources** we note considerable potentials mainly of land with high agricultural value (plains and valleys), However, despite the importance of those potentials the North-East region has several handicaps, the most important are the rugged terrain, the extensive drainage at the valley level, salinization at the level of the coastal plains, the decrease in storage capacity of hill impoundments, as well as various related problems with environmental degradation (erosion, degradation of pollution, etc.).

The Northeast region covers a total planned area of 2,447,550 ha of which only 1,070,891ha is useful **agricultural** area or 43.75%, the agricultural area per inhabitant is very small and in constant decline, it represents only 0.20 ha/inhabitant, the quality of the soil and its agricultural use vary from one physical environment to another, depending on the soil type, the relief, the climate and the availability of water resources for irrigation, the region could be subdivided into four different areas:

- Plains: At the regional level, they occupy a total area of 291,451 ha, or 11.9% of the total area of the region, characterized by a generally flat topography, the areas of plains, and more particularly where water resources are available, offer very interesting opportunities for agricultural development and intensification (mechanization, irrigation).

However, given the agro-climatic diversity of the northeast region, there are two types of plains with different problems:

- Coastal plains: Coastal plains benefit from agro-climatic conditions (topography, soil and climate), very conducive to agricultural activity and in particular the practice of intensive agriculture, they are subject to several constraints and threats:
 - A problem of localized flooding, especially during the winter period, due to excess rainwater and the overflows of the wadis in certain periods.
 - Land remediation constraint, with natural drainage often limited by the presence of heavy-textured soils, implying the need for artificial drainage.
 - Problem of land-shifting for habitat and infrastructure.
 - Problem of salinization of agricultural land, located on the coastal strip, by the intrusion of seawater following a degradation of the coastal environment (overexploitation of water tables, pillaging of sand, etc.)
- The Interior Plains: Interspersed between the coastal massifs of the north and the mountains of the hinterland, they have appreciable agronomic potential, despite less abundant rainfall than those of the coastal plains, like coastal plains, these interior plains are also subject to the problems of winter flooding, but with a lower intensity.
- Valleys: The valleys cover an area of 67,059 ha, or 2.7% of the total area of the region and represent a significant potential for intensive agriculture (crop and animal production), However, these valleys are subject to heavy rainwater discharges which generally results in:
 - Flooding large areas around wadis.
 - The stagnation of water levels on cropland.
 - The undermining of the banks.
- The high plains: Located in the southern part, the high plains occupy 417,916 ha, or 17.1% of the total area of the region, they are characterized by their semi-arid climate and a vocation of cereal intensification zone, in these areas erosion is low.
- Mountain areas: With a total area estimated at 1,782,935 ha, or nearly 68.3% of the total area of the region, mountain areas occupy mainly the northern and middle parts of the region and where everything helps to promote the phenomenon of erosion (nature of the relief, climatic conditions and geological nature), only the most wooded areas are resistant to erosion.

Chapter 04: The Case Study: North East of Algeria and its Two Metropolises

The coastline of the North East Algerian region includes the wilayas of Jijel, Skikda, Annaba and Tarf. It covers:

- coastal linear is 586.59 km
- land linear of 677.8km
- land area of 1766.2 km²
- marine area of 8819 km²
- A total of 10585.2 km².
- When it comes to **natural resources of energy**, the region is not a producer but a major consumer, particularly because of its industrial vocation, the region is crossed by gas pipelines and will continue to remain a pole of departure for export to Italy, therefore its supply of natural gas will always be surplus, the Skikda gas liquefaction plant, whose capacity will be increased, and the gas terminal, are involved in this scheme, but also present a strong risk for the agglomeration, which is developing around these industrial units, natural gas has the potential to increase regional industrial capacity in fertilizer production of plastics and metallurgy, agro-industry.

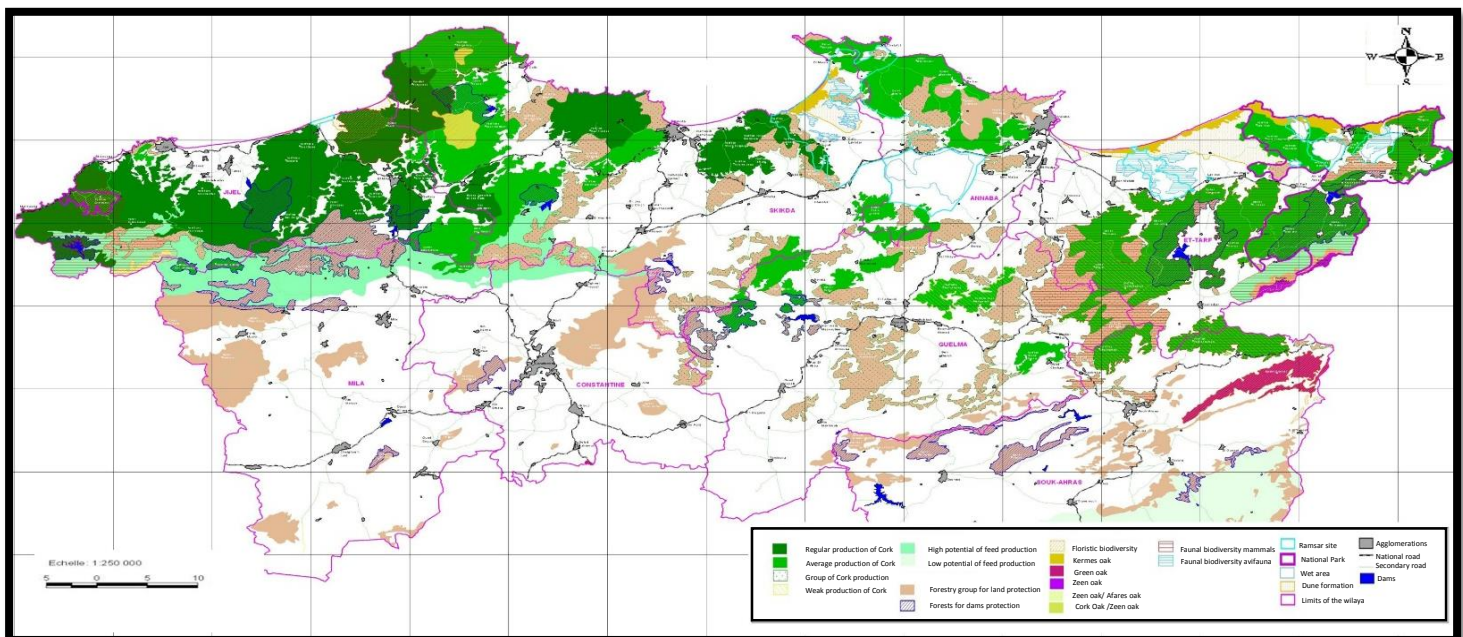


Figure 31: Potential of natural plant formations in North of Algeria Source: ANAT 2005

The diagnosis of the Northeast region highlights the diversity of natural environments and ecosystems (maritime, coastal and mountains, wetlands, interior plains, etc.), the wealth of natural resources and potential (water, irrigable land, useful substances, fishing, tourist sites, etc.), the richness and diversity of natural and cultural heritage.

In the same way it also identifies the threats to the region, including the consequences for spatial planning are more worrying:

- Erosion whose consequences on the impoverishment of agricultural land and on the siltation of dams is becoming increasingly worrying
- The urbanization of the plains, which continually reduces the potential for irrigable land
- Degradation and decline of forest heritage
- The degradation of the archaeological and architectural heritage, which constitutes the memory and history of the region,
- The strong littoralization of activities and settlement, including the consequences on the ecosystem are more than worrisome: pollution of water and the environment, overexploitation of aquifers and intrusion of seawater, cultivation of agricultural land, major risks related to industrial installations such as seismic risks, especially for coastal areas with very high urban concentrations.

4.1.1.2. Infrastructural Characteristics and Assets

The north East region has a **dense road network**, consisting of approximately 2,000 kilometers of national roads, which serve in addition to the 8 Wilaya City's Centres, most of the dairas, the condition of the national road network is considered satisfactory for about 84% (National Road Diagram), In addition, this network is, for the most part due to physical conditions (topography, terrain geology and climate), very constraining for its fluidity and maintenance.

Concerning the structural axes, the Northeast region is crossed from East to West by:

- The national road 5 Setif-Constantine extended to the East by national road 3 and national road 44 up to Annaba.

- The national road 20 that connects Constantine, Guelma, Souk Ahras, to Sakiet Sidi Youcef in Tunisia.
- The national road 10 that connects Constantine, Ain Beida, Tebessa, to Tunisia.
- The national road 3 that connects Skikda to Djanet crossing the high plains via Constantine, Ain Mila, Batna, Biskra.
- The national road that connects Jijel, El-Milia, Constantine , Oum El Bouaghi, Ain Beida to Khenchela
- The axis that connects Bejaia to Jijel by the coast and that extends on Skikda.

Due to its geographical location, mainly its position on the the national road 5, Constantine is the main node of the region, towards which all the national roads converge:

- Jijel-Mila-Constantine
- Skikda-Annaba-Constantine
- Souk-Ahras-Guelma-Constantine

In terms of **maritime infrastructure**, the Northeast region has three major commercial ports: Annaba, Skikda, and Jijel, whose capacity limit is far from being reached also no new port infrastructure is written in the various development plans, these ports, existing and which provide regular service with all the main ports of the Mediterranean basin and northern Europe, constitute a major asset in the economic development of the region, and economic exchanges between Algeria and its foreign partners.

The ports of Skikda and Annaba are distinguished by their strong specialization around activities in connection with the industrial potential of these two big cities: transit and industrial (petrochemical) treatment of hydrocarbons for the iron and steel industry chemical (fertilizer), for Annaba, the port of Djen Djen, together with the industrial area of Bellara, represents a hope for the economic and social development of Jijel and its hinterland (El Milia and Mila).

Although the hinterland of the three ports covers the eight wilayas in the north-east region, as well as the wilayas further south, the network of roads, reinforced by rail, offers some flexibility in the use of ports, to cope with possible saturation situations or incidents on this network. However, the localization of Skikda and Annaba's ports still causes traffic due to

their closeness to the city's centres, this situation does not exist in Djen-Djen, a port developed outside the dense part of the agglomeration of Jijel, the expected increases in population and traffic will increase the need to bypass the towns of Annaba and Skikda, but also impose stricter regulations on growth and control of urbanization.

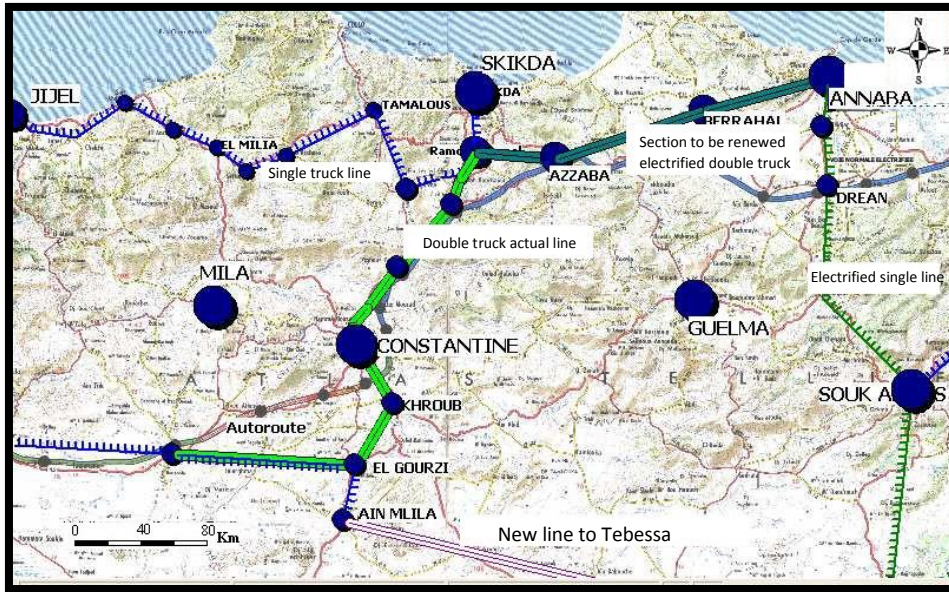


Figure 32: The connections of maritime infrastructure to the hinterlands

Source: SRAT, 2005

The region's **airport infrastructure** consists of three airports, two of which are international (Constantine and Annaba) and one national (Jijel), services are very focused

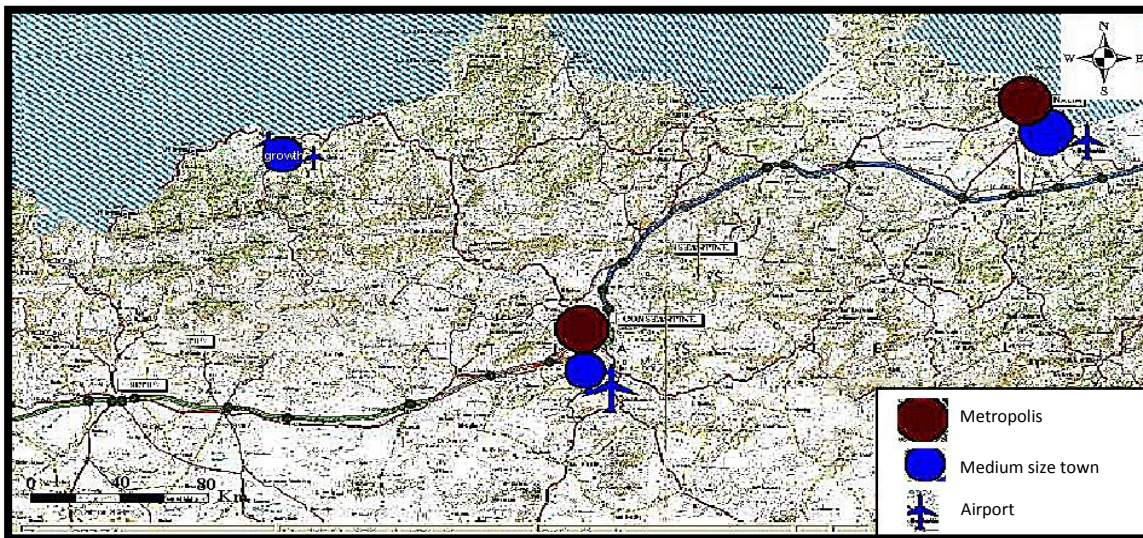


Figure 33: Existing airports in the North East region of Algeria

Source: SRAT, 2005.

on relations with Algiers, although Annaba and Constantine provide limited services with France (Paris, Marseille and Lyon).

The North-East region is equipped with 5 power stations: 3 gas stations (Annaba, Jijel and Skikda) and 2 hydra power stations (Jijel) with an installed capacity of 1,134 MW, the transmission of this source of energy is provided by a network connected to the national network, which has sufficient transit capacity to absorb the surplus or make up the production deficit of the region, especially as investments are underway to improve this capacity.

The classification of wilayas according to the density of **industrial enterprise** confirms the great polarisation of the two metropolises of the North East region Constantine and Annaba, the other six wilayas all have industrial densities below the national average The wilayas of Skikda, Annaba, Constantine and Guelma, would constitute poles of «business»

The most dominant industrial branches in the region is heavy industry (26%), the most important of which are concentrated mainly in Annaba (12%), Constantine (5%), and Skikda (4%) (12%), most of which is concentrated in Annaba. Manufacture of mechanical, metallurgical and pharmaceutical equipment for Constantine, petrochemicals for Skikda.

This classification would emerge from the diagnosis of the economic reality in the region through employment:

- Wilayas more agricultural: Skikda, El-Tarf, Mila, Guelma, Souk-Ahras
- Wilayas plus BTP: Jijel, Mila
- Wilayas more industrial: Annaba, El-Tarf, Constantine
- Wilayas more tertiary: Jijel, Annaba, Constantine

In the field of higher education and scientific research, we notice a disparity in the distribution of universities, academic institutions are concentrated in two major urban centres in the region Constantine and Annaba, however, Constantine is considered as a university city with more than 55% laboratories over the entire northeast region.

In the North East region, economic, cultural and sporting activities, youth activities, educational and health facilities, services and other connections to the various networks

have been too much in **favour of the city and not enough in favour of the countryside**, this led to internal migration and actual problems in urban housing, resulting in even less interest in the countryside and thus reinforcing the flow of migrants.

4.1.2. Demographic characteristics and assets

Algeria is a vast territory that lent itself to a use-exploitation, without any other form of preservation, the nature being in charge of renewing the various resources, and essentially plant, that the populations of then needed, but the population has doubled, tripled, and the needs have increased without changing its behaviour, man has come to mine natural resources, resulting in the degradation of various environments (forests, steppe, oasis, coastline, etc.).

Moreover, people change with the times and their needs also change, in terms of housing, transport, food, services (health, education, leisure, etc.), clearly, the main challenge for the region and its development lies in jobs and more in supply than in demand, these offers should be able to eliminate inter-wilayas disparities, provided that incentives or facilities are granted to the more disadvantaged wilayas.

These offers should also respond more to the expectations of the rural than the urban environment, from a certain planning point of view, given the population densities in mountainous areas or the low densities in inland plateau areas.

In general and apart from fishing for certain species, **the region is below the national average level, in particular in the growth of crafts¹**, passenger and freight transport, number of hotel beds, trade in fruit and vegetables, investment, if we accept the qualification of “delay” taken in the development, with regard to the national ensemble, this delay will have been highlighted in other areas, particularly in infrastructure.

This delay may be one of the characteristics of the region, while it has various assets and resources for its own development and beyond that of the national, in addition to this aspect of “backwardness”, there is a second relating to the relationship between the urban and economy, a complex problem that plays a factor of disharmony of the territory.

¹¹ Source: The Diagnostic Report, Tome 3, SRAT, 2005.

Considered as the third most populous region in the country, after the North-Central and North-West regions, the North East region is home to a total population estimated at RGPH 2008 (last reported) at 5,222,218, corresponding to 15.26% of the country's total population for an area that represents only 1.03% of the national territory.

In relation to the number of inhabitants:

- Three wilayas: Constantine (18.05%), Skikda (17.31%) and Mila (14.70%) are home to 50.06% of the region's total population.
- Two wilayas: Annaba (12.25%) Jijel (12.14%) are home to 24.39%
- Three wilayas: El Tarf (7.88%), Souk Ahras (8.42%) and Guelma (9.22%) as the rest of the population.

wilaya	Souk-Ahras	El-Tarf	Constantine	Skikda	Annaba	Mila	Guelma	Jijel
Rate of growth	1.8	1.6	1.5	1.4	1.4	1, 3	1.2	1.0

Table 7: Population growth rates in the North East

Source: Author's elaboration (2019) of the RGPH 2008

The growth rate of the Northeast region (1.39) was inferior then the national growth rate (1.72), in the Northeast region, the urban population is largely dominant and the trend towards agglomeration is increasing. in fact, the rate of urbanization of the region fell between the two RGPH of 1966 and 1998 from 33.3% to 64.15% (65.58% at the national level), the importance of urban or rural character differs from one another, As this table from RGPH 2008 shows so well:

Wilayas	Rate Of Urbanisation RGPH 1987	Rate Of Urbanisation RGPH 1998	Rate Of Urbanisation RGPH 2008	Annual Growth Rate 2008	Population (RGPH 2008)
Djijel	25,4	45,1	61,1	3,94	379156
Skikda	41,4	52,1	57,4	2,37	516617
Annaba	81	80,8	84	1,3	512411
Guelma	46,8	56,8	62	2,13	300679
Constantine	84,4	87,1	89,1	1,73	836977
El Tarf	40,7	51,6	58,9	2,87	240697
Souk Ahras	46,5	52	58	3,03	256963
Mila	32,6	42,4	58,2	4,52	446939

Table 8: Demographic growth dynamics in the North East region

Source: Author's elaboration (2019) of RGPH 2008

Wilayas	Rate Of Urbanization 1998	Rate Of Urbanization 2008	Number Of Municipalities	Number Of Municipalities With Negative Rate Of Rural Increase	Ranking By Rural Population 2008	Municipal Predominance (R= Rural M=Mixed U=Urban)
Djijel	8,05	6,61	28	19	3,00	R
Skikda	3,92	2,22	38	15	1,00	M R
Annaba	-0,34	2,26	12	2	8,00	U R
Guelma	3,62	2,3	34	10	4,00	R
Constantine	1,98	2,01	12	4	7,00	U
El Tarf	4	3,04	25	5	6,00	M
Souk Ahras	2,02	2,75	26	14	5,00	R
Mila	3,83	6,56	32	22	2,00	M

Table 9: Urban/Rural demographic characteristics in the north East of Algeria

Source: Author's elaboration (2019) of RGPH 2008

The unique regional factor is the existence of two national metropolises (Constantine and Annaba), large cities with 100,000 or more inhabitants and other potentials allowing them to command future regional development as growth driver, also as a potential for development, the population of the region is relatively young, the under-15 age group represents 35% of the total population.

The Northeast region has been globally attractive in 2008, given the migration rates, this was mainly the result of the wilaya of El-Tarf and to a lesser extent the wilayas of: Annaba, Mila and Constantine, the other four wilayas are more or less repulsive with a significant negative balance for Jijel's wilaya.

In general, for the demographic aspect in the north East region, those are the main characteristics and assets:

- Uneven distribution of populations among wilayas
- Relatively high population density and constant increase with a high concentration of the best developed wilayas (Constantine and Annaba) and a low occupation of space for agricultural wilayas (El-Tarf, Guelma and Souk-Ahras)
- A relatively young population

- A growing trend towards agglomeration
- Migration within the region, rather than outside
- A level of fertility about equal to the national average

4.1.3. Major Risks in the Region

Major risks pose a permanent threat to the environment, people and the economy, the North East region is affected by nine of the 14 major risks identified by the UN, of which ten (10) affect Algeria, these risks are categorized into natural and technological risks:

- Earthquakes and geological hazards
- Floods
- Climate risks
- Forest fires
- Industrial and energy risks
- Risks to human health
- Risks to animal and plant health
- Atmospheric, terrestrial, marine or water pollution
- Disasters caused by large human regroupings
- **Natural Risks:** Among the most threatening natural risk affecting the region are earthquakes, erosion in its various forms and floods:
 - Seismic risk: The North-East region is heavily affected in all its northern fringe with maximum intensity on the axis Jijel – Skikda, a not insignificant activity around Constantine and Guelma and reduced activity in the south and east of Annaba at the border.
 - Landslides: Landslides are important throughout the northeast region, the result of a combination of very steep mountainous terrain, soft geological formation and heavy rainfall, they occur in the least wooded areas and destabilized by the mechanical work of the ground (road infrastructure, constructions, etc.), the most affected territories are the wilayas of Constantine, Mila and Souk-Ahras.
 - Flood risk: In the Northeast region, flood zones have generally been mapped for large wadis (wadi terraces), However, there is less data on rainfall risk in urban areas, for which there is a lack of studies.

