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AN INTEGRATION APPROACH FOR THE PRESERVATION OF THE COLONIAL HERITAGE

The case of the colonial checkerboard

Dissertation for the degree of
Doctor of Philosophy in Architectural Engineering

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In loving memory of my father

To the loved ones we lost during the covid pandemic

May your souls rest in peace

Barbara Hiba

"Learn from yesterday, live for today and hope for tomorrow.

The important thing is not to stop questioning."

Albert Einstein

Abstract

Algeria, a North African country, that is historically defined with a great diversity of cultural influences marked by its architectural and urban character. The French colonial memory, which resulted in prestigious productions and city planning, contributes as an actual indicator to the identity of the Algerian built heritage. The authenticity of the pre-colonial cities, intersected with visions of the French engineering in the colonial period, frames a unique meeting of identities. This hybrid heritage becomes a lesson for patrimonial adaptations in Algerian history.

The historical legacy of French Algeria is the vanishing point for modern preservation practices. The perception of the colonial heritage is a vulnerable subject and requires an objective understanding and interpretation. Today, the situation of the French historical centers is problematic and lacks adequate preservation strategies. Moreover, significant monuments belonging to this period are endangered, abandoned, and at risk of disappearance, which announces the essential interrogations for this research. The aim is to introduce a new methodology for the requalification of the French-built heritage and its acceptance as part of the national identity.

The colonial checkerboard in the city of Biskra is an example of neglected French centers. The research approach aims first to evaluate and diagnose the current state of the built heritage, and the mutations threatening its stability. The results of the investigation classified the French quarter's constructions according to multiple criteria, based on the identification of the related conservation statuses; to finally generate the condition and the situation of all the constructions in the checkerboard. The deteriorated state of the center and the loss of its significance is the focus of the investigation. As a result, the definition of the French checkerboard's potentials and the resolving of the different problems and pathologies is essential to the study.

Based on the evaluation and the classification database applied in the historical center, an inventory strategy was developed to define a new logic when dealing with possible conditions in the French historical centers. The diagnosis inventory proceeds with a selection of representative monuments where the monography of the emblematic buildings serves as a definition of potential landmarks, based on their qualities and significance. In the process of requalifying the image and the experiences in the colonial checkerboard, the inventory approach highlights the significance of the selected monuments in a cultural circuit, presenting a unique patrimonial path in the ex-European city that sets the light on both the values and the conditions of the built heritage, and contributes to a better understanding of this French legacy in Algeria and the preservation of similar historical centers.

Keywords: Colonial heritage, Preservation, colonial checkerboard, Requalification, Inventory approach, place identity, Qualities.

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General introduction

The history of human reality is defined by the hierarchy of historical events and the correlation of influences in time. The past, the present, the future are essential dimensions to review the passages of various civilization, and the transfer of their cultural values, where heritage in all its forms is considered as the instrument that provides the understanding of the symbolic qualities and identities of the human creations. It reassures the mechanisms of interaction between traditions, reflecting the authentic experiences and memories of a living place.

People need to recall their past to assert the meanings of their ancestor's legacies, which is certainly defined by their actions in the present and their aspiration for the future. it is necessary to assure the preservation of the symbolic values of heritage to future generations which cannot be done without reference to the past. History however cannot be erased, the unfortunate events resonated by the place memory in times of conflicts, can easily be misused by sentimental interpretations and modern nationalism. The comprehension of architecture goes far behind the surface, it is the highest form of art. Surely, it represents a mirror to the past, but only the right angle can reflect the true meaning and sense of the built heritage.

The idea of this Ph.D. research was motivated by my interest in the conservation of architectural and urban heritage as a specialty. More precisely the questions around the subject of colonial heritage, its perceptions, and effects on social identity definitions.

The understanding of the French colonial heritage in Algeria is complex and vague. Following the objectives of my master's thesis that had the interest of rehabilitating forgotten values of a French monument, the intention is to discover and profoundly evaluate the subject of colonial identities. The focus was on the French historical center in the city of Biskra, Algeria, moreover the main ambitions of the current research study is to produce a comprehensive approach when dealing with the heritage of the 19th and the 20th century in Algeria and North Africa.

Respectively, the idea of the thesis aims to present the subject as a timeline, according to the three main dimensions: the lessons of the past, the present realities, and the aspirations for the future.