- **Technological Risks:** At the level of the Northeast region, industries (oil, gas, chemicals such as: fertilizers, pesticides, plastics, etc.) pose a threat to populations and economic and social infrastructure, as they are located in or near areas of high urban concentration, the two centres most concerned are Annaba and Skikda, they concentrate 11 of the 14 industrial facilities in the region, classified as high risk (60 nationally), the risks mainly concern explosions, water contamination and atmospheric pollution.

The spatial planning of the Nord East region must be in line with its development potential: natural resources and human resources, in the field of the preservation of its natural resources, the region must take into account constraints regarding the limits of its water resources, the fragility of its soils, its natural environments, its cultural heritage and its vulnerability to major risks, that is, the fundamental balance between the development of human activities and the safeguarding of natural and cultural capital.

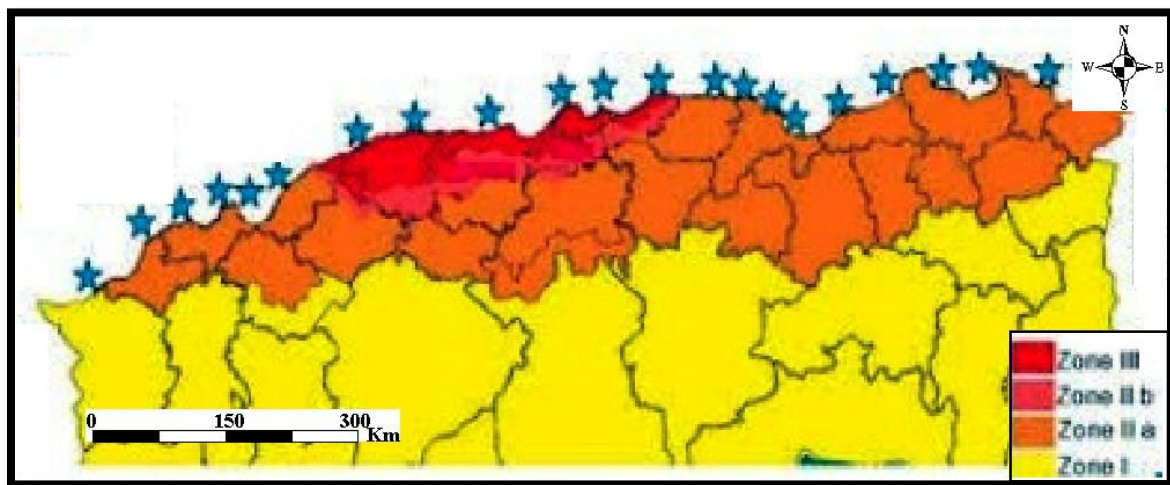


Figure 34: Seismicity map in north of Algeria

Source: Gstatic Google, 2010.

4.2. Prospective for the North East Region in the Official Regional Planning Documents²

4.2.1. Influence Areas in the North East Region

The spatial structuring of the Northeast region is characterized by a phenomenon of polarization around its two metropolises of the East: Constantine and Annaba. With 481,347 and 247,701 inhabitants respectively in the RGPH of 1998, these two cities are by far the most populous and the best equipped in the region, which allows them to reach a large part of the region, or even some territories of the Eastern Highlands. Indeed, they alone polarize 16% of the total population of the region and concentrate most of the equipment of the higher tertiary and industrial capacities (industrial zones and large production complexes). However, the influence of these two metropolises varies according to the territories. Thus, for the North-East region, according to the influence of the big cities on the functioning of the territory, we distinguish: four urban sub-systems or areas of influence (excluding hinterland of the ports):

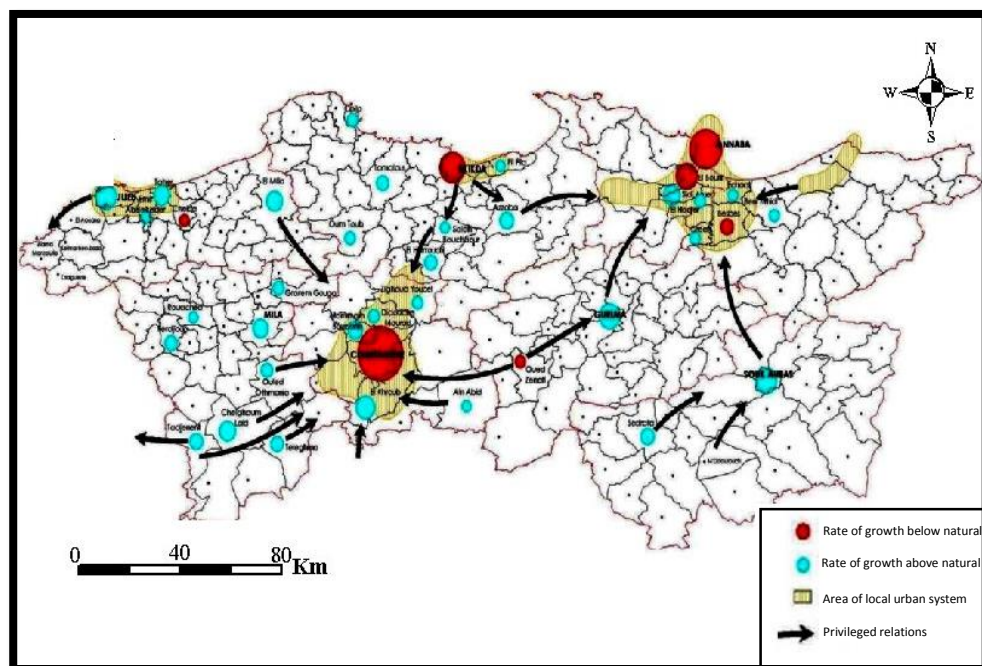


Figure 35: Areas and directions of influence in the northeast region

Source:SRAT, 2005.

Annaba area of influence: Through its port, its economic potential (mainly industrial) and its high-service facilities, the city of Annaba radiates, in addition to its hinterland, on the

² The prospective of development mentioned in this part was collected from the following regional and metropolitan planning documents: SNAT, SRAT, SAEPT, SDAAM, SCU, SDAT.

territory comprising the wilayas El Tarf, Guelma and Souk Ahras. It also maintains important exchanges with the wilaya of Tébessa (Highlands East). The relay between Annaba and the rest of its area of influence is provided by the three cities chief places of wilaya, eight small: El-Hadjar, El-Bouni, Berrahal, Serraidi, El Kala, Sedrata, M'daourouche and Oued Zenati, as well as many urban and rural centers.

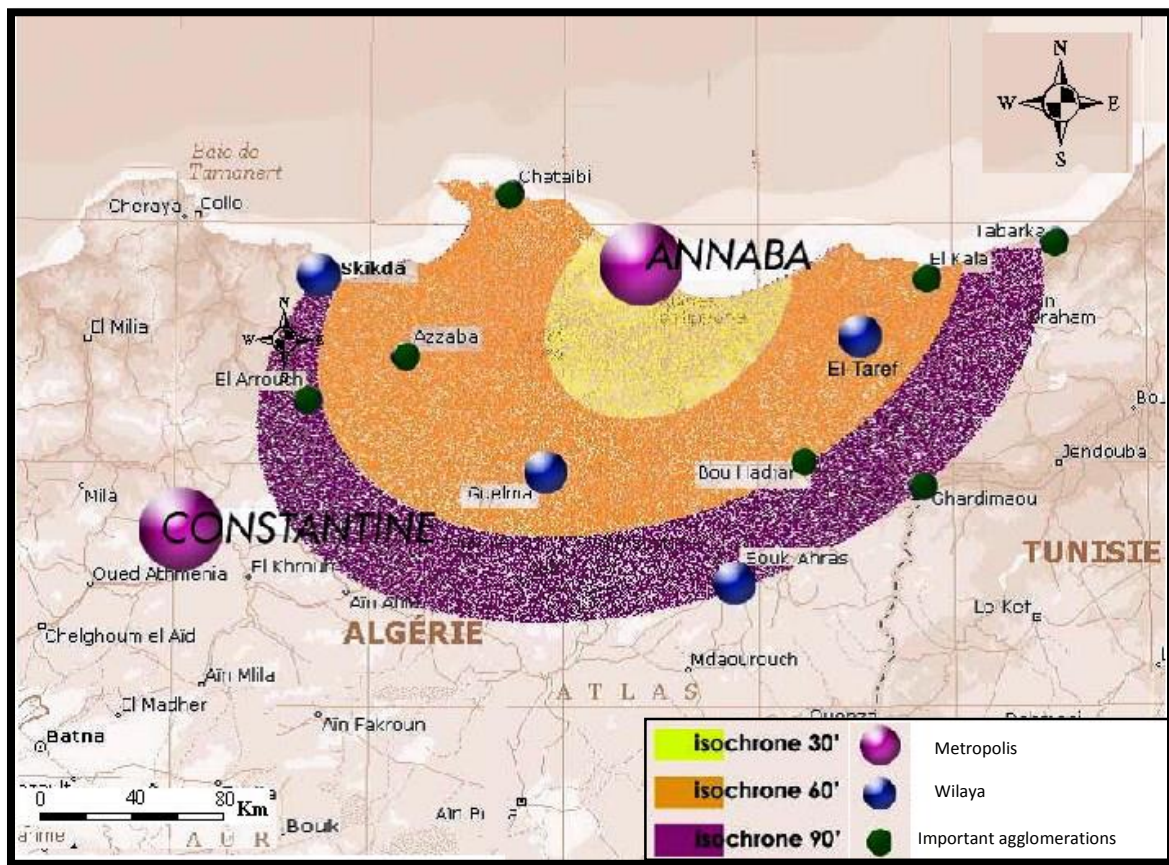


Figure 36: Annaba's area of influence
Source: SDAT Annaba, 2012.

Area of Influence of Constantine: Due to its economic potential and its facilities of the higher tertiary sector, the city of Constantine radiates, in addition to its hinterland, on the eastern and southern part of the wilaya of Mila (Grarem, Tlegma, Chelghoum Laid, etc.), as well as on some wilayas of the Eastern Highlands (Oum el Bouaghi, Sétif,..)

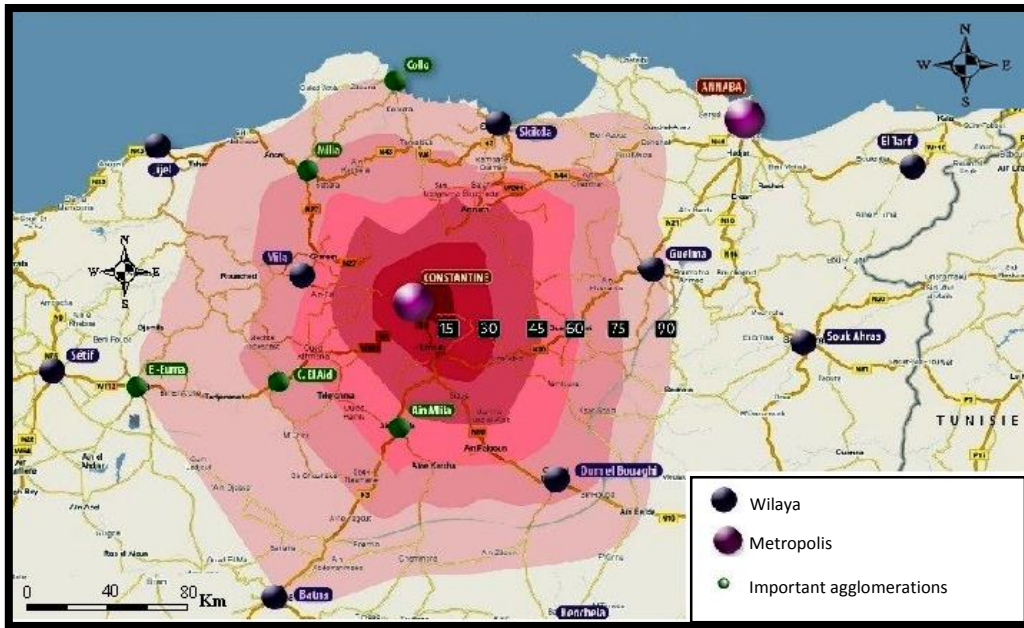


Figure 37: Constantine's area of influence

Source: SDAAM Constantine, 2008

In the precedent figures we notice that the isochronous curves of the two metropolises reach the metropolitan area of each other however the complementarity between the two was judge as insufficient and necessities improvement declaring in a spatial level the existing urban-economic

Jijel area of influence: The city of Jijel exerts an influence on an excessively mountainous territory, poor and under equipped, which covers, in addition to its hinterland, the northern part of the wilaya of Mila (Zéghaia, Ferdjioua..., part attached to the wilaya of Jijel before the territorial division of 1984), economically and socially, the Jijel subsystem works mainly with Constantine, Béjaia and Algiers.

Skikda area of influence: Due to the mountainous character of the Skikda area, the area of influence of the city of Skikda is limited only to its immediate hinterland, the rest of the wilaya territory is framed by small towns: Azzaba, El Harouche, Collo and many urban and rural centres.

4.2.2. Prospective of Development for the Two Metropolises

4.2.2.1. Prospective of Development for the Metropolis of Constantine

The prospective for Constantine was be turned internationally towards both Europe Tunisia and Libya because of its already exercised influence on the territory of the region and on some parts of the territories of the neighbouring regions (Ex: Oum El Bouaghi), Constantine is also solicited (at different levels) by the other Wilayas of Eastern Algeria (Sétif, Batna, Jijel, Biskra, Tebessa, etc...), a territory of nearly 7 million inhabitants.

The metropolitan area of Constantine is composed by the agglomerations of Constantine, El Khroub, Ain S'Mara, Hamma Bouziane and Didouche Mourad. its location is in the heart of Eastern Algeria, in contact tell/ high plains, crossroads of numerous traffics, crossing of the main axes North-South and West – East, this situation is an undeniable asset for playing a very important role at the national level, even at the Maghreb level.

The high prospective for the Constantine Metropolis was based on the importance of infrastructure and equipment projects launched accomplished in the few past years, an upgrade process was implemented between 2005 and 2009 in an efficient manner through a multitude of operations and projects, which enabled Constantine to empower its regional influence.

These projects included: the higher education and housing sector with the construction of more than 17,000 housing units, the rehabilitation of the road network and the realization of new equipment, the Tramway that is now considered as an alternative and it was able to radically relieve congestion in the city centre of Constantine, the new university city as a major project that consecrate to Constantine its status as a city and university pole, the the giant bridge as the project that change the face of the city of Constantine and connect the two banks of the Rhumel , of the Mansourah plateau.

- Wilaya of Constantine. The development pole of this wilaya consists of the Grouping of communes, including those of: Constantine, El-Khroub and the new city of Ali-Mendjli, Ain-Smara (these two communes south and south-west of Constantine) Hamma-Bouziane and Didouche-Mourad, to the north, on the Constantine-Skikda axis.

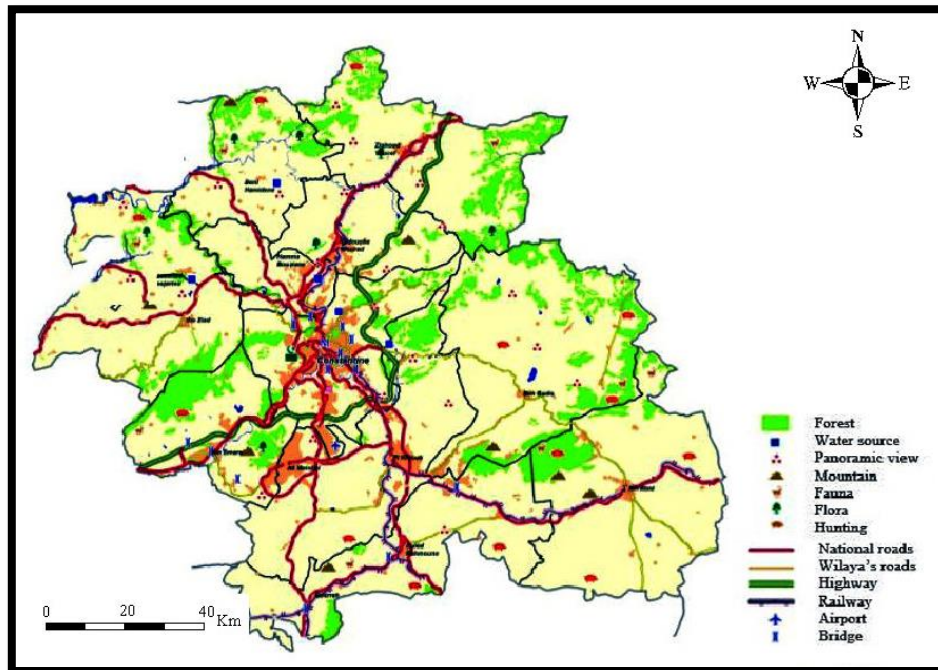


Figure 38: the natural and cultural touristic potentials of Constantine
Source SDAT Constantine, 2012

promoting the tourism sector is a principal factor in the prospective for the wilaya of Constantine resulting a planning document to touristic areas SDAT in 2012, that study contained several proposals such as the creation of sightseeing tour and the rehabilitation

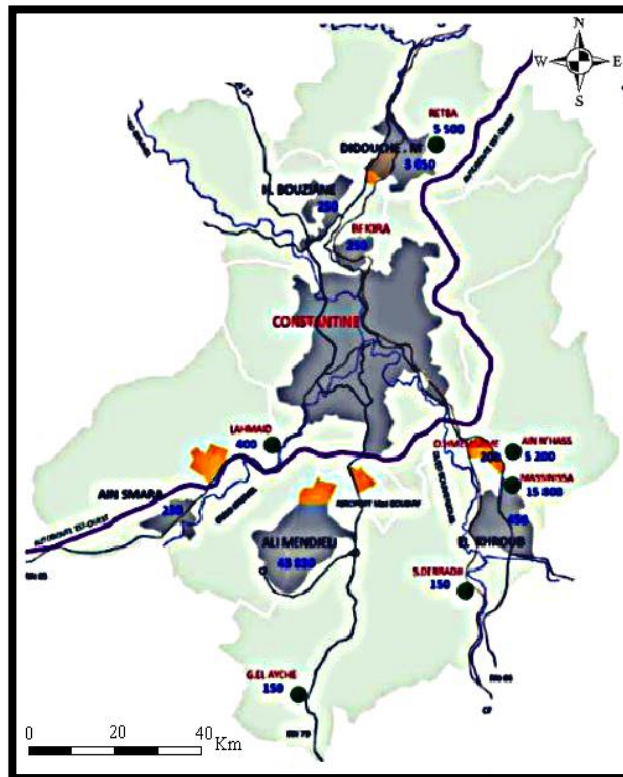
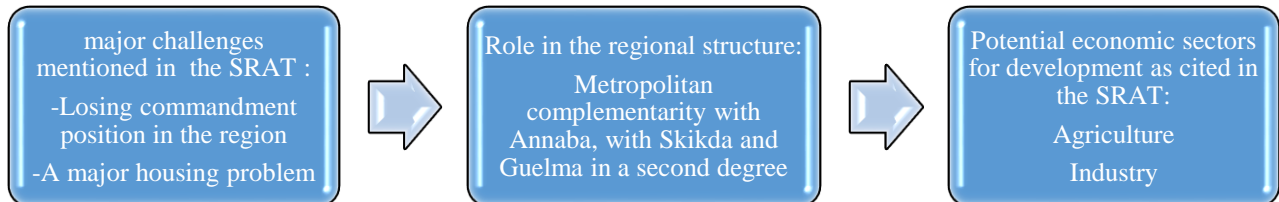


Figure 39: Distribution prospective of the housing LPL program 2010-2014
Source: PDAU Constantine 2010

of some important monuments, a similar document was launched in the wilaya of Annaba but was never completed.

In the following figure, we summarize the challenges, economic potentials and role in the region for the wilaya of Constantine:



4.2.2.2. Prospective of Development for the Metropolis of Annaba

The SRAT mentioned the wilaya of Annaba as Mediterranean metropolis through its port, its economic potential (mainly industrial) and its upper tertiary equipment, and describes the wilayas of El Tarf, Guelma and Souk Ahras as its hinterland and Constantine as a metropolitan complementarity.

Annaba was planned to maintain important exchanges with the wilaya of Tébessa (Eastern Highlands), the relay between Annaba and the rest of its area of influence is provided by the three cities chief places of wilaya, and by eight small agglomerations: El-Hadjar, El-Bouni, Berrahal, Serraidi, El Kala, Sedrata, M'daourouche and Oued Zenati, as well as many urban and rural centres.

The SDAAM of the wilaya of Annaba mentioned the fact that the metropolis is relayed at the local level, by the big cities 'whose mission is to structure their respective territories and to disseminate economic and social development' and that its development of the industrial fabric has led to the saturation of the urban perimeter and the uncontrolled development of its urban sprawl.

The document also referred to the establishment of activities and especially populations that has been done on agricultural land and along the coast on a coastal line of 11 km and emphasized that the development option for the metropolis of Annaba will have to be based on the principle of slowing down its disproportionate extension to the detriment of agricultural land.

The SDAT, as we can notice in the following figures, empowers the idea of changing the wilaya's image from industrial hub into a touristic destination especially ecotourism declaring the considerable potentials and possible tourist attractiveness.

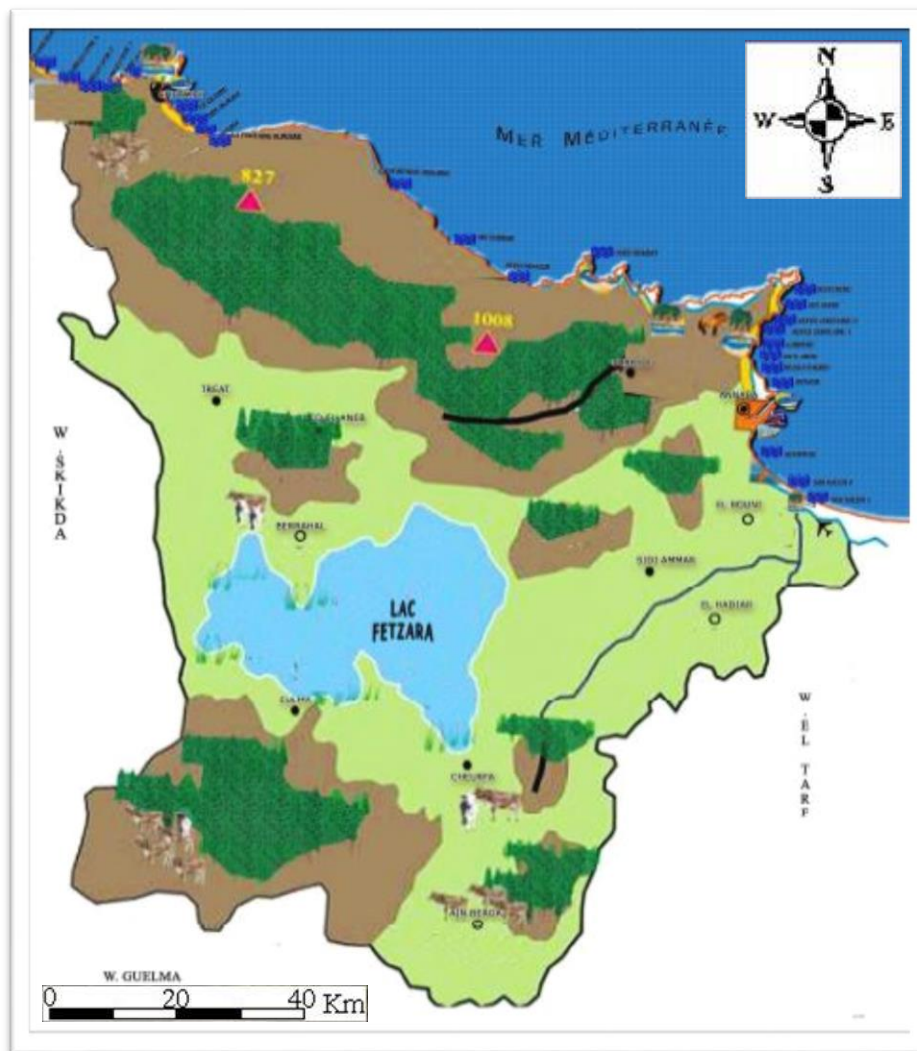
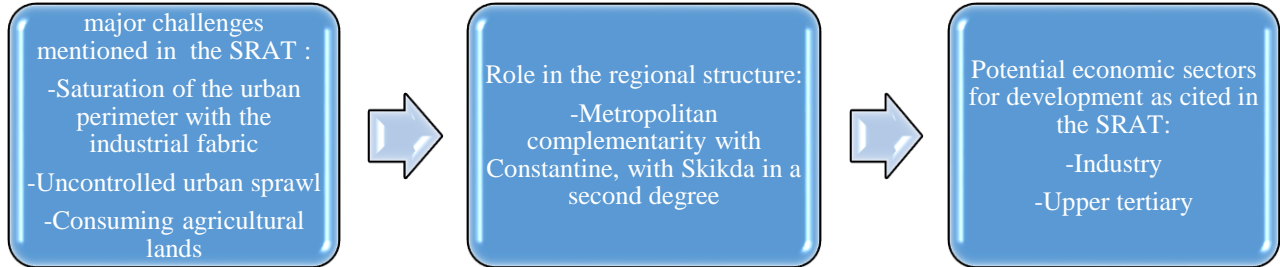


Figure 40: Natural potentials for the wilaya of Annaba
Source: SDAT Annaba, 2012



Figure 41: Proposed tourist sightseeing circuit.
Source: SDAT Annaba, 2012

4.2.2.3. Prospective of Development for the Other Wilayas in the Region

4.2.2.3.1. prospective of development by areas of interaction on the region

- Mila_Constantine area (without the Metropolis): An area characterized in the North by a mountainous complex, difficult to access, in order to reduce the isolation of mountainous areas, the plan was to strengthen the quadripole “Mila, Ferdjioua, Chelghoum Laid and Oued Athmania, and increase their radius of influence by their weight and their tertiary function, the same applies to the Grarem, Teleghma and Tadjenanet sub-poles, south of the area the development of Ain Abid, by its eccentric position to the metropolitan that offers a certain interest for the balance of this space.
- Jijel_Collo: It is composed of two sets:
 - The coastline: rich in fishing, forestry and tourism, as it has excellent agricultural skills.

- The mountain area (Collo massif): densely populated and heavily landlocked, the agglomerations to promote are the following: Jijel, El Milia, Tahir, El Ancer, Collo, Tamalous, El Aouama, Texenna, Sidi Abdelaziz, Oued Adjoul, Ain Kechera, Zitouna, El Ouloudj and El Maad, the development of this space is conditioned by the creation of various activities along Jijel's the ledge beside the sea to the fishery resources, from forests to recreational and productive opportunities, many seaside sites are currently unexploited.
- Skikda area: a naturally very rich area (water, forests, agricultural land, coastline), this natural wealth is now threatened by the role assigned to Skikda, resulting in a high concentration of industrial and other activities at the Wilaya Chief Town, this has led to consumption of agricultural land and the proliferation of slums due to rural exodus etc...), for this space, and contrary to has been mentioned above, a strengthening of Skikda's industrial pole by the Azzaba pole was planned in parallel with a slowdown in the growth of the agglomerations in the chief town.
- Skikda - Constantine area (without the metropolis) : an area with high agricultural potential with two considerable agglomeration in mountain areas, Oum Toub and Sidi Mezghiche were planned to be developed.
- El Tarf area: In the case of the wilaya of El Tarf, which is located far from the rest of the region, it is located in a region with ecological specificities that are recognized worldwide, the orientation aimed to preserve the natural environments and to develop them in a rational manner without harming the environment.

4.2.2.3.2. Prospective of Development by Wilaya in the North East of Algeria

- Wilaya de Jijel.: The wilaya has three current development poles, Jijel, Taher (plain) and El-Milia, but their capacity to expand is limited. Development should take place outside these poles, this wilaya raises the question of its insertion in the defined program region.
- Wilaya of Skikda. :Agricultural Wilaya, but also tourist, the development poles focus mainly on Skikda and Collo, and still on the axis Skikda-Constantine, this wilaya is interspersed with three valleys: from the Kébir wadi to the east, from the

- Saf-Saf wadi to the centre and from the Guebli wadi to the west. These valleys are home to secondary settlements.
- Wilaya of El-Tarf. The development pole of this wilaya is mainly in the western part, the municipalities bordering the wilaya of Annaba (RN 16). The secondary poles are along the Annaba-Tunisia axis and El-Kala.
 - Wilaya de Mila. A trend concentration of population is observed in the intermediate zone between the mountainous area of the wilaya and the southern plateau. A development pole on the Mila-Ferdjioua axis should be developed. For this wilaya he asks himself the question of his own development.
 - Wilaya de Guelma. The development pole of this wilaya is undoubtedly Guelma, but with a radiation on the axes: Oued-Zénati – Guelma – Bouchegouf, and relatively on a west-north crown of Guelma with Hammam-Debbagh, El-Fedjouj and Heliopolis.
 - Wilaya de Souk-Ahras. Outside the communes of Souk-Ahras, and to a lesser extent Sédrata, the wilaya has no particular poles of development. A development axis would be to promote, that of Souk-Ahras in Mila by Guelma and Constantine. This wilaya is wondering about her future.

The prospective emphasize that the following industrial axes to be strengthened:

- Bouchegouf (wilaya de Guelma) – Dréan (wilaya d'El-Tarf),
- Zirout-Youssef (w. Constantine) – El-Harrouch – Ramdane-Djamel (wilaya de Skikda),
- Constantine - Mila.

And the requirement of road reinforcement for the following agricultural corridors:

- Jijel – Sidi-Abdelaziz – Djemaa-Ben-Habibi – El-Ancer – El-Milia (w. Jijel) – Bir-El-Ouidène – Tamalous – El-Hadaïek (w. Skikda)
- Skikda – Guelma, by Azzaba
- Guelma – Annaba, by Aïn-Berda
- Annaba – Asfour – Bouteldja – El-Tarf
- Skikda – Constantine
- Guelma – Constantine, by El-Khroub.

4.2.3. The Regional Bipolarity between Complementarity and Competitiveness

At this level, there is a sort of paradox between the desirable (the orientations of the SNAT) and the reality, which we shall try to describe, to the extent of our knowledge in the matter. Indeed, it would appear that it is the mountain (or mountainous) areas, which are the most densely populated, thus responding before the hour to the rebalancing of territories, which have the worst indicators in terms of infrastructure.

It would appear that population movements (internal exodus) come from these mountainous areas, on the other hand, areas of plains or hills, more agricultural, less densely populated, have better indicators, which will not prevent internal exodus.

In these situations, the attractiveness of territories have been defined and people have established their choices (which were imposed on them or not by history, by the economy). The fact remains that metropolization comes to the top and that this metropolization will be a factor of population flows and of attractiveness.

The areas of influence of the major cities of the North-East programmed region provide information on the possible metropolization of this region, Indeed, if it is customary to consider Constantine-Annaba as a possible metropolis in the region is an unlikely scenario because of Annaba's somewhat autonomist tendencies in relation to Constantine (SDAAM Constantine, 2008), will have lost its influence over that city, It also seeks to recover prerogatives for its own account, particularly in cultural matters.

Skikda thus became the favourite town of the Constantine residents, which, if the movement were to increase, would increase Skikda's influence in the region, making and seeking to compete with Annaba on the question, notably through its port activities, it is clear that under these conditions the construction of the freeway have a paramount importance in the role played by one or other of these cities and in the metropolization of this region.

The expectation were if that the metropolization took place, it will be around the Skikda-Annaba-Constantine triangle. Nevertheless, the city of Constantine, will be confronted

with limits of expansion and relations with that of Guelma should intensify especially if Guelma takes charge of its own development.

Those expectations for metropolitan complementarity would be more important if a more direct and faster road links were to reach both metropolises, the metropolitan functions in the North East of Algeria as programmed in the official documents are the following:

- Constantine: Small and medium industry, Miscellaneous services, Medicine and surgery, Culture, Business
- Annaba: Heavy Industry, Services, Specialized Medical Centers, Culture (innovative/Constantine), Tourism and Ecology (El-Tarf), Maritime and Port Activities
- Skikda: Petrochemicals, Services, Agro-food, Tourism, Maritime and port activities
- Guelma: Agriculture, Relais City

however, with the prospective planned in the regional long term studies of the North East region of Algeria, an overall observation into the attractiveness data (as shown in the next figure) declare a contradiction with the prospective: Guelma is planned to be the satellite to Constantine where in fact the attractiveness figures shows more attraction to Annaba, also Constantine shows more attraction potentials to Jijel than to Skikda. However, Jijel was

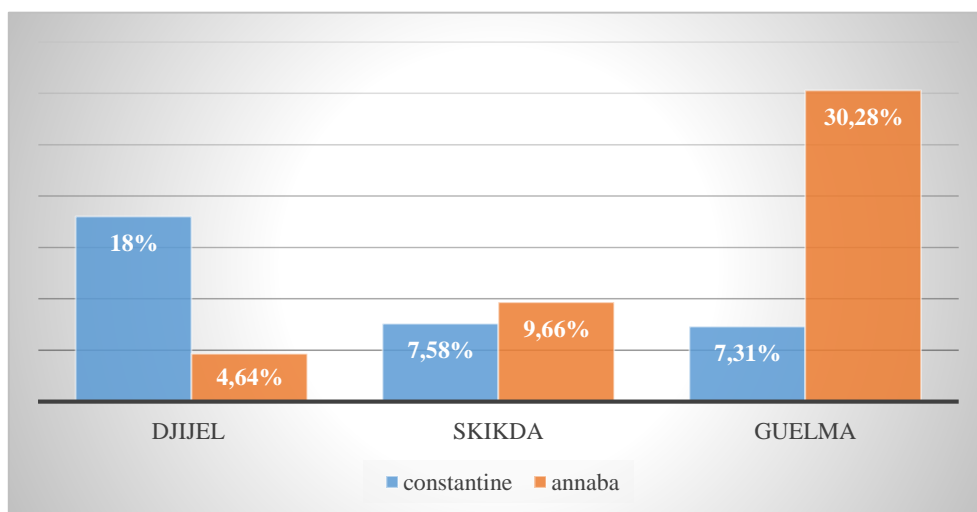


Figure 42: the preferred metropolis for residents of medium cities in the northeast region

Source: author's elaboration (2019) of SRAT, 2005

eliminated from the planned triangle of metropolization (Annaba-Constantine-Skikda) pushing it into a possible autonomous development.

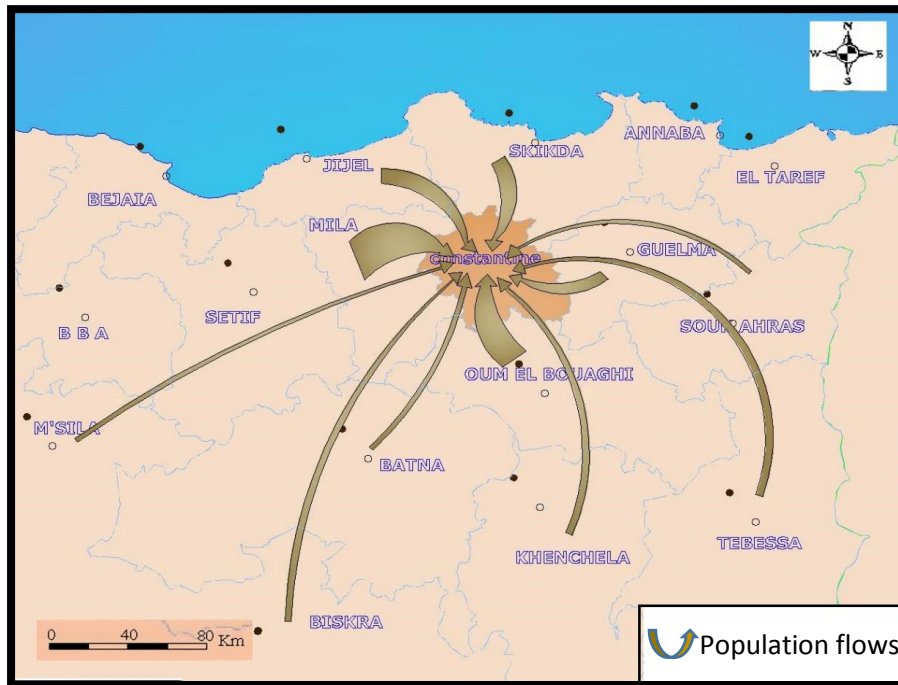


Figure 43: Patients evacuated to health facilities in Constantine

Source : SDAAM Constantine, 2008

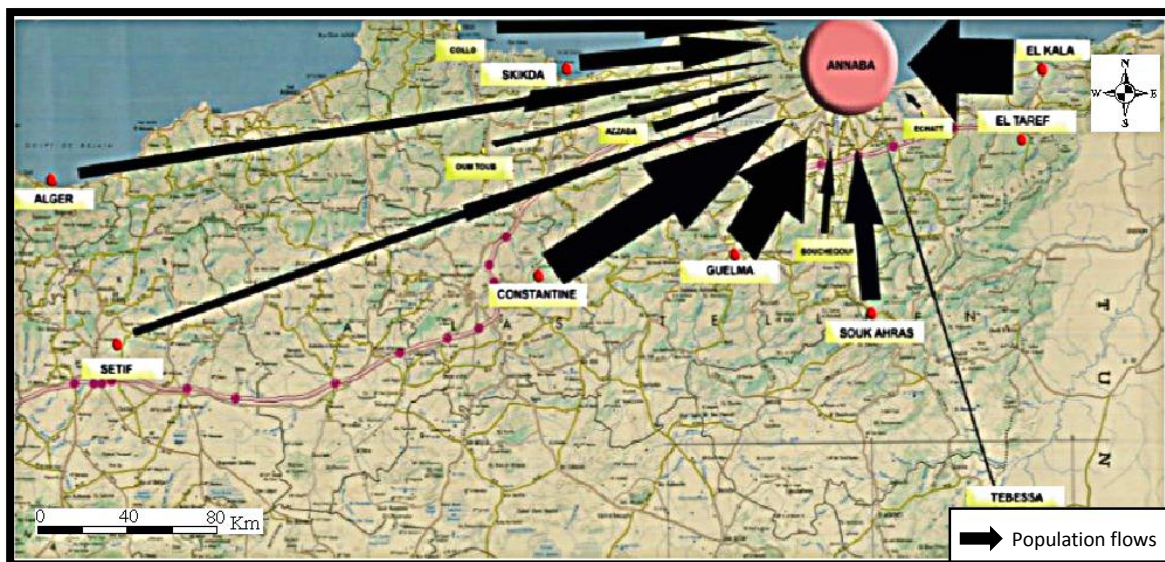


Figure 44: Attractiveness and population flows in the wilaya of Annaba

Source: SDAAM Annaba 2008

In the case of the North East, the territory of this programmed region presents the advantages of an attractiveness for both metropolises, due to the natural conditions, strengthening or creating the attractiveness and competitiveness of territories is relatively

undermined by the diversity of territories, the infrastructures, economic activities in the areas of agricultural plains, However, those conditions need a perfect knowledge of the potentials in the two metropolises and an attractiveness evaluation.

as shown in the two previous figures of the two different aspects of territorial attractiveness, both metropolises have considerable attractiveness over the whole region which indicate the importance of evaluating this phenomenon in order to declare the suitable regional planning strategy based on the metropolises' attraction assets and potentials of urban growth.

Conclusion

With its geographical setting and its tangible and intangible assets, the Algerian Northeast region is distinguished by its landscape component combining picturesque mountain and seaside sites, its archaeological sites and historical monuments, a dense road network, a relatively young population and an important industrial weight in the national economy, However, many obstacles raise to the surface such as uneven distribution of populations and growing trend towards agglomeration suggesting the necessity for customized regional planning strategy.

The problem seems to be that we are reproducing what we have known in the past, which could be conceivable given the population, that is to say: getting the roads, the lines of communication and the housing programs but not structuring the regional space, in fact complementarities as well as competition are to be considered in the process of elaboration regional planning strategies, in the case of the North East, and based on the previous analysis, we think it would be doubtful for one city to take from another what has made its reputation and influence in the region, except, of course, where the latter is no longer able to play that role.

This conclusion does not eliminate the possibility of creating competitive territories but projecting them to long term strategy starting with evaluation the territorial attractiveness in the region and positioning every wilaya in its functional role, Nevertheless, to determine the positioning of these national metropolitan areas, it would be necessary to identify their areas of competence and potentials.

Chapter 05:

Elaboration of an Assessment Model to Evaluate Territorial Attractiveness

Introduction

In the process of elaborating this study, we started our investigation by choosing the suitable indicators, the main objective of the methodology is evaluating the three facet of attractiveness simultaneously but toward an urban approach, therefor, the majority those indicators were selected to measure real attractiveness with only external tourists as flow to present revealed attractiveness due to lack of official data on other incoming flows. (the facet of perceived attractiveness is represented in the ponderation phase of constructing the synthetic indicators)

In this chapter, we attempt to analyze the existing economic-urban dilemma in the North East region of Algeria by evaluating the attractiveness of its two national metropolises as separate territorial units for the objective of proposing recommendations for future regional and urban planning strategies of the region.

In our approach to a global assessment of territorial attractiveness and based on the work of Musolino & Volget (2020) we started by selecting the appropriate indicators from a wide extended list gathered from previous ranking experiences, we to collected the data, a standardization method comes next in order to simplify the comparison of the indicators resulting simple indicators.

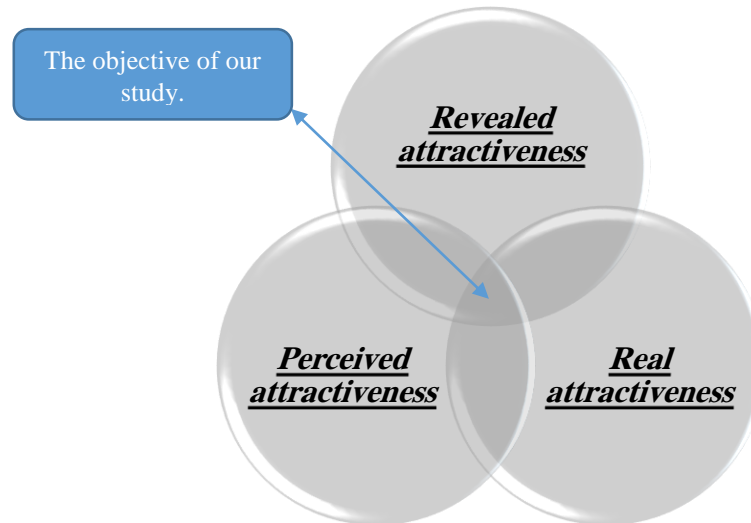
As a final step we opted for a ponderation method (a weighting method) in order to approach the facet of perceived attractiveness, that ponderation process was effected on three phases, firstly we divided the previous indicators into three (3) main urban growth factors, secondly we asked six (6) experts (mainly but not exclusively from the urban planning field) to give weights to the three urban growth factors is based on the expert's subjective analysis of the urban reality in the two metropolises as experts in the field and residents of both territorial units.

finally, the proportional average of the given weights were used in the ponderation equation generating synthetic indicators which we discuss and project on the previously created regional network and discuss the possibilities of the development into a functional cities system.

5.1. The Construction of the Synthetic Indicator

5.1.1. Choosing the Appropriate indicators

The city of Constantine has a privilege by its historical roots being since its creation in the 19th century and early 20th in position of commander of a region (SRAT, 2005) in which appeared Annaba as a part of the region but that position was put to the test by the appearance of other economically competitive poles such as Batna and Setif, while Annaba has been an important pole that allowed the emergence of heavy mining industry to the international distribution, today, with the decline of the industry, Annaba is trying to compensate those losses by tourism except that the investment dynamic is quite slow (restrictive investment policy and difficult conversion of industrial fabrics)



Choosing the appropriate indicators was based on previous ranking experiences and on the availability of the data in both territorial units, as an example of those experiences we summarized three important studies:

Our first example study is on improving capacities for enhancing territorial attractiveness of the Danube region preformed by Živković and Barborič (2017) where they created a list of common territorial attractiveness indicators compiled by the Attract-SEE project partner-countries from different sources and databases, like Eurostat, OECD, European Commission, European Environmental Agency, United Nations, UNESCO, World Bank, ESPON projects (URL5), the list was divided into

3 section the territorial asset, the indicator to measure it and the target group, however, we noticed a lack of multidimensionality where the majority of the target groups are companies which implies a concentration on the economic dimension.