PART I

REVISITING THE PAST,

Lessons and definitions

CHAPTER ONE

The French heritage in Algeria: An introduction

1.1. Introduction

Throughout history, the values of cultural heritage were transmitted over the definition of social memories of both the space and its ambiances, whether it holds tangible or intangible forms, the appropriation of cultural qualities is surely a reflection of one's identity and appurtenance.

The built heritage in its defined shapes of urban towns and architectural planning requires a delicate understanding, where the element of authenticity founds the base of all heritage qualities and provides guidelines to the acts of protection and preservation.

The perception of all types of heritage falls into the subjectivity of human memories. When the values of the past preserve the relations to our ancestors, it can equally disturb the perspective of the future. The unfortunate events of war, political conflicts, and historical disagreements affect the clarity of architectural and urban creation within these contexts. As a result, raises the question around complex identities and the authenticity of imposed design models in local lands. *(Todorov.T.2005).*

Colonial heritage is a complicated concept adapted in architecture theory, the use of the notion of colonial creates a debate between many parties, the relations between the colons and the colonized are defined by the weight of history. Architectural legacies and values consequently remain the highest forms of cultural sharing, however, are exposed to many disagreements with the subject of identity and heritage ownerships. *(Evan Schueckler.2018)*

1.2. Research Background

The French colonial history is one of the most famous examples. The significance of the French productions, from the design of monumental buildings to public places is present nowadays in the features of former colonies. In North Africa, precisely in the French Protectorates Tunisia and

Morocco, the traces of European planning are demonstrated in the lines of the cities and the architectural shapes of its constructions. *(Decléty L.2005)*

As it is the case for Algeria, the former French colony, also known as French Algeria. The colonial history reflects two correlated dimensions, the significance of architectural productions within a complex political situation. *(Barbara, Molnár T,2019)*. Algeria was a North African French colony located between the two protectorates Tunisia and Morocco. Along its historical timeline, Algeria reflects the influences of many civilizations, that highlight its cultural diversity. From the prehistorical times arriving to the Ottoman occupancy, the French influence was the last and final chapter before modern Algeria, presenting the most controversial period in its history. *(Rachid.E.2012)*. ***Figure 1***

***Figure 1**. An overview on the coastal cityscape of Algiers (sensusjournal.org/2019)*

The façade of the capital Algiers is the summary to the history of the French period in the country, it shows the European military quarter in the first plan, while the local Medina is behind in the background, which presents a certain metaphor of power and dominance, but also a mix of forms and design concepts. ***Figure 2***

The development of the new notion of hybrid heritage reflects many characteristics of cultural meeting and exchange in French Algeria, the faces of European regular forms divergent with

vernacular models were the result of 132 years of French existence. The historical center of the Kasbah of Algiers is the resume to this critical period, the two units present both signs of a hybrid design, which raises the same complex questions. *(Charlotte.J. 2010), (Barbara, Molnár T,2019)*.

Figure 2. An urban section showing the kasbah of Algiers with the European quarter (Touzout Redouane)

In modern development, headlines and attentions are focused on post-destruction issues and the loss of heritage, the destruction of buildings, and the fading of its qualities was the interest of many preservation studies. Moreover, the focus on conserving the identity and the authenticity of the lost heritage was the essential concern, which gives priority to the local cities and architectures. Facing the loss of heritage, other questions occur, related to the heritage produced in the similar contexts of conflict, post-colonial heritage and the concept heritage of the other. *(Barbara, Molnár T,2019)*

Figure 3. Algiers, a view from the sky (Yan Arthus)