No.	TERRITORIAL ASSET	INDICATOR	TARGET GROUP
ENVIRONMETAL CAPITAL			
1	Environmental quality	Air pollution: Ozone concentration	tourists, residents, migrants
2		Population connected to urban waste water treatment with at least secondary treatment	
3	Natural resources and energy	Electricity generated from renewable sources	companies/investments, residents
4		Consumption of water per capita	
ANTHROPIC CAPITAL			
5	Landscape quality	% of terrestrial area protected (total and by ecological region)	tourists, residents
6	Infrastructures	Population (or households) with accessibility to high-speed broadband (1 Mbit/second up and down)	companies/investments, tourists, residents, migrants
SOCIO-CULTURAL CAPITAL			
7	Culture	European cultural sites on the Unesco World Heritage List, 2010	tourists, residents, migrants
8	Quality of life	Life expectancy at birth by sex (Europe2020 indicator)	companies/investments, tourists, residents, migrants
9		Gross disposable household income	
10		People at risk of poverty or social exclusion (Europe2020 indicator) or % in risk of poverty	
ECONOMIC/HUMAN CAPITAL			
11	Knowledge & Innovation	Population aged 25-64 with tertiary education	companies/investments, residents, migrants
12		Research & Experimental Development expenditure as % of GDP (Europe 2020 indicator)	
13	Employment	Employment rate 20-64 years by sex [%] (regional) (Europe2020 indicator)	companies/investments, residents, migrants
14		Youth unemployment rate	
15	Specializations / Key sectors	Share of employment by sector	companies/investments
16	Tourism	Number of overnight stays of tourists per capita per year	companies/investments, tourists
17		Share of tourism related employment in total employment	
18	Investment promotion	% of GDP of foreign direct investment	companies/investments, migrants
19	Population	Population growth rate	residents, migrants
20		% of population in age 20-64 years	
21		Ageing index	
INSTITUTIONAL CAPITAL			
22	International relations	Number of foreign students and/or professors	companies/investments, migrants

Figure 45: Indicators to evaluate territorial attractiveness of the Danube region
Source: Živković and Barborič (2017)

The second example study was performed by Servillo, Russo & Atkinson (2012) divided the evaluation of attractiveness based on potentials, potential capitals to draw to the territory, potential users of the territory and in between the elements of mobilization effected in that process, however, despite the multidimensionality of this ranking model the indicators were not précised by the authors neither is the data necessary.

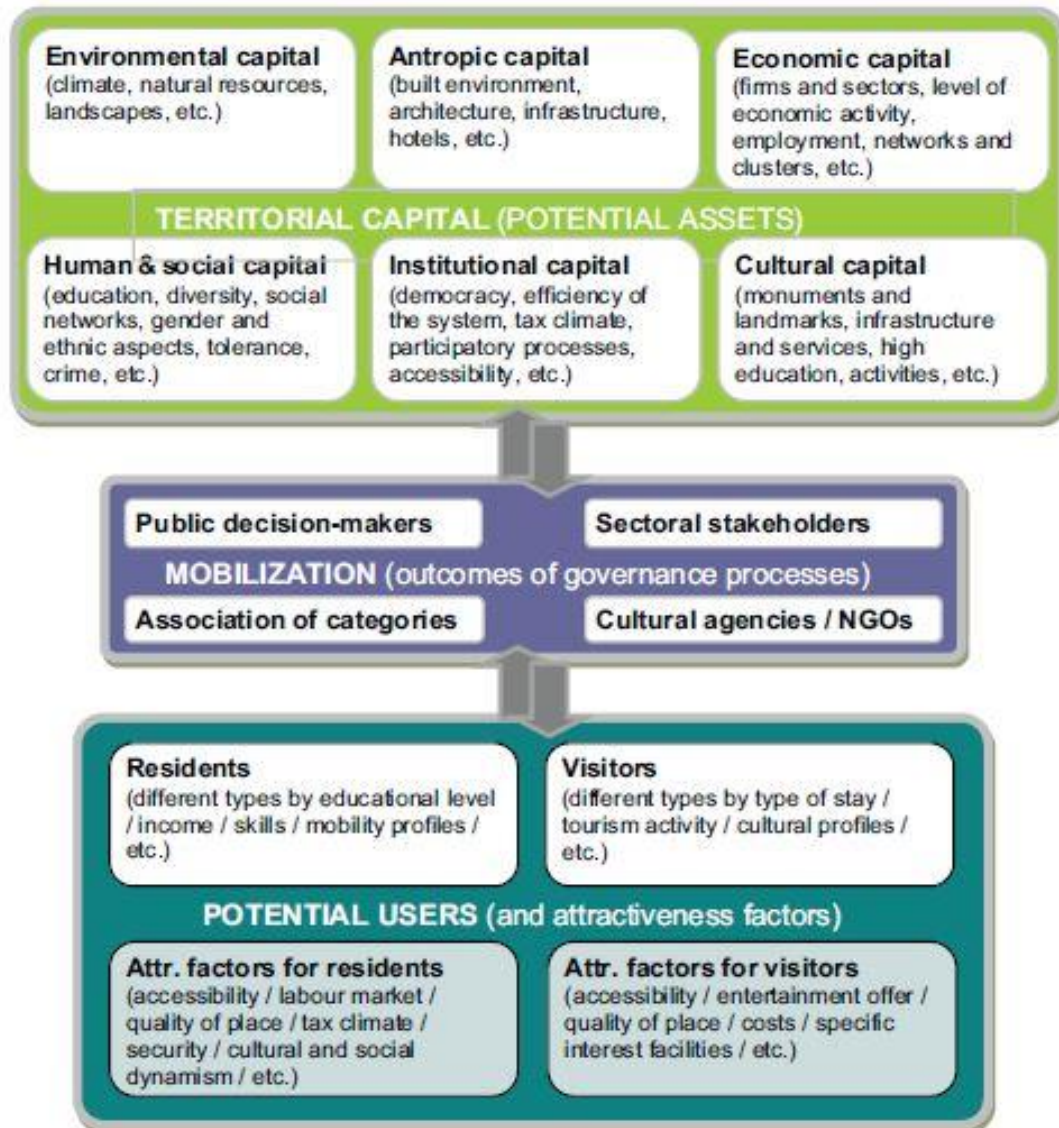


Figure 46: Indicators to the evaluation of attractiveness based on potentials

Source: Servillo, Russo & Atkinson (2012)

The third example study was creating a list of indicators for the objective of enhancing attractiveness of the cities in Latgale region performed by Ezmale (2012), in this example the indicators are divided into objective and subjective ones, but with no precise method to join both of them into one process of evaluation.

Criterion	Objective indicators	Subjective indicators
Availability and mobility	Information on public (routes, frequency) and private (the number) transportation	The evaluation of the public transportation quality and availability
Economic development, employment and material welfare of inhabitants	Statistic information about inhabitants (the number, demographic and educational indicators et al.), employment and unemployment indicators	Satisfaction with the living conditions in a city, willing to change the place of residence, the assessment of the personal material position, satisfaction with job et al.
The quality and availability of health care services	Out-patient and stationary medical institutions (the number of institutions, medical staff and patients, beds, et al.)	Satisfaction with the quality of medical services, their availability The physical condition assessment
The quality and availability of social care services	Information about the modes and the number of recipients of social care services, the social care budget	Satisfaction with the quality and availability of social care services
The quality and availability of educational services	Information about the number of education institutions, teaching staff and children/ students, the number of interest education institutions, the offered services, et al.	Satisfaction with the quality and availability of education and interest education
The quality and availability of culture, sport and recreation services	Information about the number of cultural and recreation places, amateur groups, museums, libraries, sports institutions, visitors/participants, the organized events, et al.	Satisfaction with the quality and availability of culture, recreation and sports, the opportunities of leisure time activities
Ecological quality	Information about the air quality, potential polluted areas, the quality of drinking water, et al.	Satisfaction with the ecological conditions in the city, the quality of drinking water, et al.
Participation in diversificating the community's social life	Information about non-governmental organizations and interest clubs, the social activity of inhabitants	Inhabitants' participation and willing to get involved in social activities
The quality and availability of administrative services provided by the state and municipality	Information on the types and costs of administrative services	Satisfaction with the quality and availability of administrative services
The quality and availability of shopping services	Information about the number and types of shopping establishments	Satisfaction with the quality and availability of the rendered services
The quality and availability of housing	Information about the dwelling space, accommodations, et al.	Satisfaction with the quality and availability of housing
The quality and availability of physical safety and security	Information about the number of crimes, fire and car accidents	Satisfaction with safety and security (on the street, at home, in the city)

Figure 47: Attractiveness of the cities in Latgale region

Source: Ezmale (2012),

Those three studies inspired us to create an extended list of indicators and eliminate the ones where the data is not available on both metropolises, the multidimensionality was a crucial element in choosing the indicators considering the fact that the factor of ponderation were urban factors, by using this method we will be able to have a multidimensional assessment with an urban background.

Categories	Indicators
Accessibility	1. Diversity of the transport offer (point for type)
	2. Number of regional and national city road access (point for access)
	3. Newly created road linear
	4. Number of passengers by rail from/in metropolitan area
	5. Traffic volume in international flights
	6. Number of airport passengers
Demography	7. Rate of life expectancy at birth (birth-rate) (1/1000inhabitants)
	8. The population density of the city
	9. Population growth rate
Quality of life and urban development	10. Rate of consultant doctors (1/1000inhabitants)
	11. Number of patients evacuated to the wilaya's hospitals
	12. Number of subscribers to ADSL/internet lines services
	13. Number of university research laboratories
Economy	14. Percentage of employment in the tertiary sector
	15. Newly set up companies PME (national and foreign)
	16. Surface of industrial zones
	17. Percentage of employment in the industrial sector
	18. Surface of activity and micro-activity zones
Housing projects¹² and land availability	19. Rate of agricultural lands coverage (agricultural/total)
	20. Number of houses distributed in the promotional housing programs LSP/LPA/AADL/LPP
	21. Number of houses distributed in the social-residential housing LPL
Private investment	22. Number of private schools
	23. Number of land requests for investments
	24. Number of shopping malls (capacity over 25 selling points 5000m ²)
	25. Number of private clinics

¹¹ The housing projects in Algeria can be divided to two types: the Social programs and the promotional programs, both of them have multiple forms and conditions where the main difference is the salary and the social conditions.

Culture and heritage	26. Number of principal cultural infrastructures(cinemas, theatres, museums)
	27. Number of recreational or cultural events
	28. Number of principal public libraries
	29. Number of classified historical and naturel sites
Tourism	30. Nights spent by foreign tourists
	31. Number of foreign tourists
	32. Number of existing hotels (ranking from 1 to 5 stars)
	33. Number of travel agencies
Security¹³	34. Number of attacks on persons
	35. Number of attacks on properties
	36. Car accidents rate (1/1000inhabitants)

Table 10: The chosen indicators in the study

Source: Author's elaboration (2020)

5.1.2. The Primary Data Collected

After choosing the suitable indicators to our study and dividing them to categories we initiate the fieldwork by collected the data (the fieldwork investigation took place from October 2020 to August 2021), in the following tables we mention the chosen indicators with the primary collected data along with further recent and official data:

The indicator	The collected data		Year of data	The data's source	Additional data
	Annaba	Constantine			
Diversity of the transport offer (point for type)	6	5	2021	The direction of transportation	/
Number of regional and national city road access (point for access)	14	15	2021	map of roads infrastructure	/
Newly created road linear (km)	2	3.8	2021	The planning department	/
Number of passengers by rail from/in metropolitan area	702185	390448	2019	The direction transportation	/

13 The security category was included in the city's identity factor as a way to evaluate the perceived image of Annaba as an insecure city as mentioned in the report of ELWATEN journal, 2012.

Traffic volume in international flights	2064	5386	2019	The direction of transportation	/
Number of airport passengers	402585	540858	2019	The direction of transportation	/
Rate of life expectancy at birth (birth-rate) (1/1000inhabitants)	19,26	15,45	2020	The health department	/
The population density of the city	473,75	506,3	2008	RGPH 2008	/
Population growth rate	0,98	1,5	1998-2008	RGPH 2008	/
Rate of consultant doctors (1/1000inhabitants)	0,62	0,5246	2019	The health department	/
Number of patients evacuated to the wilaya's hospitals	4156	4430	2020	The health department	/
Number of subscribers to ADSL/internet lines services	390541	411512	2021	Algerie Telecom	/
Number of university research laboratories	34	68	2021	www.Cerist.dz	/
Percentage of employment in the tertiary sector	57,9	82,2	2020	The mining department	See annex 12
Newly set up companies PME (national and foreign)	7690	7530	2020	The mining department	See annex 3, 11
Surface of industrial zones	490,3	1338	2020	The mining department	See annex 9
Percentage of employment in the industrial sector	14,66	16,88	2020	The mining department	See annex 10, 12
Surface of activity and micro-activity zones	161	390	2020	The mining department	/
Rate of agricultural lands coverage (agricultural/total)	40,9	57,1	2020	The agriculture direction	See annex 15

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Number of houses distributed in the promotional housing programs LSP/LPA/AADL/LPP	5050	9107	2019	OPGI	/
Number of houses distributed in the social-residential housing LPL	3525	1551	2020	OPGI	/
Number of private schools	14	20	2020	The Direction of Education	/
Number of land requests for investments	850	3693	2019	The mining department	See annex 4, 5, 6, 7, 8
Number of shopping malls (capacity over 25 selling points 5000m ²)	1	3	2021	Field investigation	/
Number of private clinics	18	26	2021	The health department	/
Number of principal cultural infrastructures (cinemas, theatres, museums)	9	17	2019	The Direction of Culture	/
Number of recreational or cultural events	69	195	2019	The Direction of Culture	/
Number of principal public libraries	1	2	2020	The Direction of Culture	/
Number of classified historical and naturel sites	15	22	2020	The tourism direction	See annex 1, 2, 13, 14
Nights spent by foreign tourists	31449	20836	2019	The tourism direction	See annex 16
Number of foreign tourists	22734	29657	2019	The tourism direction	/
Number of existing hotels (ranking from 1 to 5 stars)	15	14	2020	The tourism direction	/
Number of travel agencies	128	150	2020	The tourism direction	/
Crime rate (1/1000inhabitants)	565	738	2020	The national gendarmerie	/

Rate of attacks on properties and persons (1/1000inhabitants)	674	537	2020	The national gendarmerie	/
Car accidents rate (1/1000inhabitants)	42	321	2020	The national gendarmerie	/

Table 11: The detailed primary data
Source: Author's elaboration (2021)

5.1.3. The Standardization Method

After collecting the data from official administrations and the filedwork, we conducted an aggregation process to facilitate the comparative part, given the fact that we had only one data for each indicator, we opted for a standardization method¹⁴, the equation that describes this method is as follows:

$$x_i = \frac{a_i}{\sum a_i}$$

Where a_1 and a_2 are respectively the data collected from the metropolis of Constantine and Annaba, as is clear from the equation, all the results fall within a range from 0 to 1, Therefore, for each indicator and for each city, the equation can be written as:

$$x_1 = \frac{a_1}{\sum a_1+a_2} \text{ For Constantine.}$$

$$x_2 = \frac{a_2}{\sum a_1+a_2} \text{ For Annaba.}$$

The primary results of the standardization method are presented in the following table:

¹⁴ (Barba-Romero & Pomerol, 1997)

Categories	Indicators	x1 Constantine	x2 Annaba
Accessibility	Diversity of the transport offer (point for type)	0,45	0,55
	Number of regional and national city road access (point for access)	0,52	0,48
	Newly created road linear	0,66	0,34
	Number of passengers by rail from/in metropolitan area	0,36	0,64
	Traffic volume in international flights	0,72	0,28
	Number of airport passengers	0,57	0,43
Demography	Rate of life expectancy at birth (birth-rate) (1/1000inhabitants)	0,45	0,55
	The population density of the city	0,52	0,48
	Population growth rate	0,60	0,40
Quality of life and urban development	Rate of consultant doctors (1/1000inhabitants)	0,46	0,54
	Number of patients evacuated to the wilaya's hospitals	0,52	0,48
	Number of subscribers to ADSL/internet lines services	0,51	0,49
	Number of university research laboratories	0,67	0,33
Economy	Percentage of employment in the tertiary sector	0,59	0,41
	Newly set up companies PME (national and foreign)	0,49	0,51
	Surface of industrial zones	0,73	0,27
	Percentage of employment in the industrial sector	0,54	0,46
	Surface of activity and micro-activity zones	0,71	0,29
Housing projects and land availability	Rate of agricultural lands coverage (agricultural/total)	0,58	0,42
	Number of houses distributed in the promotional housing programs LSP/LPA/AADL/LPP	0,64	0,36
	Number of houses distributed in the social-residential housing LPL	0,31	0,69
Private investment	Number of private schools	0,59	0,41
	Number of land requests for investments	0,81	0,19
	Number of shopping malls (capacity over 25 selling points 5000m ²)	0,75	0,25
	Number of private clinics	0,59	0,41
Culture and heritage	Number of principal cultural infrastructures (cinemas, theatres, museums)	0,65	0,35
	Number of recreational or cultural events	0,74	0,26
	Number of principal public libraries	0,67	0,33
	Number of classified historical and naturel sites	0,59	0,41

Tourism	Nights spent by foreign tourists	0,40	0,60
	Number of foreign tourists	0,57	0,43
	Number of existing hotels (ranking from 1 to 5 stars)	0,48	0,52
	Number of travel agencies	0,54	0,46
Security	Crime rate (1/1000inhabitants)	0,57	0,43
	Rate of attacks on properties and persons (1/1000inhabitants)	0,44	0,56
	Car accidents rate (1/1000inhabitants)	0,88	0,12

Table 12: the primary indicators (results of the standardization method)

Source: Author's elaboration (2021)

The primary indicators are mostly in favor of the Constantine metropolis except for the following indicators where Annaba metropolises takes the lead:

- Diversity of the transport offer
- Number of passengers by rail from/in metropolitan area
- Rate of life expectancy at birth (birth-rate)
- Rate of consultant doctors
- Newly set up companies PME (national and foreign)
- Number of houses distributed in the social-residential housing LPL
- Rate of attacks on properties and persons

5.1.4. The Ponderation Method (Weighting the primary data)

As our own interpretation to the perceived attractiveness facet (figure 3), we have conducted a weighting method on the previous aggregated indicators where we selected six (6) experts among academics and representatives of the Algerian institutions with mainly, but not exclusively, territorial and urban planning backgrounds as an attempt maintain a certain balance between the metropolises in terms of the geographical origin or place of residence of experts.

The factors of urban growth were chosen according to both territorial units peculiarities and previous indicators were divided according to their attached factor (causality/effects):

Factor one “speed of urbanization”:

This factor was chosen to provide an idea of urban dynamics in both metropolises considering the fact that both metropolises show similar values of densities, it reflects the relationship between socio-economic (demographic) requirements and achievement

capacities, this "condition" attracts populations in search of employment, investors and economic operators, urbanization is evaluated through its speed.

Factor two “structuring projects”:

Structuring projects reflect the city's "ambitions" to produce resources in order to be a "destination", investors and population are always attracted to "big projects" either as "direct partners or as participants in" side "operations, the subjective evaluation of the experts was about the impacts of those projects on the status of the city at a local, regional, national or transnational territorial scale, in other words, are these sps able to trigger a process of metropolization? And what are the prospects favored by the existence of those structuring factors in terms of urban quality, marketing, "merchandise"?

Factor three “identity of the city”:

Identity, brand image, label are values that every city aspires to, they are emanations from the other two categories, they also reflect an ambition to “personalize” the city, to give it an appropriate character, an “image” of its own, this identity is often nourished by cultural and historical ingredients, but also by "offers" to attract investments, customers, "visitors", construction of an "identity" is doable through the enhancement of cultural and historical particularities development of events at different scales and also through existing potentials, so the question is which metropolis have the better chance in developing this identity through its potentials?

The survey presented to the experts contained the previous explanation of the factors and the methodology in general, we asked them to evaluate the factors based on their potential impact in the future urban growth of each metropolis separately where the main question was:

in your opinion, what is the most influencing factor on future urban growth? Please rank those factors for the two cities as percentages in order of influence on the region?