Figure 4. The old port of Marseille

In Algeria the number of sites and monuments mentioned in both international and national lists of preservation, arguably stand with a huge number of unlisted French constructions, only a few are recognized by the authorities. Although some monuments are starting to get listed in the supplementary inventory, the increasing number of endangered cultural properties raises questions about the pertinence of the heritage protection approach adapted for the section, according to the analysis of the Algerian legislation and the organizational system. ***Figure 5*** is the representation of the Algerian cultural properties adopted by the assets analysis of the Algerian ministry of culture.
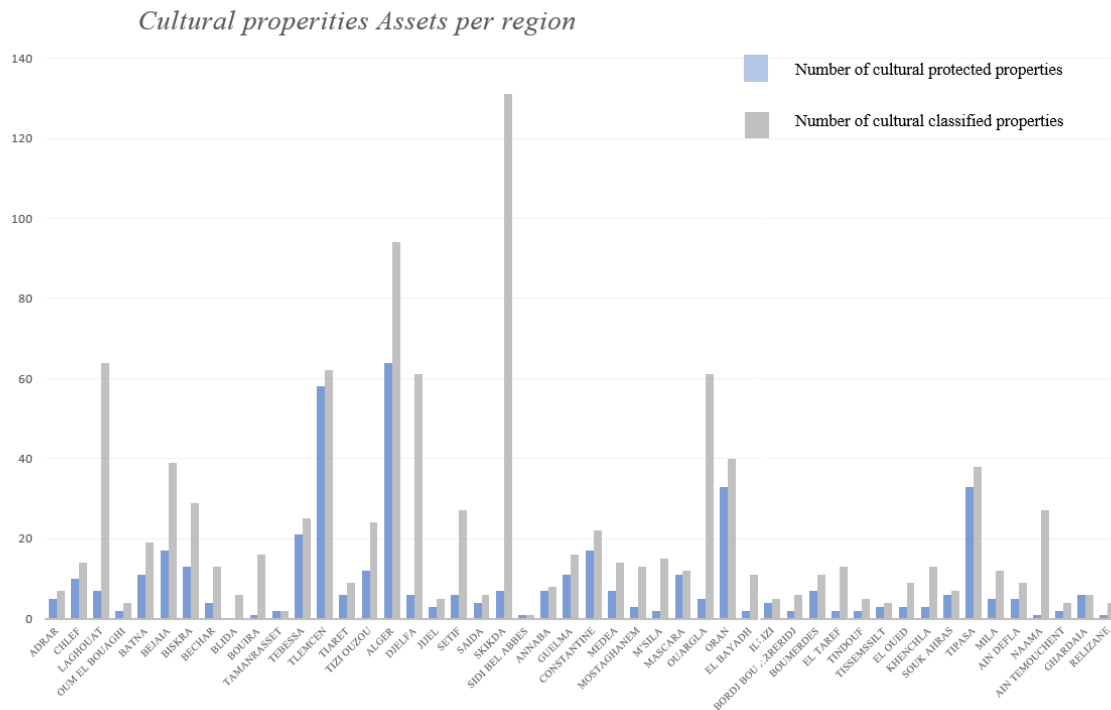
Figure 5. *Cultural properties Assets in the Algerian regions (m-culture.gov.dz)*

According to the administrative regulations, numbers show that in the total of 924 immovable cultural properties in Algeria, only 395 are listed as national heritage. Few official monuments that belong to the French constructions are included. In the capital Algiers with a total of 89 cultural properties, one safeguarded sector is listed in the UNESCO World Heritage List, the historical

center of the Kasbah. Belonging to the pre-French period, whereas 68 are considered historical monuments, 58 are national heritage. The French Neo Moorish building the Grand Post was listed in the inventory of 2017. (*published by the Algeria presse service APS,2018*). Along with recent actions on other projects belonging to the same period. The representations below, *Figure 6, Figure 7* show the percentage of classified cultural properties, according to the different natures of the cultural assets.
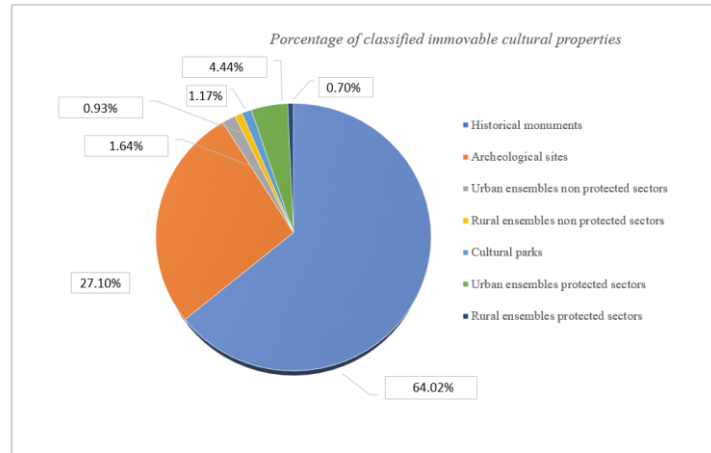
Figure 6. percentage of classified immovable cultural properties
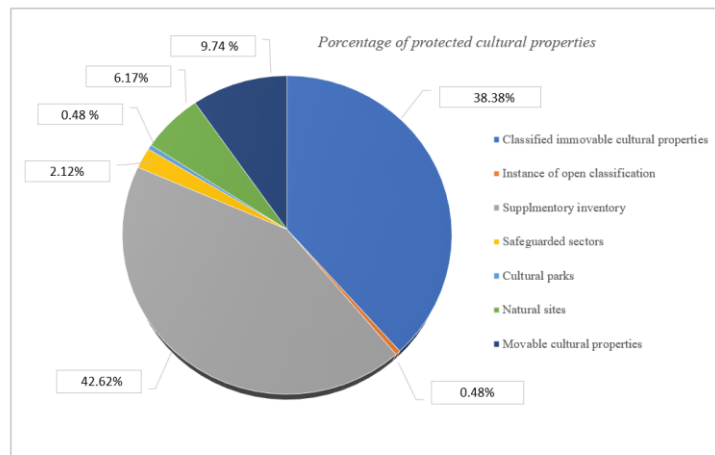
Figure 7. percentage of protected cultural properties. ((m-culture.gov.dz)

In a smaller city like Biskra 18 properties are listed as a national heritage, 8 are considered in the inventory's supplementary list. Only one French monument, the former city hall was recently included in the list of preservation according to the statistics of the municipality's heritage protection office.

The increasing number of French monuments at risk against the small interest for development actions and preservation creates the first motive for this research project. The heritage of the 19th and the 20th century in Algeria represents an interesting example when it comes to the engineering and architectural design concepts, however, it has not been treated with the right approaches and strategies, to be included with an adequate development planning in harmony with the rest of national heritage. *(Barbara, Molnár T,2021).*

1.3. Statement and problem definition

The patrimonial approach and the historical interpretation of the Algerian legacy are subject to misconceived and restricted lectures of the past when faced with the colonial reality. The objectivity of colonial investigation is obscured by questions of pride and identity. The French heritage although figures to be as one of the marking traces in the country design features, it is mainly held back by these historical paradoxes that essentially prevent further advancement of heritage protection strategies. *(Barbara, Molnár T,2019).*

The design approaches adopted by the French military engineers carry significant architectural and urban lessons, regardless of the period it represents. The quality of the French productions is obvious in prestigious oeuvres and city planning. However, it lacks strategies and methodologies for the right adaptations in modern development. The loss of quality and values of heritage belonging to the 19th and the 20th centuries.

The French historical centers and valuable monuments (built heritage) despite their importance suffers from modern neglect compared to the interest giving to urban extensions and new settlements, moreover, the focus on the preservation of the local and natural heritage is another question that needs to be considered. The degradation of the built heritage from historical centers to valuable monuments is a challenge that threatens the continuation of this legacy.

The French colonial heritage stands in a critical condition, many high-quality buildings are fading away because of different reasons. Aging of the constructions, lack of awareness towards this period, and problematic act of preservation that give more attention to precolonial and local heritage, compared to the number of colonial constructions, which represent the dangerous situation and urgently call for action. *(Barbara, Molnár T,2021)*

Thusly initiatives and interventions on the French-built heritage are present, the results remain inconsiderable regarding the bad situation of historical centers and monuments today. Constructions that belong to this period are slowly disappearing, the authorities are applying uncertain actions in the field of conservation, while monuments of pre-colonial periods receive important attention, the colonial constructions are questioningly neglected.

The uncertain behavior of the Algerian authorities in the selection of the list of monuments to be protected, the French colonial heritage is the strongest example as it is being neglected compared to the heritage belonging to any other period in Algerian history. The problem is the integration and adaptation with the national heritage, involvement in the safeguarding process, along to need for inscription in protection lists. The French colonial heritage highly influences both the memory and the identity of the place, however it lacks the awareness and understanding of this period. *(Barbara.H, Molnár T,2019).*

1.4. Overall aim of the research

In the aim of meeting the aspirations of the research, the investigation of the subject focuses on finding the methodology and the right strategy to revalue the qualities of the French-built heritage, regardless of the period of history it represents but rather to the significance it has on the urban space today. The evaluation of the historical centers is done by the creation of an inventory manual, that covers the different possible cases, resuming the condition, and the classification of the types of French constructions in the historical downtowns. The results of the research are confirmed according to the study of one particular French center in the city of Biskra. The application of the study method and the analysis approach, defines a new logic for the theoretical protection strategy that is followed by two steps, the city inventory and the emblematic monument inventory. Both of

them can be concluded in the creation of a cultural path that sets the light on the studied constructions.

1.5. Research questions

With the aim of meeting the aspirations of the research, the definition of the main questions is required in the process of the study. The essential problem is to revalue the legacy of the 19th and 20th century in Algeria and achieve the preservation of its historical centers and significant monuments.