Percentages were given by the experts for every factor and for both metropolises, along with any further remarks on the subject as is it shown in the following table:

Factor	Annaba	Constantine	remarks
Speed of urbanization over the past 20 years			
Structuring projects			
Identity of the city			

Table 13: The ponderation survey presented to the experts
 Source: Author's elaboration (2021)

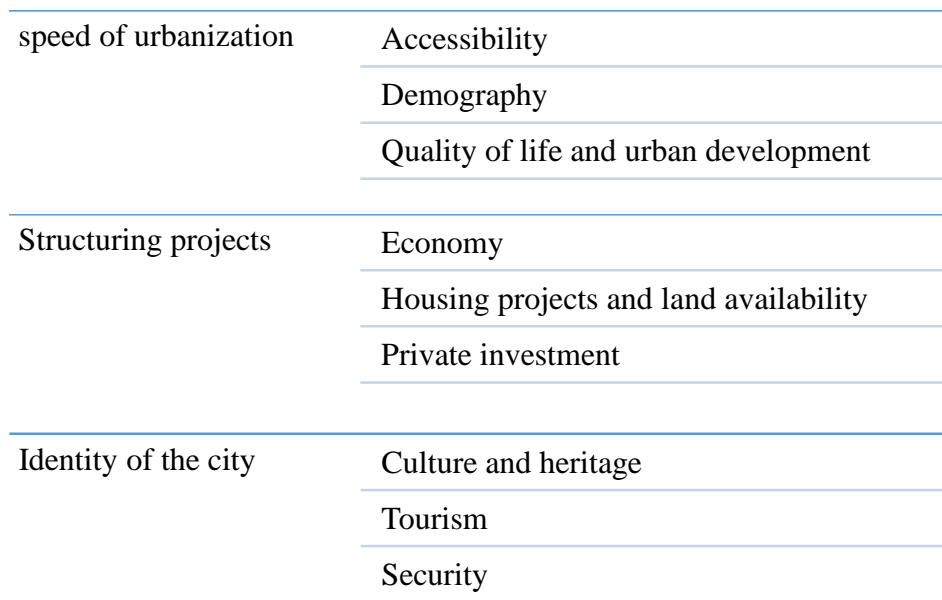


Figure 48: Division of the indicator's categories by factors of urban growth

Source: author's elaboration (2021)

Based on the experts opinions and personal experience in the region percentages from 0% to 100% was given to each of the urban development factors where the maximum value will be attributed to the metropolis with the biggest chance of development in the future through that urban factor, in the following table we present the profiles of the experts along with their responses to the survey and their remarks:

Name of the expert	Profession	Email	Responses		
1/Habbati Tarek	Head of statistics office, industry and mining department, wilaya of Constantine.	habbati.tarek@hotmail.fr		Constantine	Annaba
			Factor 1	30%	40%
			Factor 2	40%	30%
			Factor 3	30%	30%
Name of the expert	Profession	Email	Responses		
2/Dahmani Riad	director of the tourism and crafts department, wilaya of Constantine	Riad.tourisme@yahoo.fr		Constantine	Annaba
			Factor 1	15%	25%
			Factor 2	25%	25%
			Factor 3	60%	50%
Name of the expert	Profession	Email	Responses		
3/Messali salahelddine	A university Professor in the Project Planning Department.	Salaheddine.messali@univ-constantine.dz		Constantine	Annaba
			Factor 1	40%	30%
			Factor 2	20%	50%
			Factor 3	40%	20%
Name of the expert	Profession	Email	Responses		
4/Bouchereb Abdelouahab	A university Professor in the urban Planning Department.	abdelouahab.bouchereb@univ-constantine3.dz		Constantine	Annaba
			Factor 1	50%	15%
			Factor 2	15%	50%
			Factor 3	35%	35%
Name of the expert	Profession	Email	Responses		
5/Hafiane Abd Elrahim	architect and doctor in urban planning in Annaba.	himhafiane@yahoo.fr		Constantine	Annaba
			Factor 1	50%	50%
			Factor 2	25%	25%
			Factor 3	25%	25%
Name of the expert	Profession	Email	Responses		
6/Benabdelkader Mohamed Redha	demographer at a planning supervisor at the project study and realization center URBACO Constantine	narutoredha@yahoo.fr		Constantine	Annaba
			Factor 1	20%	30%
			Factor 2	50%	60%
			Factor 3	30%	10%

Table 14: The profiles and Answers of the experts

Source: Auhtor's elaboration (2021)

Experts	Remarks
3rd expert	-for the first factor "the rate of urbanization in Constantine is very accelerated especially from the years 2000" -for the second factor "despite the fact that Constantine has benefited from major structuring projects (university town, giant bridge, cable car, tramway, hotels) in terms of infrastructure but in terms of investment Annaba takes the lead"

	<p>-for the third factor "despite the dilapidated state of its built heritage and its decay Constantine retains its aura and its cultural identity and its ancestral historical anchoring but in the absence of a strategy of taking charge in the court and medium term it will see a decline of this identity aspect"</p>
5th expert	<p>For the city of Annaba:</p> <p>-for the first factor "urbanization driven by housing (promotional project and construction of the draa errich pole)"</p> <p>-for the second factor "transport and mobility-based infrastructure"</p> <p>-for the third factor "an industrial front-town that has become a center for seaside and commercial services and tourism, and cross-border trade with Tunisia"</p>
6th expert	<p>-for the first factor "for Constantine the index of consumption of land for urbanization is insignificant the housing program were drifted towards Ain nehas and Massinissa commune Elkhroub and Ali mendjeli and Retba Didouche Mourad The same phenomenon happened in Annaba"</p> <p>-for the second factor "the structuring projects carried out translate the real contribution in terms of sustainable investment for the city in terms of functionality or spatial influence for example the case of the 'university city 3' and the zenith conferences home ... for Constantine the realization of these projects should be imperatively built on the basis of three actors: state, private and foreign investments.</p> <p>-for the third factor "personalizing the city identity and brand image three factors not to be neglected (history, culture, tangible and intangible heritage) will become factors of the metropolization of the two cities and of sustainable development.</p> <p>The potential is present remains the promotion and marketing inward and outward as a cultural, scientific, ecological and tourist sporting destination for the two cities."</p>

In applying the weighting method on the primary indicators, the following equation was obtained:

$$W_i^x = x_i \times W_i$$

Where x_i is the value of the primary indicator (table 12) ($0 \leq x_i \leq 1$), W_i is the weight given the indicator according to its attached factor (figure 49), the weight given by the expert for the factors in both cities is slightly similar nonetheless the results of the synthetic indicators is different, the following table present the values obtained by the ponderation method:

Total of experts	6			
Total of responses				
	Constantine		Annaba	
	Percentage	Coefficient	Percentage	Coefficient
Factor 1: speed of urbanization	34.2%	1	31.6%	2
Factor 2: structuring projects	29.16%	2	40%	3
Factor 3: the identity of the city	36.6%	3	28.4%	1

Table 15: the ponderation's values given by the experts
 Source: Author's elaboration (2021)

5.2. Results of the Synthetic Indicators

Speed of urbanization	Accessibility	Diversity of the transport offer (point for type)	6	5	11	0.45	0.55	0.15	0.17	0,182 0,144
		Number of regional and national city road access (point for 14	14	15	29	0.52	0.48	0.18	0.15	
		Newly created road linear	2	3.8	5.8	0.66	0.34	0.22	0.11	
		Number of passengers by rail from/in metropolitan area	702185	4E+05	1092633	0.36	0.64	0.12	0.20	
		Traffic volume in international flights	2064	5386	7450	0.72	0.28	0.25	0.09	
		Number of air port passengers	402585	5E+05	943443	0.57	0.43	0.19	0.13	
		Rate of life expectancy at birth (birth-rate)/(1/1000inhabitant	19,26	15,45	34,71	0.45	0.55	0.15	0.17	
		The population density of the city	473,75	506,3	980,05	0.52	0.48	0.18	0.15	
		Population growth rate	0,98	1,5	2,48	0.60	0.40	0.21	0.12	
		Rate of consultant doctors (1/1000inhabitants)	0,62	0,525	1,1446	0.46	0.54	0.16	0.17	
Structuring projects	Quality of life and urban development	Number of patients evacuated to the wilaya's hospitals	4156	4430	8586	0.52	0.48	0.18	0.15	0,175 0,159
		Number of subscribers to ADSL/internet lines services	390541	4E+05	802053	0.51	0.49	0.17	0.15	
		Number of university research laboratories	34	68	102	0.67	0.33	0.23	0.10	
		Percentage of employment in the tertiary sector	57,9	82,2	140,1	0.59	0.41	0.17	0.17	
		Newly set up companies PME(national and foreign)	7690	7530	15220	0.49	0.51	0.14	0.20	
		Surface of industrial zones	490,3	1338	1828,3	0.73	0.27	0.21	0.11	
		Percentage of employment in the industrial sector	14,66	16,88	31,54	0.54	0.46	0.16	0.19	
		Surface of activity and micro-activity zones	161	390	551	0.71	0.29	0.21	0.12	
		Rate of agricultural lands coverage (agricultural/total)	40,9	57,1	98	0.58	0.42	0.17	0.17	
		Number of houses distributed in the promotional housing p	5050	9107	14157	0.64	0.36	0.19	0.14	
City's identity	Private investment	Number of houses distributed in the social-residential hous	3525	1551	5076	0.31	0.69	0.09	0.28	0,215 0,113
		Number of private schools	14	20	34	0.59	0.41	0.17	0.16	
		Number of land requests for investments	850	3693	4543	0.81	0.19	0.24	0.07	
		Number of shopping malls (capacity over 25 selling points)	1	3	4	0.75	0.25	0.22	0.10	
		Number of private clinics	18	26	44	0.59	0.41	0.17	0.16	
		Number of principal cultural infrastructures (cinemas, the	9	17	26	0.65	0.35	0.24	0.10	
		Number of recreational or cultural events	69	195	264	0.74	0.26	0.27	0.07	
		Number of principal public libraries	1	2	3	0.67	0.33	0.24	0.09	
		Number of classified historical and naturel sites	15	22	37	0.59	0.41	0.21	0.11	
		Nights spent by foreign tourists	31449	20836	52285	0.40	0.60	0.14	0.17	
City's identity	Tourism	Number of foreign tourists	22734	29657	52391	0.57	0.43	0.20	0.12	0,179 0,141
		Number of existing hotels (ranking from 1 to 5 stars)	15	14	29	0.48	0.52	0.17	0.14	
		Number of travel agencies	128	150	278	0.54	0.46	0.19	0.13	
		Crime rate (1/1000inhabitants)	565	738	1303	0.57	0.43	0.20	0.12	
		Rate of attacks on properties and persons (1/1000inhabitant	674	537	1211	0.44	0.56	0.16	0.16	
		Car accidents rate (1/1000inhabitants)	42	321	363	0.88	0.12	0.32	0.03	

5.2.1. The Synthetic Indicators by Categories and Factors of Ponderation

Factors	Categories	Indicators	Wx1 Constantine	Wx2 Annaba	category index Constantine	category index Annaba	Factors index Constantine	Factors index Annaba
Speed of urbanization	Accessibility	Diversity of the transport offer (point for type)	0,15	0,17	0,186	0,141	0,182	0,144
		Number of regional and national city road access (point for access)	0,18	0,15				
		Newly created road linear	0,22	0,11				
		Number of passengers by rail from/in metropolitan area	0,12	0,20				
		Traffic volume in international flights	0,25	0,09				
		Number of airport passengers	0,19	0,13				
	Demography	Rate of life expectancy at birth (birth-rate) (1/1000inhabitants)	0,15	0,17	0,178	0,148		
		The population density of the city	0,18	0,15				
		Population growth rate	0,21	0,12				
	Quality of life and urban development	Rate of consultant doctors (1/1000inhabitants)	0,16	0,17	0,183	0,143		
		Number of patients evacuated to the wilaya's hospitals	0,18	0,15				
		Number of subscribers to ADSL/internet lines services	0,17	0,15				
		Number of university research laboratories	0,23	0,10				
	Structuring projects	Economy	Percentage of employment in the tertiary sector	0,17	0,17	0,177	0,155	0,175
Newly set up companies PME (national and foreign)			0,14	0,20				
Surface of industrial zones			0,21	0,11				
Percentage of employment in the industrial sector			0,16	0,19				
Surface of activity and micro-activity zones			0,21	0,12				
Housing projects and land availability		Rate of agricultural lands coverage (agricultural/total)	0,17	0,17	0,148	0,196		
		Number of houses distributed in the promotional housing programs LSP/LPA/AADL/LPP	0,19	0,14				
		Number of houses distributed in the social-residential housing LPL	0,09	0,28				
Private investment		Number of private schools	0,17	0,16	0,199	0,126		
		Number of land requests for investments	0,24	0,07				
		Number of shopping malls (capacity over 25 selling points 5000m ²)	0,22	0,10				

		Number of private clinics	0,17	0,16				
City's identity	Culture and heritage	Number of principal cultural infrastructures (cinemas, theatres, museums)	0,24	0,10	0,239	0,094	0,215	0,113
		Number of recreational or cultural events	0,27	0,07				
		Number of principal public libraries	0,24	0,09				
		Number of classified historical and naturel sites	0,21	0,11				
	Tourism	Nights spent by foreign tourists	0,14	0,17	0,179	0,141		
		Number of foreign tourists	0,20	0,12				
		Number of existing hotels (ranking from 1 to 5 stars)	0,17	0,14				
		Number of travel agencies	0,19	0,13				
	Security	Crime rate (1/1000inhabitants)	0,20	0,12	0,227	0,103		
		Rate of attacks on properties and persons (1/1000inhabitants)	0,16	0,16				
		Car accidents rate (1/1000inhabitants)	0,32	0,03				

Table 16: results of the synthetic indicator

Source: author's elaboration (2021)

5.2.2. Gap of Differences between primary and post-weighting results

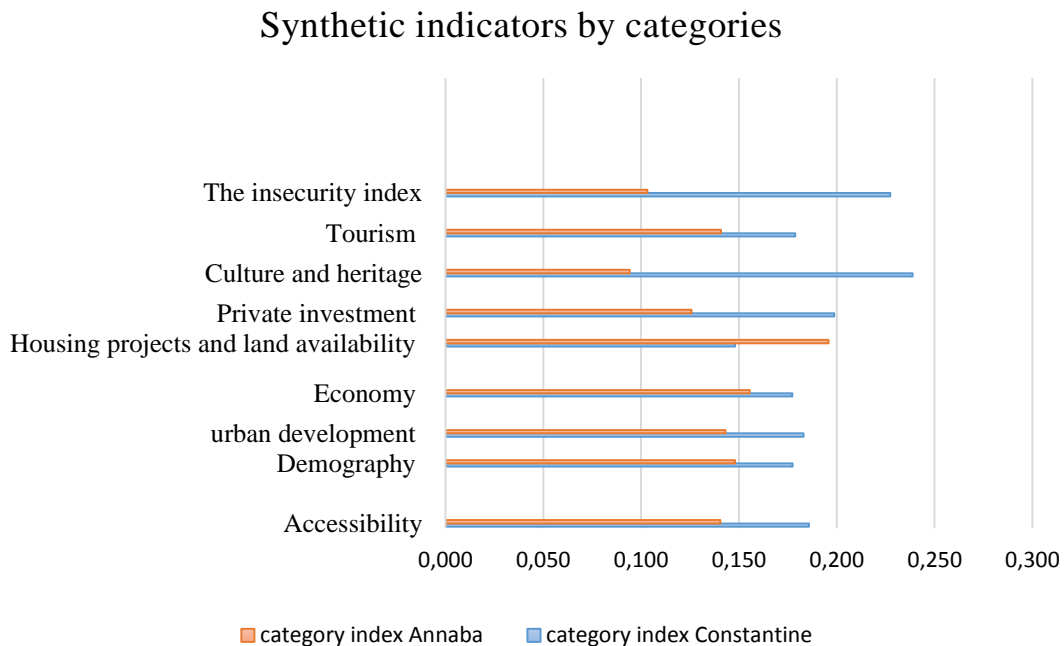
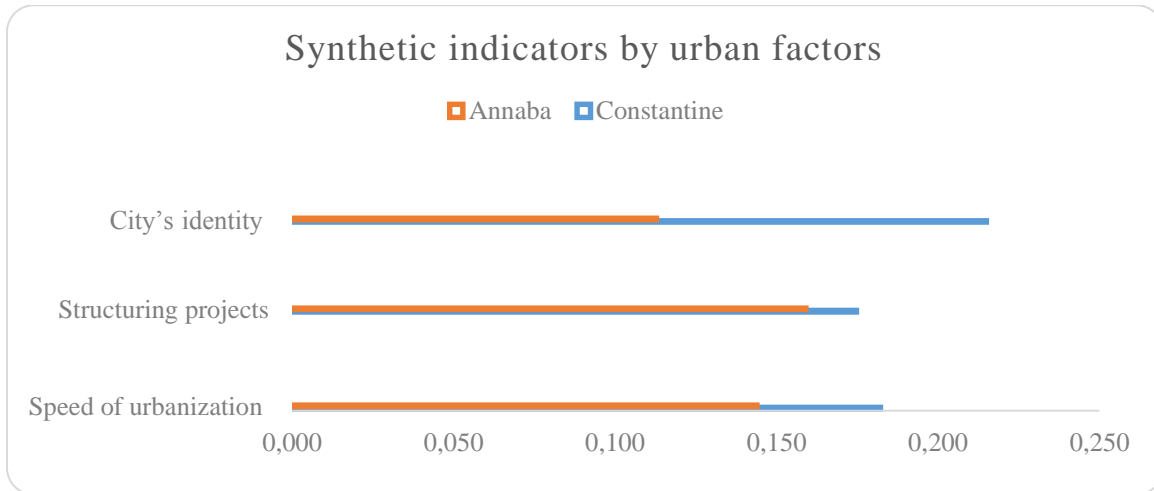
Categories	Primary results		Post weighting results		Attractiveness advantage		
	Constantine	Annaba	Constantine	Annaba	Primary	WC ¹⁵	Post weighting
Accessibility	3.28	2.72	0.186	0.141	Constantine	Constantine	Constantine
Demography	1.57	1.43	0.178	0.148	Constantine		Constantine
Quality of life and urban development	2.15	1.85	0.183	0.143	Constantine		Constantine
Economy	3.06	1.94	0.177	0.155	Constantine	Annaba	Constantine
Housing projects and land availability	1.53	1.47	0.148	0.196	Constantine		Annaba
Private investment	2.74	1.26	0.199	0.126	Constantine		Constantine
Culture and heritage	2.65	1.35	0.239	0.099	Constantine	Constantine	Constantine
Tourism	1.99	2.01	0.179	0.141	Annaba		Constantine
Insecurity	1.89	1.11	0.227	0.103	Constantine		Annaba

Table 17: Gap of Differences between primary and post-weighting results

Source: Auhtor's elaboration (2021)

¹⁵ The weighting coefficient given by the experts.

As the first overall view of the results the metropolis of Constantine appears as the most attractive in both primary and post-weighting results, that superiority is presented also in relatively similar weighting coefficients, which reflect the perceived image taken by the experts to experts for both territorial units, in the following figures and table we summarized the results of the study:



5.2.3. The Discussion of the Results by Categories and Urban Factors

In categories of accessibility, demography and urban development and quality of life, a proportional similarity between the metropolises is presented in both primary and post weighting results with an attractiveness advantage to Constantine, however, for the accessibility category Annaba's major asset 'the port' was not calculated in the data which could give it the lead due to its internationally importance.

For the economy category, we notice a superiority of attractiveness advantage for the Constantine metropolis despite the fact that Annaba was carried out in the official documents as the industrial pole of the region, this result suggest the appearance of noticeable industrial polarization in Constantine along with its already existing tertiary economy.

In the housing and land availability category, we notice a change of attractiveness advantage from Constantine in the primary results to Annaba in the post-weighting results due to the perceived image of both territorial units by the experts, this image is contradictory with the reality of Annaba's morphology (surrounded by mountains which make it difficult to expend as metropolitan territory) but could indicate the existence of attraction elements in the real estate section in Annaba or a poor housing strategy in Constantine.

In the Private investments category, a noticeable superiority for the Constantine metropolis, which could be explained in the creation of new industrial zones and micro zones (Ex: Ain Abid industrial zone) dedicated to private investment, contrary to the Annaba metropolis where the state dominating investments in heavy industry still has the biggest impact.

For the culture and heritage category, the post-weighting results for Annaba is extremely low which indicate a necessity for a territorial marketing strategy emphasizing the cultural unique identity away from Constantine's and adding its coastal advantage in promoting the attractiveness, for the Constantine metropolis the marketing strategy should expend to international audience.

The tourism category shows a very narrow similarity in the primary results with a superiority for Annaba then it changes in the post weighting results to an attractiveness advantage for Constantine that change is due to the perceived image of Constantine powerful city's identity and its exploited capacity to generate cultural tourism, nonetheless, coastal and environmental tourism should be considered as a very strong asset for future economic growth in Annaba.

The insecurity index category shows that Annaba have the attractiveness advantage in terms of safety contrary to its infamous reputation, the insecurity index is higher in both primary and post weighting results for Constantine with the increase of attacks on people and properties and an extremely higher figure for cars accidents rising the red flags as a potential repulsiveness element.

For the results of territorial attractiveness by urban factors: the historical and cultural identity of the Constantine metropolis could implicate superior influence in its future urban growth than the Annaba metropolis, however and interestingly in the structuring projects factor, despite the fact that Constantine metropolis has benefited from a higher number of structuring projects than the metropolis of Annaba, the results indicate a similarity in the influence of those projects, which means the small impact of those projects on attractiveness of flows or generating revenues, in the speed of urbanization factor, we notice a medium difference in favor of the Constantine metropolis and that mostly due to the ability of growth in terms of land availability.

As recommendation for the metropolis of Constantine we propose a general evaluation based on the official data in the housing sector of Constantine with a critical study of the housing forms in regional scale, an urban marketing plan should be elaborated in Constantine where we label the city's historical image to attract international tourists and we moderate the touristic services prices to attract national tourists.

For the metropolis of Annaba we suggest promoting private investment and moving away from the heavy industry to tertiary investments for the state's investments, the tourism

sector especially ecotourism should be given importance in the future metropolitan planning strategies by elaborating a plan of action including all the potential of the city.

5.3. Juxtaposition of the Results on the Regional Network

In the last phase of our research, we projected the results of the territorial attractiveness evaluation and the conclusions that we previously made in the precedent chapters, the juxtaposition of the two results managed us to define two territorial areas of attraction for the metropolises of Constantine and Annaba where complementarity should be established between the two areas of attraction on a regional scale not only between the two metropolises, also two possible cities systems to be studied in future researches and evaluated for their efficiency in generation regional development, attractiveness was divided into three types:

- Major attractiveness: coming from the El Taref-Annaba area for Annaba and from the Mila-Constantine area for Constantine, also (Jijel project major attractiveness on some parts of that area).
- Medium attractiveness: coming from the Souk Ahras and Guelma for Annaba and from skikda for Constantine.
- Minor attractiveness: coming from the Skikda area for Annaba and from Jijel and Guelma for Constantine.

Therefore, we proposed two cities systems in the North East region where we emphasize the importance of elaborating a separate evaluation study of actual and potential attractiveness of both metropolises Constantine and Annaba before initiating any further planning strategies in the North East of Algeria):

- The first cities system contains Constantine as a centre on attraction followed by Mila, Jijel and skikda
- The second cities system contains Annaba as centre, El Taref area, Guelma and Skikda (Skikda was included in both systems following its dual attractiveness to both metropolises)

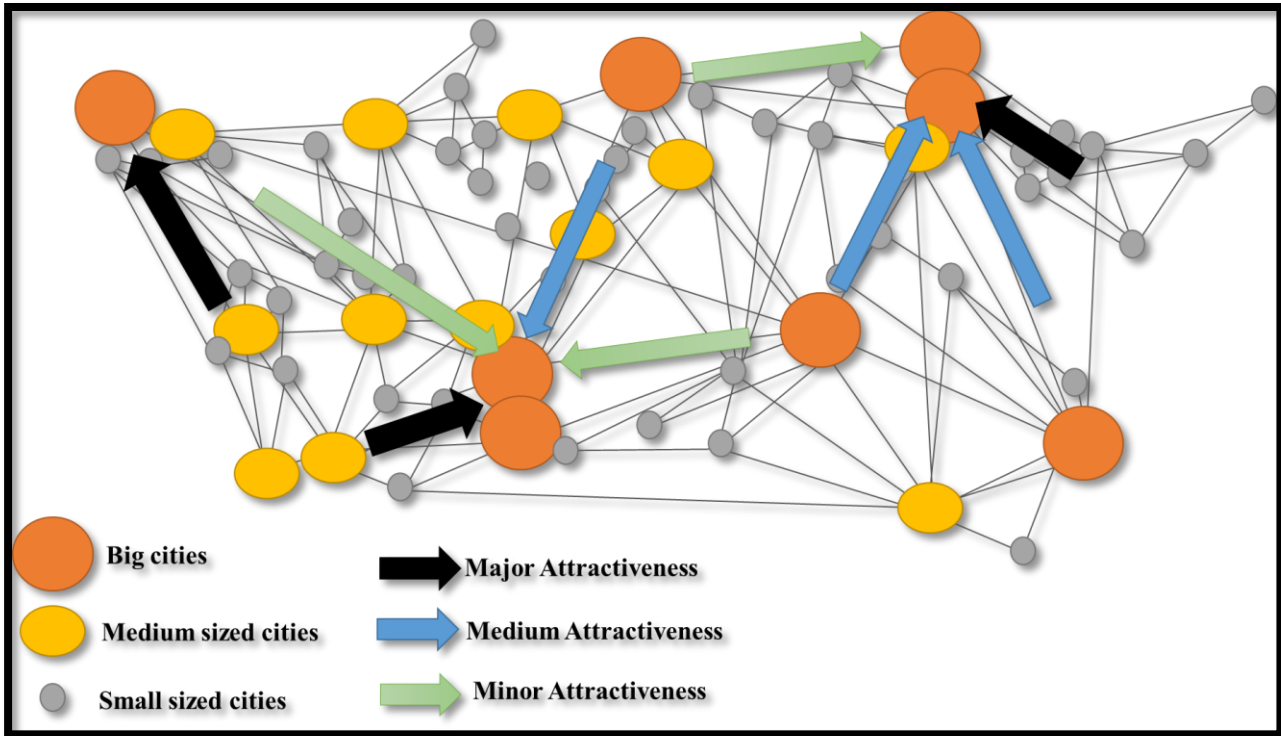


Figure 49: Projection of the study results on the regional network
Source: author's elaboration (2021)

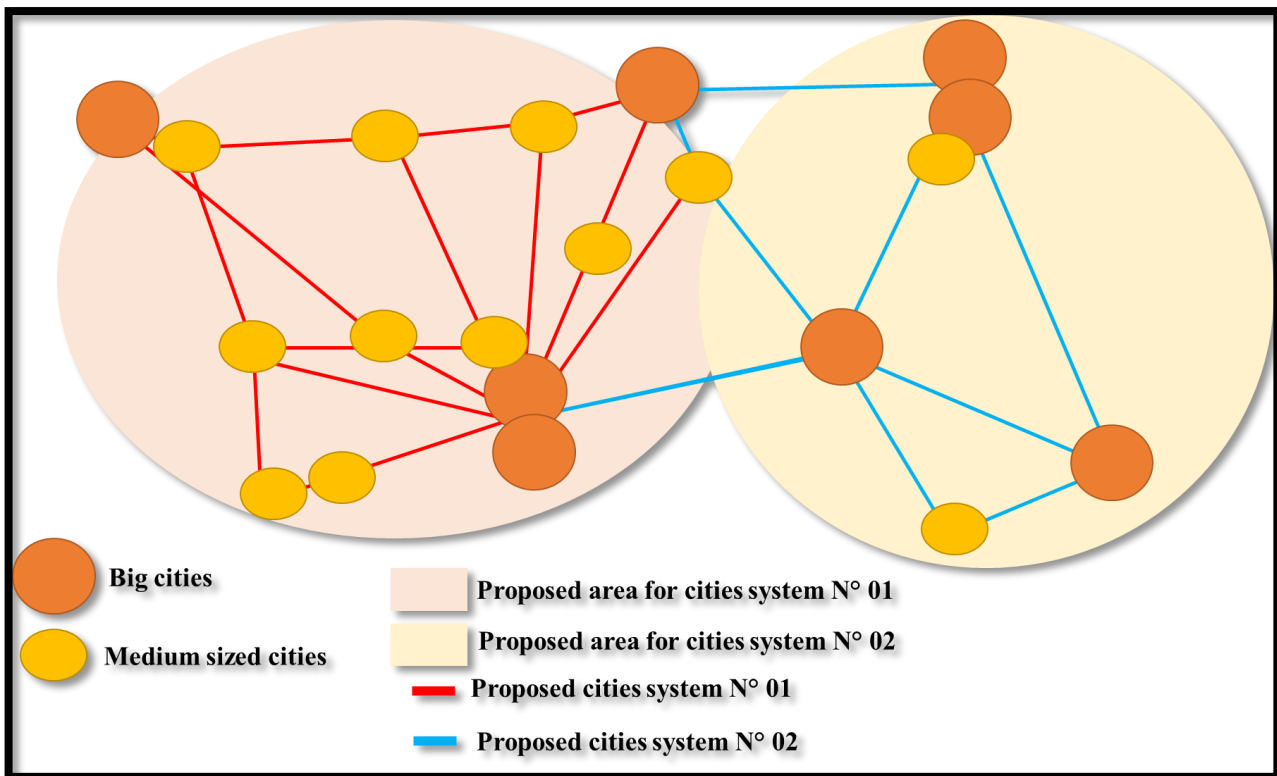


Figure 50: Demonstration of the two proposed cities systems in the North East region of Algeria
Source: author's elaboration (2021)

Conclusion

In our approach to the notion of territorial attractiveness, we tried to solve an existing economic-urban dilemma in the north east region of Algeria by a multidimensional study, as a result, we noticed the absence of 'planning based on actual attractiveness and potential urban growth' in the previous regional planning documents (Ex: new objectives were presented without a coordination with the effects of the structuring projects that were in construction at that time, creating a certain chaos in urban and regional planning strategies).

Before the initiation of any regional planning schema of the creating of a cities system, a land availability documents must be established in both metropolises and other elements of the proposed cities system that regroups all the precedents documents for the objective of evaluating the potential and the obstacles of urban growth, we also emphasize the necessity for an assessment study for the existing and potential attractor assets in both metropolises, natural, economic and demographic that is able to generate development. (Ex: statistics on qualified persons and their area of specialty, ranking startups based on their income and their field, survey for private investors to identify the obstacles they face to enhance their financial situation.... Etc.)

Prospective projects in both metropolises should be based on generating revenues or work opportunities for the state's projects and should be controlled extensively in the construction and management phase for the private investors, the suitable regional planning strategy should manage to generated a functional cities system or systems in the region where the actual attractiveness of the Constantine metropolis separately as a territorial unit and in the same time provide opportunities for enhancing Annaba's attractiveness based on its actual existing assets.

General Conclusion

General Conclusion

Conclusion

The control of urban growth became an ancient paradigm, nowadays, modelling and stimulating the pattern of growth is considered the key to a successful planning strategy, many studies have shown models of growth in an attempt to suggest development policies based on the suitable and desired growth, as Glaeser and Kahn (2004) stated, in this globalization phenomenon jobs followed the people not the opposite so in planning metropolitan areas, decentralized homes usually need decentralized jobs and attractive places for residency.

Generally, previous policies of governments are the main influence of the pace between urbanization and industrialization in many developing countries, Governments in developing countries often try to control urbanization, by influencing both the pace of urban growth and the spatial distribution of cities.

Today, the developed regions are entering a phase of urban growth after reaching a fairly high level of urbanization, while less developed regions continue massive urbanization and experience growth the world's fastest urban population, in this actual time, governments in developing countries are challenged to find relevant urbanization policies that makes the suitable significant transition to growth.

Algeria's urban growth has followed the model of developing countries with historical city's centre leading up to the relatively similar metropolization in the four largest cities of the country: Algier, Oran, Constantine and Annaba, with only the first one as an international metropolis stating the other three as national and regional metropolises.

After comparing the general metropolization characteristics of the two metropolises in the North East region we concluded the similar metropolization process (a historic city's centre, a massive rural exodus in the 90's, a surrounding satellite cities with natural ruptures and major mobility to/from the centre, a promising tertiary sector with an important industrial fabric) declaring the need for a comparative study between the two metropolises.

To approach the modern urban-economic existing dilemma in most of developing countries that was previously stated by Glaeser and Kahn (2004) and conduct a

General Conclusion

comparative study of the two metropolises in the North East region of Algeria we decided on the notion of 'Attractiveness', a complex and multifaceted set of characteristics that able as to have a generic vision of the region's dynamics of possible urban growth.

In evaluating attractiveness, the relative balance of factors that attract varies depending on the groups that are at the centre of attraction strategies, territorial attractiveness recently became a key component of research into regional development, therefore, the identification of the roles of environmental, physical and social attributes is essential in reinforcing the attractiveness of regions for each group and for every territory, a region's or a city's development depends on its ability to retain existing business activities, residents, investors and attract new ones with maintaining the sufficient balance for an attractive growth, losing the balance can create contrary repulsiveness

This ability depends on the many urban growth factors such as the identity of a region and its overall image, the image express the region's current state of development, its territorial capitals, its clusters and external attractors and its future prospects, it can guide the public authorities to the needed development policy, the wealth of the territories comes not only from the production sector but also from spending, spending wealth in a territory needs strong elements of attraction depending on the group of wealth considerations.

Any policy aimed at increasing the attractiveness of a territory must no longer be limited to encourage the influx of capital and business, but it must target in parallel and with the same degree of interest, the attraction of income from non-permanent populations such as tourists and students and the diffusion of a strong territorial image based on the region's identity.

The evaluation of attractiveness as any other evaluation needs a projection surface, a sort of organization or a configuration to illustrate the results of that evaluation on it, in this thesis the projection was established on the regional network previously created in the objective of proposing a functional cities system for the region of North East of Algeria.

The systematic approach, formalized in the 1960s, made it possible to renew the study of inter-urban differentiation in terms of hierarchy of sizes and functions, first according to

General Conclusion

static approaches, with the deepening of the principles of classification of cities, and then from a dynamic perspective, where the concept of a system becomes very interesting.

To be noted that the academic spectrum features the city network concept differently, from city network, city system, system of cities, urban system, where the variation among existing studies comes from three main elements:

- The scale of analysis adopted
- The urban processes captured
- The ontological status ascribed to the
- Network under study.

Based on the relative urban dynamics, the decisive interdependencies for Algerian regional metropolises (Constantine, Annaba and Oran) are sometimes played out among themselves, sometimes with other major north African cities, while Alger is measured with other «world cities», emphasizing our hypothesis about the necessity for a comparative study on the potential attractiveness as a pre-planning phase in regional strategies.

Preamble Back to Research Case of the Study, Key Findings and Discussion

For the case of study, the programmed region of North East of Algeria is the only of the country's nine (09) regions to have two metropolises: Constantine and Annaba, according to the results of the 2008 RGPH, it is home to 583 agglomerations, administratively, the Northeast region is organized into: 08 wilayas, 76 Dairas, 206 municipalities.

the North East region has a multitude of potentials for development on both the physical and socio-economic level, which gives it diversified optional planning strategies, a geographical setting and tangible and intangible assets, the Algerian Northeast region is distinguished by its landscape component combining picturesque mountain and seaside sites, its archaeological sites and historical monuments, a dense road network, a relatively young population and an important industrial weight in the national economy.

Nevertheless, the region is facing several natural constraints and human pressure, many obstacles raise to the surface such as uneven distribution of populations and growing trend

General Conclusion

towards agglomeration suggesting the necessity for customized regional planning strategy, this situation has created over the past years an ambiguous planning strategies.

The problem in the previous regional planning strategies in that it seems to be that we are reproducing what we have known in the past, which could be conceivable given the population, that is to say: getting the roads, the lines of communication and the housing programs but not structuring the regional space, in fact complementarities as well as competition are to be considered in the process of elaboration regional planning strategies. in the case of the North East, and based on the previous analysis, we think it would be doubtful for one city to take from another what has made its reputation and influence in the region, except, of course, where the latter is no longer able to play that role.

After creating the urban networks for each wilaya in the North East region, we divided them based on previous studies (explained in chapter 03) according to the possible causes, interpretation of growth and models of growth from three past studies on urban growth, we come across several conclusions:

- major differences between the eight networks from complex ones such as Skikda to simpler ones like Souk Ahras, the growth in most networks was rupturist specially in the least populated wilayas, some networks (Ex: El Tarf) showed the absence of one or two dimensions of agglomerations.
- The two metropolises Constantine an Annaba dispose of several small cities which if integrated to the right development strategy can produce future urban centers.
- The wilaya of Skikda and Djijel with the biggest number of small cities (usually an indicator of agriculture or touristic allocations or social particularity) contradictory to the fact that both wilayas were programmed as a future industrial pole
- The wilaya of Mila is the most detached network with 3 noticeable separate units, each one has its form and model of growth.

This conclusion does not eliminate the possibility of creating competitive territories but projecting them to long term strategy starting with evaluation the territorial attractiveness in the region and positioning every wilaya in its functional role, Nevertheless, to determine

General Conclusion

the positioning of these national metropolitan areas, it would be necessary to identify their areas of attraction and their potentials attraction assets.

Therefore, with the objective of presenting a better understanding of the actual situation in the region, we suggested in this thesis a model of territorial attractiveness generic assessment that will be able to offer guidelines for the suitable regional planning strategy that should be able to manage the actual attractiveness

Our study presents a comparative study between the two regional metropolises in the northeast region of Algeria Constantine and Annaba with a projection of its results on the regional network, this is a basic research, a modest contribution to the ongoing discussions about the role of territorial attractiveness in urban planning, using a mixed method with an explanatory sequential based on the work of (Musolino & Volget, 2020), with a macro approach.

It is not a “pure “new method but more of a new model in the assessment of the economic-urban dilemma observed in northeast region of Algeria and in many others regions of the developing world, this model is unique in the generality aspect trying to evaluation the three facets of attractiveness simultaneously and adaptable at different territories of the developing countries, of course with suitable indicators for every territory and experts that are familiar with it.

We conducted a comparative study between the two metropolises in the north eastern region of Algeria and we presented the actual agglomerations of the region in networks for each wilaya and as a final step we attempted to propose a new regional division based on the observed results, we started by investigating the suitable indicators, those indicators were chosen from different ranking experiences by the authors based on the availability of the data and the particularity of region.

The objective was to create a list of multifactorial indicators divided into nine (09) categories from available data in a national level and creating a ranking model applicable to other developing regions, we collected the primary data from 21 different official administrations in both metropolises and normalized them through a standardization formula, and thereafter we opted for a weighting method.

General Conclusion

As a result, we noticed the absence of ‘planning based on actual attractiveness and potential urban growth’ in the previous regional planning documents

Before the initiation of any regional planning schema of the creating of a cities system, a land availability documents must be established in both metropolises and other elements of the proposed cities system that regroups all the precedents documents for the objective of evaluating the potential and the obstacles of urban growth, we also emphasize the necessity for an assessment study for the existing and potential attractor assets in both metropolises, natural, economic and demographic that is able to generate development. (Ex: statistics on qualified persons and their area of specialty, ranking startups based on their income and their field, survey for private investors to identify the obstacles they face to enhance their financial situation.... Etc.)

Prospective projects in both metropolises should be based on generating revenues or work opportunities for the state’s projects and should be controlled extensively in the construction and management phase for the private investors, the suitable regional planning strategy should manage to generated a functional cities system or systems in the region where the actual attractiveness of the Constantine metropolis separately as a territorial unit and in the same time provide opportunities for enhancing Annaba’s attractiveness based on its actual existing assets.

The first hypothesis about the ability of the results generated by the evaluating the three ‘facets’ of attractiveness simultaneously to enhance regional planning strategies and create balance between economic and urban growth was relatively confirmed by the creating of the assessment model.

The second hypothesis about the necessity for regional planning strategy that promote attractiveness instead of complementarity in the northeast region of Algeria with declaring new territorial limits for the region based on the potential attraction/ repulsiveness elements in both metropolises was confirmed

The third hypothesis about the possibility of improving the regional planning strategy by adapting the attractiveness evaluation and projecting its results on the actual urban

General Conclusion

networks and the assessment of potentials for urban growth development as the initial step before the elaboration of the next regional planning document was confirmed

The fourth hypothesis is the similarity of the attractiveness degree and zone of influence with differences in the attraction elements between the two metropolises was not confirmed, the metropolises of Constantine seems to be more attractive than the metropolis of Annaba.

Research Recommendations

- Elaboration of a land availability documents in both metropolises that regroups all the precedents documents for the objective of evaluating the potential growth strategies
- Elaboration of an assessment study for the existing and potential attractor assets in both metropolises, natural, economic and demographic that is able to generate development. (Ex: statistics on qualified persons and their area of specialty, ranking startups based on their income and their field, survey for private investors to identify the obstacles they face to enhance their financial situation.... Etc)
- General evaluation based on the official data in the housing sector of Constantine with a critical study of the housing forms in regional scale.
- Promoting private investment in Annaba and moving away from the heavy industry to tertiary investments for the state's investments.
- An urban marketing plan should be elaborated in Constantine where we label the city's historical image to attract international tourists and we moderate the touristic services prices to attract national tourists.
- Prospective projects in both metropolises should be based on generating revenues or work opportunities for the state's projects and should be controlled extensively in the construction and management phase for the private investors.
- A separate evaluation study of the regional limits based on the dominating attractiveness of Constantine instead of the complementarity of the two metropolises.

Problems Encountered, Research Limitations and Future Work

The main problem in the investigation part was choosing the appropriate indicators based on the available data, then collecting them, the absence of a databases for this kind of indicators in Algeria make this kind of fieldwork investigations a challenging task to achieve, also in the ponderation phase the number of experts was reduced to six 6 instead of 21 as the methodological example for lack of time in the research process.

The main limit of the methodology will be the percentage of subjectivity in the weighting performed by the experts, to reduce this percentage the selection of experts should be based equally as their origins or there familiar zones of living to avoid producing a perception of space instead of an objective evaluation of it.

In addition, this method is considered to be generic which implies further researches before and after its implication, any change of scale or even for a simple characteristic necessities a tailored territorial study: every territory or region is special, with its population, its climate, its assets and its potentials of growth, in order to use this model for other comparative studies we need to create a customized list of indicators and of experts able to capture the reality of the situation, and why not customized urban growth factors (because those factors are also changeable based on the dynamics of urban growth in the chosen case of the study)

Future works can discuss the efficiency of this model, its ability to generate concrete results, or improve it by changing the method either concentrating on one facets of attractiveness that is summed as sufficient, or by interfering on the details of standardization or ponderation.

As for future works as the perspectives of research for the North East region of Algeria, we concluded in this thesis the urgent need for a new regional planning strategy with new division based on dynamics of growth and territorial attractiveness, to achieve that an evaluation study of the assets and potentials of growth should take place to prevent the anarchic growth and the non-hierarchical planning process.

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Annexes

Annexes

Annex 1: List of landmarks classified in Wilaya of Annaba

Source: the tourism administration of Annaba (2021)

التعيين	الفترة التاريخية	تاريخ التصنيف	الجريدة الرسمية
خزانات المياه بهيبون	روماني	قائمة 1900	رقم 07 في 23-01-1968
آثار هيبون	روماني	1956-07-16	-
القصبة و أسوارها	القرن 13	1978-11-20	رقم 52 في 26-12-1978
حصن المعذبين و أسوار المدينة القديمة	العصور الوسطى	//	//
مسجد الباي	//	1987-06-01	رقم 41 في 07-10-1987
قبة سيدي براهيم	القرن 17	1978-11-20	رقم 52 في 26-12-1978
مسجد أبو مروان	القرن 11	1962	

:المعالم التاريخية ضمن قائمة الجرد الإضافي

المدينة القديمة: المصرح عنها بمنطقة محمية سنة 1984 و ما يوجد بها من معالم -

(..حمامات، منازل مميزة)

(موقع رأس الحمراء (فترة ما قبل التاريخ -

زاوية سيدي خليف -

زاوية سيدي عبد القادر -

الحصون الإسبانية بالخروبة، حصن الجنوبيين -

كنيسة القديس أوغستان -

مقبرة زغوان -

(موقع كاف النسور) مقبرة هيبون العتيقة -

Annex 2: Sightseeing Tour in the Wilaya of Annaba

Source: the tourism administration of Annaba (2021)

- *la vieille ville
- Mosquée Abou Marouane Charif
- Mosquée El Bey.
- Fort de Supplicies .
- La Casbah.

- * La Ville
- La Cours de la révolution (Bertagnia)
- Le Théâtre
- La Mairie
- Le palais de culture et d'exposition
- La Rue Gambetta(boutiques Artisanal).

- * Corniche Annaba

- - plages (Balade).
 - Mausolée Sidi Noui à Ras EL-Hamra
 - Club hippique (parc zoologique / Ain- Achir)

- * Forêt
 - Randonnée Pédestre .
 - Picnic

- * Séraïdi
 - Forêt
 - Hôtel El Mountazeh.
 - La Plage.

- * Site Archéologique
 - Musée et Ruine d'Hippone.
 - Basilique Saint Augustin.
 - Mausolée Sidi Brahim .