The investigation is focused on the colonial checkerboard of Biskra, the evaluation of the former French site is related to the perspectives and orientations towards answering the main aims of this research.

The questions of the research are defined as follows:

❖ How to preserve the qualities of the French heritage in the historical center of the checkerboard?

❖ What is the right approach to integrate the colonial heritage in the preservation process and development planning of the national and the local heritage?

❖ What is the right approach to understand and appreciate the values of the French legacy based on its architectural and urban features and regardless of historical periods of conflict?

❖ What is the current situation of the French legacy in the French historical center of the checkerboard?

❖ What are the potentials and the future of these constructions and monuments?

1.6. Research objectives

To answers the questions of the research, the research objectives are specified as follows:

❖ Discover the French heritage in Algeria, with a profound historical evaluation, to determine the characteristics of the architecture and the urbanism in the colonial period.

❖ Determine the significance and the values of this heritage in the past that put the buildings in the colonial checkerboard in the historical context and provide a diachronous analysis to link the value and its loss.

❖ The diagnosis of the current situation and condition of the constructions in the colonial checkerboard of Biskra and present a city inventory that specifies the main problems and degradations in the site.

❖ Construct a database, that covers the state of all the constructions in the French checkerboard following a criteria-based classification.

❖ Define a logic that selects representative monuments of possible cases with a detailed inventory that upgrades them into potential landmarks.

❖ Integrate the French heritage by presenting a new strategy that serves as a guideline to define the right approach of treating all cases in the colonial checkerboard and the treatment of possible conditions.

❖ Raise awareness of the values and the bad conditions of the French heritage, not only in the colonial checkerboard of Biskra but also in the rest of Algerian regions with defined recommendations to propose the development of this heritage.

1.7. Scope of the study

This research study focuses on the colonial checkerboard center in Biskra and the diagnosis of its current state. There are parts in Algeria belonging to the same historical period, that need profound investigation. The study offers a manual to the preservation of the French legacy that can be limited

to the context of the city, knowing that the functions of the buildings are an essential element to the definition of intervention actions.

The multidisciplinary aspects of the study offer possibilities to extend perspectives to different regions of the same period. The research aims to cover all possible cases and conditions and other solutions to show how to deal with all probabilities and offer a manual for colonial heritage preservation.

1.8.Methodology of the research

The research methodology follows the general guidelines of the scientific approach, the objective is to discover the theories and realities of the subject, in order to project it in practical aspects. The passing from theory to practice is the main fundaments of science, *(Linda.N, David.W.2013),* where this heritage study is presented with an inductive epistemological reasoning that goes from particular aspects to general propositions.

Following the essential steps of the scientific cycle that are: Problem definition, technical construction, data collection and interpretations, the evaluation of architectural built heritage starts with historic monographies and critical interpretations of history. As a result, the methodology of the research consists of three main approaches: The historical approach, the qualitative approach, and the quantitative approach

The historical approach: it consists of approaching the objectives of the research using historical methods, evaluation, comparisons, external and internal critics, used in the first three chapters. The evaluation of the colonial heritage and the study of its evolution is the essential aim. Its is important to reconstruct the history of this heritage based on archival documents and authentication.

The qualitative approach: The research technique is indirect and deals with production of a population and a heritage of the past. With support of the historical method, the qualitative approach interprets the historical data and literature review, using various methods of observation, analysis, comparison and evaluation.