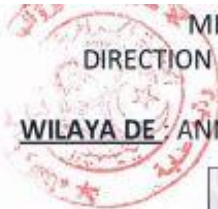
Annex 3: Total Number of Small and Medium Enterprises for 2020 in the Wilaya of Annaba

Source: Direction of mines and industries of Annaba (2021)

عدد العمال	عدد المؤسسات	قطاع النشاطات	الرقم
11258	1332	البناء و الأشغال العمومية	1
2289	362	صناعة المواد الغذائية	2
5349	677	خدمات مقدمة إلى المؤسسات	3
5476	703	النقل و المواصلات	4
993	44	كيمياء، مطاط وبلاستيك	5
909	157	صناعة الخشب، الورق و الفلين	6
1705	155	صناعة الحديد و الصلب، الميكانيك و الكهرباء	7
2271	517	فندقه، مطاعم و مقاهي	8
876	60	مواد البناء	9
2321	312	فلاحة و الصيد البحري	10
174	75	صناعة النسيج و الملابس الجاهزة	11
250	37	خدمات مقدمة إلى المجموعات	12
4412	1018	خدمات مقدمة إلى الأشخاص	13
0	0	صناعة الجلد و الأحذية	14
9380	2042	التجارة	15
124	9	المقالع و المناجم	16
425	7	المحروقات	17
361	10	المياه و الطاقة	18
751	148	المصالح العقارية	19
332	25	صناعات أخرى	20
49656	7690	المجموع	

Annex 4: Technical Data Sheet 01 of the 'DRAA RICH' Extension Daira de Berrahal, Wilaya of Annaba

Source: the architecture and urban planning administration of Annaba (2021)



MINISTERE DE L'HABITAT, DE L'URBANISME ET DE LA VILLE
DIRECTION DE L'URBANISME, DE L'ARCHITECTURE ET DE LA CONSTRUCTION

WILAYA DE ANNABA

FICHE TECHNIQUE N°1

1. Identification : DRAA RICH

DAIRA : BERRAHAL

COMMUNE : OUED EL ANEB

2. Situation et délimitation de l'assiette foncière : délimitée comme suit :

Au Nord : par le chemin de wilaya N°20 (CW 20)

Au Sud : par la route national (RN 44)

A l'Est : par le mont Eddough

A l'Ouest : par le chemin de wilaya (CW 12)

3. Couverture en études : couvert par 8 P.O.S approuvés par délibération N° 13/2017 en date du 29/03/2017

4. Superficie : 08 POS: 1.344 Ha

Superficie des 04 POS : 646 Ha

5. Capacité d'accueil en logements :

✓ Prévisionnelles: 50. 000 logts

✓ Implantés : 27.435 logts

6. Capacité d'accueil en équipements :

✓ **Projetés** : 197 équipements


✓ **Implantés** : 09 Ecoles primaires, 05 CEM, 02 Lycées, 02 Sures Urbanes
01 Polyclinique, 01 Salle de Sport, 01 Antenne APC.

7. Nature juridique : Domaine privé de l'état: le terrain a fait l'objet d'un déclassement décret exécutif N°11/360 du 22/10/2011 et d'une déclaration d'utilité publique relative à la réalisation de logements et d'équipements publics décret exécutif N°11/361 du 22/10/2011.

8. Disponibilité foncière : -646 Ha (première phase d'urbanisation)
- 698 Ha (deuxième phase d'urbanisation)

Annex 5: Technical Data Sheet 02 of the 'EL GANTRA' Extension Daira de El Hadjar, Wilaya of Annaba

Source: the architecture and urban planning administration of Annaba (2021)



REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE
MINISTERE DE L'HABITAT, DE L'URBANISME ET DE LA VILLE
DIRECTION DE L'URBANISME, DE L'ARCHITECTURE ET DE LA CONSTRUCTION

WILAYA DE : ANNABA

FICHE TECHNIQUE N°2

- 1. Identification : EL GANTRA EXTENSION**
DAIRA : EL HADJAR COMMUNE : SIDI AMAR
- 2. Situation et délimitation de l'assiette foncière :** délimitée comme suit :
Au Nord : par le P.O.S Ain Djebara
Au Sud : par CW 129 et terre agricoles
A l'Est : par H'Djar Eddis
A l'Ouest : par El Gantra
- 3. Couverture en études :** couvert par un P.O.S El Gantra Extension approuvé par délibération N° 55/2014 en date du 17/08/2014.
- 4. Superficie : 127 Ha**
- 5. Capacité d'accueil en logements :**
 - ✓ Prévisionnelles: 9490 logts
 - ✓ Implantés : 3900 logts
- 6. Capacité d'accueil en équipements :**
 - ✓ Projetés : 28 équipements
 - ✓ Implantés : 02 Ecoles primaires, 01 CEM, 01 Lycée,
- 7. Nature juridique :** le site a fait l'objet d'une déclaration d'utilité publique relative à la réalisation de logements et des équipements d'accompagnements décret exécutif N°11/239 du 09/07/2011.
- 8. Disponibilité foncière : 25 Ha**

Annex 6: Technical Data Sheet 03 of the 'AIN DJEBARA' Extension Daira de El Bouni, Wilaya of Annaba

Source: the architecture and urban planning administration of Annaba (2021)

REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE
MINISTRE DE L'HABITAT, DE L'URBANISME ET DE LA VILLE
DIRECTION DE L'URBANISME, DE L'ARCHITECTURE ET DE LA CONSTRUCTION
WILAYA DE ANNABA

FICHE TECHNIQUE N°3

1. **Identification** : AIN DJEBARA

DAIRA : EL BOUNI COMMUNE : EL BOUNI

2. **Situation et délimitation de l'assiette foncière** : délimitée comme suit :

Au Nord : par terres agricoles
Au Sud : par le P.O.S El Gantra
A l'Est : par H'Djar Eddis
A l'Ouest : par El Gantra

3. **Couverture en études**: couvert par un P.O.S Ain Djebara adopté

4. **Superficie** : 108 Ha

5. **Capacité d'accueil en logements** :

- ✓ Prévisionnelles: 3800 logts
- ✓ Implantés : 2168 logts

6. **Capacité d'accueil en équipements** :


- ✓ Projetés : 21 équipements
- ✓ Implantés : 01 Ecole primaire, 01 CEM.

7. **Nature juridique** : le site a fait l'objet d'une déclaration d'utilité publique relative à la réalisation de logements et des équipements d'accompagnements décret exécutif N°11/239 du 09/07/2011.

8. **Disponibilité foncière** : 30 Ha (Domanial + privé)

Annex 7: Technical Data Sheet 04 of the 'KALITOUSSA' Extension Daira de Berrahal, Wilaya of Annaba

Source: the architecture and urban planning administration of Annaba (2021)

**REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE**
MINISTERE DE L'HABITAT, DE L'URBANISME ET DE LA VILLE
DIRECTION DE L'URBANISME, DE L'ARCHITECTURE ET DE LA CONSTRUCTION
WILAYA DE ANNABA

FICHE TECHNIQUE N°4

1. Identification : KALITOUSSA

DAIRA : BERRAHAL COMMUNE : BERRAHAL

2. Situation et délimitation de l'assiette foncière : délimitée comme suit :

Au Nord : par le chemin de fer

Au Sud : par guemgoume

A l'Est : par terre agricole

A l'Ouest : par le chemin vicinal

3. Couverture en études : couvert par un plan d'aménagement Kalitoussa

4. Superficie : 77 Ha

5. Capacité d'accueil en logements :

✓ Prévisionnelles: 8250 logts

✓ Implantés : 7000 logts

6. Capacité d'accueil en équipements :

✓ Projetés : 27 équipements

✓ Implantés : 07 Ecoles primaires, 04 CEM, 02 Lycées, 03 Sures Urbanes


01 Polyclinique, 01 Agence PTT, 02 Mosquées, Centre Commercial, Centre Culturel, Maison des Jeunes.

7. Nature juridique : domanial (ne nécessite pas procédure de distraction) : oui

8. Disponibilité foncière : 2Ha (présence des constructions illicites)

Annex 8: Technical Data Sheet 05 of the 'BOUKHADRA' Extension Daira de El Bouni, Wilaya of Annaba

Source: the architecture and urban planning administration of Annaba (2021)

**REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE**
MINISTERE DE L'HABITAT, DE L'URBANISME ET DE LA VILLE
DIRECTION DE L'URBANISME, DE L'ARCHITECTURE ET DE LA CONSTRUCTION

WILAYA DE : ANNABA

FICHE TECHNIQUE N°5

1. Identification : BOUKHADRA 3

DAIRA : EL BOUNI COMMUNE : EL BOUNI

2. Situation et délimitation de l'assiette foncière : délimitée comme suit :
Au Nord : par un terrain nu et agglomération de Boukhadra
Au Sud : par les 478 logements AADL
A l'Est : par le siège BMPG
A l'Ouest : par un terrain affecté à un lycée

3. Couverture en études: couvert par un P.O.S approuvé par délibération N° 19/2006 en date du 15/03/2006

4. Superficie : 59 Ha

5. Capacité d'accueil en logements :
✓ Prévisionnelles: 10.000 logts
✓ Implantés : 10.000 logts

6. Capacité d'accueil en équipements :
✓ **Projetés : 17 équipements**
✓ **Implantés : 03 Ecoles primaires, 02 CEM, 01 Lycée, 01 Sureté Urbaine**
01 Polyclinique, salle de Sport, la grande Mosquée, Centre Commercial, Salle de Soins, Jardin d'enfant, Antenne PTT
Antenne APC

7. Nature juridique : domanial (ne nécessite pas procédure de distraction) : oui

8. Disponibilité foncière : 3 Ha

Annex 9: Areas, Denomination and Area of Activity Zones in the Wilaya of Annaba*Source: the direction of mines and industries of Annaba (2021)*

N°	COMMUNE	Dénomination de la Zone d'activité	Superficie Total de la Zone (HA)	Nbr de Lots créés
1	EL DOUNI	SIDI SALEM	11,75	81
2	OUED EL ANIB	DRAA ERRIH	9,25	44
3	AIN BARDA	MEDJZ EL RASSOUL	15	171
4	EL HADJAR	EL HADJAR	1,8	27
5	SIDI AMAR	BERRADJI REDJAM	11,4	1
6	EL EULMA	EL EULMA	5	1
7	TREAT	TREAT 01	30	19
8	TREAT	TREAT 02	17	7
9	TREAT	AIN EL OUAHCH	49	5
10	EL DOUNI	ALLELIK	4,28	41
11	BERRAHAL	BERRAHAL	6,2	5
12	SERAIDI	SERAIDI	0,36	4
TOTAL			161,84	487

Annex 10: Areas, Denomination and Area of Industrial Zones in the Wilaya of Annaba

Source: the direction of mines and industries of Annaba (2021)

Désignation	Z.I. MEBLOUDJA	Z.I. PONT BOUCHET	Z.I. BERRAHAL	Z.I. M.I.N EL BOJNI	EXTENTION Z.I BERRAHAL	Z.I AIN SAYD
superficie foncière totale	625 928 M ²	1 173 880 M ²	1 218 460 M ²	506 802 M ²	367 000 M ²	101 8123 M ²
superficie cessible	558 016 M ²	1 016 499,5 M ²	1 168 187,27 M ²	400 458,5 M ²	356 6200 M ²	79 4385,05 M ²
Nombre de lots créés	57	63	86	62	22	140

Annex 11: Distribution of Small and Medium-Sized Enterprises by Sector of Activity in the Wilaya of Constantine 2020

Source: the direction of mines and industries of Constantine (2021)

Branche	2014	2015	2016	2017	2018	2019	2020
Agriculture et pêche	104	113	130	136	148	158	169
Eau et énergie	2	2	3	3	3	3	3
Mines et carrières	53	82	94	99	107	114	122
ISMME	215	234	270	282	306	326	349
Matériaux de construction	425	463	532	557	605	690	738
Batiment et travaux publics	2807	3061	3524	3681	3997	4001	4281
Chimie , plastique	107	116	134	140	152	170	182
Industrie agroalimentaire	575	626	720	754	818	875	936
Industrie du textile	135	147	169	177	192	205	219
Industrie du cuir	9	10	11	12	13	14	15
Industrie du bois et papier	354	386	444	464	504	591	632
Industrie divers	44	48	55	58	63	89	95
Transport et communication	1155	1260	1450	1515	1646	1768	1888
Commerce	2597	2832	3257	3406	3698	3953	4230
Hôtellerie et restauration	621	678	778	814	883	1026	1098
Services fournis aux entreprises	1260	1374	1580	1652	1794	1970	2108
Services fournis aux ménages	1223	1333	1533	1604	1743	1861	1991
Etablissements financiers	59	63	73	77	83	89	95
Affaires immobilières	58	63	72	76	82	98	104
Services pour collectivités	126	137	158	165	179	191	204
TOTAL	11929	13028	14887	15872	17014	18180	19459

Annex 12: Distribution of Small and Medium-Sized Enterprises Employees' by Sector of Activity in the Wilaya of Constantine 2020

Source: the direction of mines and industries of Constantine (2021)

Cod	Branche	2014	2015	2016	2017	2018	2019	2020
1	Agriculture et pêche	280	285	296	315	333	547	584
2	Eau et énergie	196	199	207	220	233	10	0
3	Hydrocarbures	05	86	89	95	100	0	0
4	Services et travaux pétroliers	0	0	0	0	0	0	0
5	Mines et carrières	607	1550	1612	1713	1813	395	415
6	ISMME	1054	1887	1963	2086	2208	1129	1186
7	Matériaux de construction	1817	1849	1924	2044	2164	2390	2511
8	Batiment et travaux publics	15827	16114	16766	17812	18858	13859	14565
9	Chimie , plastique	1380	1405	1462	1553	1644	589	619
10	Industrie agroalimentaire	3242	3301	3434	3648	3862	3031	3185
11	Industrie du textile	380	386	402	427	452	710	746
12	industrie du cuir	79	75	78	83	88	49	51
13	industrie du bois et papier	1003	1021	1063	1129	1195	2047	2151
14	industrie divers	442	449	468	497	526	310	325
15	Transport et communication	3801	3870	4027	4278	4529	6114	6425
16	Commerce	7527	7664	7974	8471	8908	13693	14301
17	Hôtellerie et restauration	1789	1821	1895	2013	2131	3554	3735
18	Services fournis aux entreprises	3941	4012	4176	4435	4699	6824	7172
19	Services fournis aux ménages	2782	2833	2947	3131	3315	6446	6774
20	Etablissements financiers	472	480	499	531	562	308	323
21	Affaires immobilières	196	199	207	220	233	339	356
22	Services pour collectivités	981	999	1040	1104	1169	662	695
	TOTAL	48681	50486	52529	56806	59082	63006	66209

Annex 13: Tourist sightseeing of the Wilaya of Constantine

Source: the tourism administration of Constantine (2021)

- Visite du monument aux morts.
- Descente vers le pont de Sidi M’Cid.
- Les gorges de Constantine
- Visite de l’ancienne ville de Constantine "Palais du bey – Théâtre - place animée de la brèche"
- Visite du Musée Public National Cirta de Constantine.
- Visite des ponts " Mellah Slimane- Sidi Rached - Bab el Kantara".
- Visite du pont "Salah Bey ".
- □ après les ponts :
 - Visite de la Mosquée Amir Abdelkader
 - Visite de l’université islamique " Amir Abdelkader ".
 - Visite de la Cité des dinandiers.
 - Visite du mausolée de Massinissa : roi numide site situé à la Commune d'El Kroub à 16 km de la Ville de Constantine
 - Visite de TIDDIS : Cité Romaine située à la Commune de Beni Hamidène à 28 km de la Ville de Constantine.

Annex 14: List of Tourist Sites of the Wilaya of Constantine

Source: the tourism administration of Constantine (2021)

n°	denomination	localisation/ commune	nature	observations
01	- le chemin des touristes	constantine	site naturel et touristique	- se situe sur le flan de la rive des gorges du rhumel, sa longueur est de 2800m environ. une partie de ce chemin existait au temps des romains, leur permettant d'accéder aux <i>bains de César</i> . au début de ce siècle, vers 1906, la France reprend ce chemin avec l'idée d'un circuit touristique qui permettra aux gens de découvrir et d'apprécier un site particulièrement saisissant, et les monuments d'une grande valeur touristique. c'est ainsi que "m.

				<p>remes en 1895 " a complété ce chemin tout en le protégeant ou sécurisant par un fort grillage (aujourd'hui inaccessible depuis la 2^o guerre mondiale), jusqu'au pont du diable et en aval jusqu'au pont des chutes. il longe des sources pétifiantes qui ont formé au fil des années de curieuses concrétions en forme d'alvéoles (voûtes).</p> <p>- opération en cours pour l'étude et la réhabilitation du chemin des touristes.</p>
02	- la corniche	constantine	site naturel et touristique	<p>cette route vertigineuse suit la paroi rocheuse longe l'abîme sur la rive droite, passe quelquefois sous des tunnels. celui qui emprunte ce boulevard ne peut que s'arrêter pour admirer cette vue extraordinaire qui s'offre à lui.</p>
03	- foret de djebel el ouahch	constantine	site naturel et touristique	<p>- c'est une foret qui se situe à 7 km de la ville à 1200 m d'attitude, riche par sa flore et sa dense végétation, c'est l'un des endroits les plus attractifs de la région de constantine.</p> <p>- opération en cours pour l'étude et l'aménagement de la zone d'extension touristique zet : djebel el ouahch.</p>
04	- foret chettaba	constantine ain smara	site naturel et touristique	<p>- 800 ha, massif boisé peut devenir un espace de détente et de loisirs.</p> <p>- opération en cours pour l'étude et l'aménagement de la zone d'extension touristique zet : chattaba.</p>
05	- forêt el m'ridj	constantine el khroub	site naturel et touristique	<p>- 200 ha, massif boisé lieu de chasse.</p> <p>- opération en cours pour l'étude et l'aménagement de la zone d'extension touristique zet : el m'ridj .</p>

06	- le pont de sidi rached	constantine	site naturel , historique et touristique	ouvert à la circulation en 1912 comprend 27 arches dont la plus large est de 70 m de diamètres avec une longueur de 447 m et une largeur de 10.5 m. le pont est un grand repère fascinant, occupe une bonne place dans la carte de la ville, il est l'un des plus hauts ponts de pierre du monde.
07	- le pont d'el kantara	constantine	site naturel , historique et touristique	est le plus ancien de la ville, construit en 1792 par salah bey sur les ruines d'un pont romain, reconstruit par les français en 1860, il fut ouvert à la circulation en 1863.
08	- le pont sidi m'cid	constantine	site naturel , historique et touristique	appelé aussi le pont suspendu, est le plus impressionnant des ponts, inauguré le 19 avril 1912, long de 160 m, il s'élève à 175 m au-dessus des eaux de l'ouest rhumel.
09	- le pont des chutes	constantine	site naturel , historique et touristique	achevé en 1928, se trouve sur la route de la piscine et enjambe le rhumel au niveau des chutes.
10	- la passerelle mellah slimane	constantine	site naturel , historique et touristique	est une petite réplique du pont du pont suspendu long de 125 m large de 2.50 m aidé par un ascenseur qui relie le quartier de la gare au centre de la ville.
11	- le pont du diable	constantine	site naturel , historique et touristique	un petit pont qui relie les deux extrémités du fleuve el rhumel se situant à l'inférieur du gouffre ainsi le petit pont des béliers.

12	- les jardins	constantine	site naturel et touristique	<p>la wilaya de constantine est représenté par des multitudes de jardins</p> <ul style="list-style-type: none"> - jardin « ben nacer » (bab el oued) - jardin “beyrouth” (sidi mabrouk) - jardin du palais du bey - plusieurs jardins à travers l’ensemble des communes.
13	- les dolmens de bounouara	el khroub	site culturel, historique, archéologique et touristique	<p>la présence de nombreux dolmens à constantine et dans sa région tels que les dolmens de <i>salluste</i> près des anciens jardins et de sidi m'cid, d'el haria et de bounouara; sont la preuve que la cité a connu la civilisation <i>mégalithique</i>. bien que ceux en haut de sidi m'cid, aient disparu, ils restent ceux élevés dans les environs de constantine.</p> <p>dans la station mégalithique de ras el ain boumerzoug, on trouve les types suivants:</p> <p>dolmen à chambre ovoïde recouverte d'une dalle de 4,20m sur 2,50m; dolmen à chambre circulaire de 2,80m de diamètre intérieur, grand dolmen entouré de 3 petits s'inscrivant dans une enceinte circulaire.</p> <p>a bounouara (à 14km au sud est du khroub), sur la rn 20 allant à guelma (accès: un peu avant le village, traverser l’oued et la voie ferrée, et monter), au nord du village, on trouve cette importante nécropole mégalithique sur le versant du djebel mezala. c'est l'ensemble le plus vaste du maghreb. il couvre 400ha. Il comprenait essentiellement 3000 à 4000 dolmens</p>

				(mais beaucoup ont fait l'objet de dégradation au cours des âges).des socles circulaires impressionnants, ils semblent les avoir utilisé jusqu'au 3 ^o siècle avant notre ère. l'ensemble mérite d'être soigneusement sauvegardés.
14	- mausolée de massinissa	el khroub	site culturel, historique, archéologique et touristique	implanté à 16 km de constantine, dans le croisement des deux voies importantes du territoire numidien, à savoir, le parcours cirta – theveste (tébessa) et celui reliant calama-sitifis (guelma- sétif). contrairement à tous les autres monuments funéraires du territoire national, le mausolée de massinissa a la particularité d'être de forme carrée de 8 m 40 de coté. il s'élève à une hauteur allant de 80 cm à 2 m. ce mausolée est attribué à massinissa vaillant roi numide qui fit de cirta la plus riche cité qui ne tarda pas à devenir capitale numide en l'an 202 avant j.c.
15	- les ruines romaines de tiddis	béni h'midène	site culturel, historique, archéologique et touristique	à 30 km de constantine sur la rn 27, un merveilleux site étagé s'offre au regard, c'est le site de tiddis implanté sur un ensemble de rochers durs, de grande hauteur, c'est une ville qui à connu la conquête romaine, mais son non berbère prouve qu'elle avait existé bien avant eux. elle reçut l'empreinte des civilisations : libyque, punique, romaine, chrétienne et musulmane.
16	- le tombeau de lollius	béni h'midène	site culturel, historique, archéologique et touristique	au lieu dit el heri à 4km du nord de tiddis, se dresse un monument circulaire qui est le soubassement (à 10m de diamètres et de 5m de hauteur) du mausolée édifié à ses parents, ses 2 frères et un oncle par lollius urbicus.

				il constitue une oeuvre de grande valeur historique et architecturale vu son bon état de conservation.
17	- les aquedus « les arcades romaines »	constantine	site culturel, historique, archéologique et touristique	la ville de cirta recevait l'eau de la source de boumerzoug, située à 35 km environ au sud a la source même. il y'avait un sanctuaire orné de colonnes corinthiennes, des vestiges du canal souterrain se trouvent sur divers points de parcours.
18	- le monument aux morts	constantine	site culturel, historique et touristique	c'est un magnifique arc de triomphe, élevé à la mémoire des soldats morts durant la première guerre mondiale, il est la réplique de celui de trajan qui s'élève au milieu des ruines romaines de timgad.
19	- palais du bey	constantine	site culturel, historique et touristique	- situé au centre ville, un monument architectural unique (patrimoine architectural). - il occupe tout un côté de la place "si l'houas", ce vaste édifice de 5100m ² fut construit sur l'ordre du dernier bey ahmed bey entre 1825/1828 à l'emplacement de vieilles maisons accolées les unes au autres par <i>gaïd eddar ben el bedjaoui</i> et terminé en 1835 peu de temps avant la prise de constantine par les français. le génois " <i>schiaffinol</i> " fut chargé d'acheter en italie et à carthage, les faïences et les marbres. le maçon constantinois el hadj el djabri et el khettabi dirigèrent la construction. la façade du palais est quelconque. en revanche, l'intérieur forme une fraîche oasis au milieu de la ville avec ses trois jardins entourés de galeries. le

				<p>pavillon du bey se dressait au milieu du palais et recevait la lumière toute la journée, grâce aux 13 fenêtres qui donnaient sur les jardins, les cours et les galeries. non loin du pavillon, existait un bassin dans lequel plongeait de beaux escaliers en marbre; les murs du palais portaient les peintures de hadj youcef, grand voyageur algérien.</p> <p>le tracé délicat des arcades, les jardins fleuris, le murmure des jets d'eau et le charme des fresques, font l'émerveillement de tous les visiteurs.</p>
20	- la kalaa de ain smara	ain smara	site culturel, historique , archéologique et touristique	une valeur historique importante.
21	- oudjel	ibn ziad	site naturel , archéologique et touristique	grotte historique au niveau d'ibn ziad.
22	- le théâtre régional de constantine	constantine	site culturel ,historique et touristique .	le théâtre de constantine et le musée. cirta sont des véritables monuments historiques qui imitent une architecture unique.
23	- la veille ville	constantine	site culturel ,historique et	malgré l'extension de la ville et l'apparition de nouvelles cités, les noms des anciens quartiers, ont toujours une admirable résonance, en effet

			touristique .	c'est une fierté d'évoquer souk el asser, rahbat essouf ,erssif ,eldjazarine....
24	- la medersa	constantine	site culturel , historique et touristique .	- patrimoine de la ville. - occupant la bâtisse qui portait le nom de "medersa"(1909), elle a ouvert ses portes en 1995.c'est un service externe du ministère de l'enseignement supérieur et de la recherche scientifique, qui aura en charge la tâche de gérer, communiquer et coordonner tout ce qui concerne la planification des propositions et des réalisations dans le domaine scientifique.
25	- le musée « cirta »	constantine	site culturel , historique et touristique .	patrimoine architectural, culturel et historique très important.
26	- site de l'apc et de l'apw	constantine	site culturel ,historique et touristique .	patrimoine architectural, culturel et historique très important.
27	- les mosquées	constantine	site cultuel, culturel , historique et touristique .	la grande mosquée, la mosquée emir abdelkader, mosquée sidi lakhdar et mosquée el kattania...
28	- le grand hôtel cirta	constantine	site culturel ,	- situé au centre ville de constantine « rue rahmani achour ».

			historique et touristique .	- année d'entrée en exploitation 1912. - hôtel fermé pour rénovation et modernisation.
29	- les bains de césar	constantine	site culturel ,historique et touristique .	dans la profondeur du rhumel, située à proximité de la gare ferroviaire, se trouvent encore les vestiges des bains de césar, qui attiraient les familles en quête de quiétude. une petite route descendant à partir de la brèche côté ouest, mène à une source chaude jaillissante en contrebas du grand escarpement rocheux. cette merveille a permis la réalisation de trois (03) piscines en plein air.
30	- les zaouiates	constantine el khroub	site cultuel, culturel , historique et touristique .	<p>outre les mosquées, d'autres édifices religieux qu'on appelle <i>les zaouiates</i>, jouaient et joue encore un rôle très important dans la vie religieuse de la ville, des ordres religieux répartis dans plusieurs confréries "<i>touruk</i>". on y pratique les cinq prières et on y apprend le coran. aussi, d'éminents ouléma y enseignent la chariâa (les principes de la religion musulmane).</p> <p>⊍ <u>zaouia tidjania</u>: dont la maison mère se trouve à témachine, prés de touggourt.il y en a deux à constantine:</p> <p><u>zaouia de bennaâmoune</u>: 76, avenue mellah slimane. constantine.</p> <p>ou <i>la basse tidjania</i>, on y pratique les cinq prières, on y trouve aussi les sépultures des "bennaâmounes" qui sont les descendants des beys de constantine.</p>

				<p>⊠ <u>zaouïa des al lafgoune</u>: avenue keddid salah .constantine.</p> <p>ou <i>la haute tidjania</i>, on y trouve la sépulture (tombeau) de l'éminent cheikh <i>abdelkarim lafgoune</i>.</p> <p>⊠ <u>zaouia de hansala</u>: 19, avenue rouag saïd.(Ibn ziad, constantine).</p> <p>ou <i>zaouiate el nedjarrine</i>.fondée à fes (maroc) par le cheikh <i>saïd ben youcef el hansali</i> au 7^osiècle. le cheikh <i>sidi saâdoune el ferdjioui</i> a adopté ses idées et les a répandu en algérie. a constantine, c'est <i>sidi ahmed zouaoui</i> qui l'a adopté.</p> <p>- il existe une qu'on appelle <i>zaouiate el nedjarrine</i>, et où on pratique les cinq prières et on y fait apprendre le coran pour les petits enfants.</p> <p>- une autre zaouïa porte le même nom à ibn ziad et qui est fermée de nos jours.</p> <p>⊠ <u>zaouia de ben abderrahmane</u>:</p> <p>elle possède son centre principal en kabylie. elle prit le nom de son fondateur, <i>aberrahmane ben ahmed ben hamouda</i>, connu sous le nom de "<i>bachtarzi</i>" trois zaouïates portent le même nom:une à l'avenue kherrab said (constantine), l'autre à l'avenue des djabbassines (constantine) et la troisième au 92,rue des frères arafa (constantine).</p> <p>⊠ <u>zaouia taïbia</u>:</p> <p>elle doit son nom à son premier fondateur "<i>moulay taïb bouzène</i>) au maroc. leurs idées furent répandues en algérie et à constantine plus</p>
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				<p>précisément à cause des visites et voyages entrepris par les oulémas. le cheikh ahmed hammani y est resté lors de ses études à constantine. il y a trois (03) zaouïates qui portent ce même nom: une au khroub, une à hamma bouziane (cité djelloulia), et la troisième au 21, avenue bouhala ammar et qui est devenue aujourd'hui une mosquée où l'on pratique les 5 prières. elle contient le tombeau de son fondateur ben chériat chérif.</p> <p>☒ <u>zaouïa aïssaouïa</u>: 19, avenue sallahi tahar (constantine).</p> <p>elle était autrefois connue comme la mosquée de <i>sidi bouannaba</i> avant de devenir la zaouïa <i>aïssaouïa</i> devant son nom à "<i>sidi mohamed ben aïssa el meknassi</i>" (maroc). l'une de ses éminentes figures à constantine, fut le cheikh "<i>ahmed belghoul</i>". elle était un lieu de prière, dhikr, werd... etc. après l'indépendance, elle devint de nouveau une mosquée.</p> <p>☒ <u>zaouïa de sidi tlèmsani</u>: avenue constantin?</p> <p>construite sous le règne de hacène agha. au cours de l'occupation, elle abrita "<i>les dames du bon pasteur</i>". après quelques temps, elle fut prise par les juifs pour en faire une "synagogue". après l'indépendance, elle fut restituée au culte musulman.</p> <p>☒ <u>zaouïa de sidi rached</u>:</p> <p>perchée à l'extrémité sud du "rocher" de constantine, sous le pont de sidi rached. ce n'est plus un lieu de prière, c'est une "<i>mazara</i>", un lieu</p>
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				<p>de visite, de pèlerinage de visiteurs qui sont pour la plupart des femmes qui viennent à cause du tombeau de sidi rached qui s'y trouve.</p> <p>- d'autres zaouïates se trouvent à travers la wilaya de constantine tels que:</p> <ul style="list-style-type: none"> • zaouïa de ben smira: 34, avenue ben si hamdi cherif, constantine. • zaouïa de sidi med ennedjar: 52, avenue mellah slimane, constantine. • zaouïa de sayida hafsa: 05, avenue abdellah bey, constantine. <p>zaouïa d'el houaria: bir fattoun, massinissa (khroub), constantine.</p> <ul style="list-style-type: none"> • zaouïa d'el abidia: au khroub. constantine. • zaouïa de fet'hallah: 12, avenue abdelhamid benyamina, constantine.
31	- les portes de constantine	constantine	site culturel, historique, archéologique et touristique	<p>au moment de la conquête, cinq portes fortifiées conduisaient dans l'intérieur de la ville, une sixième dite "<i>la porte serpentine</i>" (bab el hanecha), qui permettait d'aller au rummel en longeant le pied de la falaise avait été fermée depuis longtemps.</p> <p>ces portes commençaient à disparaître jusqu'à ce qu'elles sortent complètement réduites à néant par le colonisateur.</p> <p>☒ <u>la porte du vent</u>: (bab errouah) casbah.</p>

				<p>permet d'aller au nord du rhumel et d'accéder aux sources de sidi mimoune.</p> <p>☒ <u>la porte bab el djedid</u>: la place du 1^o novembre.</p> <p>au nord de la place de la brèche.elle fut détruite en 1925.</p> <p>☒ <u>la porte bab el ouèd</u>: (la porte de la rivière) elle fut remplacée par le palais de justice.</p> <p>☒ <u>la porte bab el djabia</u>: (porte de l'abreuvoir ou de la citerne, puit)</p> <p>située à l'ouest près de la pointe de sidi rached, à 510m</p> <p>☒ <u>la porte bab el kantra</u>: (porte du pont). elle fut restaurée par salah bey.</p>
32	- le musée du moudjahid	constantine	site culturel, historique et touristique .	<p>le site du musée a été achevé au printemps 2002, cette nouvelle institution est un élément très important du dispositif culturel de constantine. elle compte une salle d'exposition et une bibliothèque spécialisée et aura pour mission, la conservation de la mémoire de la lutte de la libération nationale, partie très importante de notre identité.</p>
33	- la mosquée-université islamique emir abdelkader	constantine	site cultuel, historique et touristique .	<p>on l'a décrite comme une œuvre imposante et gracieuse faisant sa place parmi les sites d'intérêt historique et artistique du monde musulman. portant si bien le nom du poète guerrier l'emir abdelkader.</p> <p>l'université inaugurée en septembre 1984, est une institution à vocation théologique scientifique pour l'enseignement de la "<i>chariâa</i>" et la</p>

				civilisation musulmane. sa voisine, la mosquée, contient un très vaste salle de prière couverte d'une coupole haute de 64m avec deux (02) minarets hauts de 107 m chacun.
34	- la grotte des ours	constantine	site culturel, historique, archéologique et touristique	elle se trouve à la hauteur du deuxième tunnel de la voie ferrée (constantine-skikda). la grotte des ours ainsi nommée en raison des fragments de squelettes d'ours qui y ont été découverts, mesure 60m de long et 6m de large en moyenne. selon les objets trouvés dedans, elle remonte aux périodes <i>paléolithique</i> et <i>néolithique</i> . elle servait d'écurie pour les troupeaux. elle fut réoccupée dès l'époque <i>romaine</i> et le squelette qui y fut trouvé, date probablement de cette époque.
35	- la grotte aux mouflons	constantine	site culturel, historique, archéologique et touristique	creusée dans la falaise qui supporte la colline de "sidi m'cid" dans la même paroi rocheuse, elle mesure en moyenne 5-6m de long et contient des formations stalagmitiques. elle doit son nom aux ossements de mouflons qui y ont été découverts et notamment une tête de mouflon exposée au musée de la ville.
36	- les maisons arabes	constantine	site culturel, historique, archéologique et touristique	les maisons arabes ressemblent à celle de la <i>casbah</i> d'alger, avec une cour intérieure entourée d'arcades et très peu d'ouvertures donnant sur la rue, à part la porte d'entrée. la maison de constantine est couverte de toits en tuiles à cause du climat hivernal avec averses de pluie et même de neige. le plan des maisons est sensiblement celui d'alger, mais pas avec le même développement de la " <i>skifa</i> " ni le même décor. généralement, l'étage supérieur s'avance au-dessus

				de la rue. les mûrs sont extérieurement blanchis avec de la chaux teintée en bleu.
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Annex 15: Agricultural Areas in the Wilaya of Constantine (2010-2015-2020)

Source: the agriculture administration of Constantine (2021)

COMMUNE	superficie agricole total SAT (ha) 2010	superficie agricole utile SAU (ha)
Khroub	20982	18012
Ouled Rahmoune	19833	14097
Hamma Bouziane	6352	5200
Didouche Mourad	10079	7997
Zighoud Youcef	18747	11707
Beni Hamidene	12884	7883
Ain Abid	25419	23925
Benbadis	24038	10082
Ain Smara	11560	7245
Constantine	9097	7999
Ibn Ziad	13443	9359
M Boudjeriou	10326	7590
TOTAL	182 760	131 096

COMMUNE	superficie agricole total SAT (ha) 2015	superficie agricole utile SAU (ha)
Khroub	20776	18012
Ouled Rahmoune	19273	14097
Hamma Bouziane	6352	5200
Didouche Mourad	9879	7997
Zighoud Youcef	19517	11707
Beni Hamidene	11692	7883

Annexes

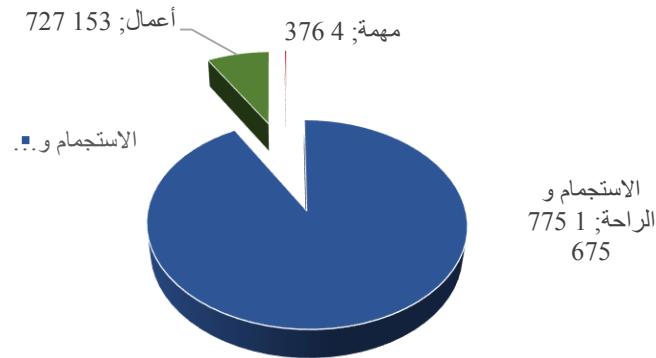
Ain Abid	26584	23925
Benbadis	22983	10082
Ain Smara	11560	7245
Constantine	8946	7999
Ibn Ziad	14143	9359
M Boudjeriou	10326	7590
TOTAL	182 031	131 096

COMMUNE	superficie agricole total SAT (ha) 2020	superficie agricole utile SAU (ha)
Khroub	19381	16617
Ouled Rahmoune	19178	14002
Hamma Bouziane	6236	5084
Didouche Mourad	9334	7452
Zighoud Youcef	19285	11475
Beni Hamidene	11661	7852
Ain Abid	25598	22939
Benbadis	22623	9722
Ain Smara	10831	6516
Constantine	8052	7105
Ibn Ziad	14016	9232
M Boudjeriou	9750	7014
TOTAL	175 945	125 010

Annex 16: Tourist flows across Algeria's borders (2015-2019)Source: the tourism administration of Annaba (2021)**دخول السواح عبر الحدود الجزائرية**

2019	2018	2017	2016	2015	
1 933 778	2 018 753	1 708 375	1 322 712	1 083 121	مجموع الاجانب
-4,21%	18,17%	29,16%	22,12%		معدل النمو
437 278	638 360	742 410	716 732	626 873	الجزائريين المقيمين بالخارج
-31,50%	-14,02%	3,58%	14,33%		معدل النمو
2 371 056	2 657 113	2 450 785	2 039 444	1 709 994	المجموع العام
-10,77%	8,42%	20,17%	19,27%		معدل النمو

دخول السواح الاجانب عبر الحدود الجزائرية لسنة 2019
حسب غرض الزيارة



جويلية	جان	ماي	افريل	مارس	فيفري	جانفي	
154 214	160 377	188 956	165 221	159 143	149 142	155 869	مجموع الاجانب
81 050	39 133	24 929	39 026	36 228	32 239	30 037	الجزائريين المقيمين بالخارج
235 264	199 510	213 885	204 247	195 371	181 381	185 906	المجموع العام
المجموع العام	ديسمبر	نوفمبر	أكتوبر	سبتمبر	اوت		
1 933 778	127 313	175 209	165 761	174 868	157 705		
437 278	16 352	21 763	33 975	28 765	53 781		
2 371 056	143 665	196 972	199 736	203 633	211 486		

دخول السواح الاجانب عبر الحدود الجزائرية حسب غرض الزيارة

2019	2018	2017	2016	2015	
1 775 675	1 837 692	1 470 243	942 281	723 098	الاستجمام و الراحة
-3,37%	24,99%	56,03%	30,31%		معدل النمو
153 727	174 738	233 233	378 296	358 785	أعمال
-12,02%	-25,08%	-38,35%	5,44%	-	معدل النمو
4 376	6 323	4 899	2 135	1 238	مهمة
-30,79%	29,07%	129,50%	72,43%	-	معدل النمو
1 933 778	2 018 753	1 708 375	1 322 712	1 083 121	مجموع الاجانب

دخول الجزائريين المقيمين في الخارج عبر الحدود الجزائرية

معدل النمو	2019	2018	
-33,31%	321 686	482 339	فرنسا
-15,97%	55 105	65 575	اسبانيا
-24,63%	27 021	35 849	تونس
-33,92%	9 448	14 297	بلجيكا
-50,60%	3 520	7 125	بريطانيا
-56,72%	3 359	7 761	كندا
-40,18%	2 899	4 846	تركيا
-45,79%	2 067	3 813	المانيا
-37,98%	2 049	3 304	الامارات

البلدان الأهم دخولا للسياح الأجانب عبر الحدود الجزائرية

معدل النمو	2019	2018	
4,94%	1 323 709	1 261 411	تونس
-25,62%	164 907	221 707	فرنسا
-1,01%	79 505	80 317	المغرب
-16,34%	39 437	47 142	الصين
-33,14%	35 828	53 589	اسبانيا

-13,27%	32 593	37 578	تركيا
-21,16%	24 430	30 987	إيطاليا
-25.98%	11 807	15 951	المانيا
-8.57%	9 114	9 969	بريطانيا

حركة المواطنين المقيمين في الجزائر عبر الحدود حسب الوجهة

2019	2018	2017	2016	2015	
5 731 814	5 609 947	5 058 404	4 529 524	3 638 140	حركة المواطنين المقيمين
2,17%	10,90%	11,68%	24,50%		معدل النمو

اهم الوجهات لحركة المواطنين المقيمين في الجزائر

معدل النمو	2019	2018	
-4,54%	2 812 400	2 946 100	تونس
12,33%	1 382 559	1 230 844	فرنسا
-5,16%	326 318	344 073	العربية السعودية
12,68%	321 135	284 988	اسبانيا
5,25%	310 491	294 990	تركيا
29,22%	106 448	82 377	الامارات العربية
10,24%	85 974	77 986	المغرب
37,26%	53 486	38 968	كندا
35,71%	53 452	39 388	مصر
-21,69%	47 170	60 237	قطر

Annex 17: Survey Delivered to the Experts in the Ponderation Phase (the completed version of the survey is presented in the fifth chapter)

Source: Author's Elaboration (2020)

Survey for experts as part of a doctoral thesis in geography and regional planning

-These are surveys intended for specialists in regional and spatial planning, university teachers and researchers in the economic and social field also to for those in charge of local authorities.

-In our approach to the subject, we will apply the weighting method in the second stage of formation for 37 synthetic indicators, based on the experts opinions and personal experience in the region percentages from 0 to 100 will be given to each of the urban development factors where the maximum value will be attributed to the factor with the biggest impact on the city's urban growth In the future.

FACTOR ONE "SPEED OF URBANIZATION": This factor provides an idea of urban dynamics, it reflects the relationship between socio-economic (demographic) requirements and achievement capacities.

This "condition" attracts populations in search of employment, investors and economic operators, URBANIZATION is evaluated through its speed.

- In terms of land consumed / decade or per half-decade (5 years) (very similar values of urban density: Annaba 424 inhab/ Km² and Constantine 427 inhab/Km² source: RGP 2008)
- In terms of the number of housing units built / built during the same period (decade or half decade)

FACTOR TWO "STRUCTURING PROJECTS": Structuring projects reflect the city's "ambitions" to produce resources in order to be a "destination", investors and population are always attracted to "big projects" either as "direct partners or as participants in" side "operations.

- Impacts on the status of the city at a local, regional, national or transnational territorial scale (in other words, are these SPs able to trigger a process of metropolization?)
- What are the prospects favored by these SPs? (In terms of urban quality, marketing, "merchandise"?)

FACTOR THREE "IDENTITY OF THE CITY": Identity, brand image, label are values that every city aspires to, they are emanations from the other two categories.

They also reflect an ambition to "personalize" the city, to give it an appropriate character, an "image" of its own.

This identity is often nourished by cultural and historical ingredients, but also by "offers" to attract investments, customers, "visitors".

- Construction of an "identity" through the enhancement of cultural and historical particularities.
- Development of events (cultural, sporting ...) at different scales (local, regional, national and international).

-So our question is: in your opinion, what is the most influencing factor on future urban growth? Please rank those factors for the two cities as percentages in order of influence on the region?

Annexes

Factor	City	Annaba	Constantine	remarks
<i>speed of urbanization over the past 20 years</i>				
<i>Structuring projects with a regional impact</i>				
<i>Identity of the city and its physical morphology</i>				

Name of the expert	Profession	Email	Responses	
			Constantine	Annaba
			Factor 1	
			Factor 2	
			Factor 3	
Name of the expert	Profession	Email	Responses	
			Constantine	Annaba
			Factor 1	
			Factor 2	
			Factor 3	
Name of the expert	Profession	Email	Responses	
			Constantine	Annaba
			Factor 1	
			Factor 2	
			Factor 3	
Name of the expert	Profession	Email	Responses	
			Constantine	Annaba
			Factor 1	
			Factor 2	
			Factor 3	
Name of the expert	Profession	Email	Responses	
			Constantine	Annaba
			Factor 1	
			Factor 2	
			Factor 3	
Name of the expert	Profession	Email	Responses	
			Constantine	Annaba
			Factor 1	
			Factor 2	
			Factor 3	
Total of experts		6		
Total of responses				
	Constantine		Annaba	
	Percentage	Coefficient	Percentage	Coefficient
Factor 1: speed of urbanization				
Factor 2: structuring projects				
Factor 3: the identity of the city				

Important note: other questions was asked to the experts during the interviews with the main objective of exploring their points of views of the territorial situation and its possible configurations.