The quantitative approach: Introduced in the following chapters, the approach uses methods of field investigation in the colonial checkerboard, observation and technical evaluation of the cases and inventory the representative built heritage. This method alternated with the previous approaches in finalizing the research findings.
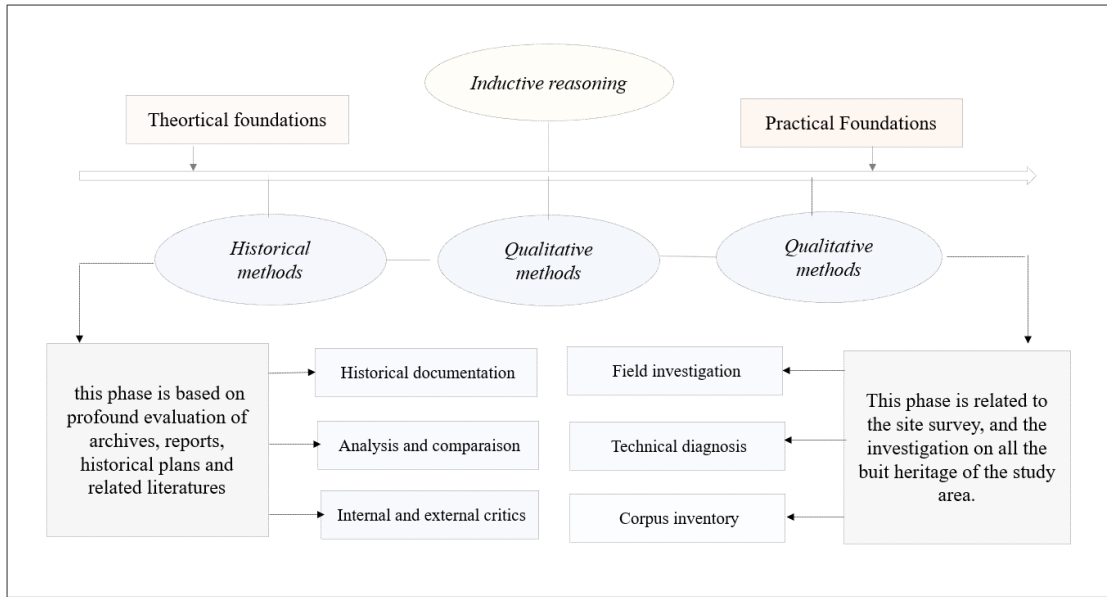
Figure 8. *The methodology of the research (Author,2021)*

1.9. The organization of the research

The thesis is structured around three main dimensions: the past, the present and the future. The work is organized in six chapters, presenting related objectives and visions of the research.

The first part, presented in chapter one and chapter two, aims to revisit historical backgrounds to resume the scientific framework and the overall aim of the research. The evaluation of the literature review and the basic knowledge represents the development of the concepts and methods that guide to the definition of the conceptual framework.

Chapter 1 presents an introduction and background of the research, with the statement of the problem and the definition of the research questions, objectives, and methodology. An overview on the research structure is presented to organize the ideas of each section.

Chapter 2 presents a literature review on the subject that focuses on the theoretical and historical review of the data, from the concept definitions and development, theories and basic notions, strategies and regulations according to international and national approaches and literature related to the study context. It is based on methods of historical research and evaluation that orient to the design of the conceptual framework.

The second part including chapter three and four aims to set the light on the current problems and the present condition of the case study with the objective of generating the ground results of the research.

Chapter 3: focuses on the presentation of the site: the colonial checkerboard as the center of the study, based on the literature review gaps. The construction of the conceptual framework is the essential element of this phase.

Chapter 4: In this chapter, the aim was to classify the checkerboard constructions based on a logic definition of criterions. The results of the chapter indicate the classification of the checkerboard constructions and the diagnosis of the current state and the threatening mutations in the French historical center.

The third section presented in chapter five and six, is for building future perspectives, representing the main findings and results, and the development of a theory of protection that serves as guideline for the French built heritage integration.

Chapter 5: The content is presented based on the interpretation of data in chapter 4, a new strategy suggests a non-random selection of representative monuments that highlight the probability of cases and conditions. In this chapter a detailed inventory is presented to the requalification of potential landmarks and the preservation of their significance.

Chapter 6, The description of research findings and conclusions of a new strategy that serves as a manual for the values preservations of colonial productions, precisely the French colonial heritage in Algeria. To conclude the research, this part recaps the general interest and the perspectives of the subject of colonial heritage *Figure*

PART I

CHAPTER ONE

BEYOND THE FRENCH LEGACY. AN INTRODUCTION

Research Background

Problem statement

CHAPTER TWO

THE FRENCH HERITAGE IN ALGERIA. A REVIEW OF THE LITERATURE

Critical review

Theoretical design

PART II

CHAPTER THREE

THE COLONIAL CHECKERBOARD THE STUDY CONTEXT

Knowledge gap definition

Conceptual design

CHAPTER FOUR

THE DIAGNOSIS OF THE CURRENT STATE AND THE THREATNING MUTATIONS IN THE SITE

Field investigation

Criteria based inventory

PART III

CHAPTER FIVE

AN INVENTORY TO THE REQUALIFICATION OF POTENTIAL LANDMARKS

Representative monuments

New intervention approach

CHAPTER SIX

FINDINGS AND CONCLUSIONS

Conclusion sentences

Figure 9. The structure of the research (Author,2021)

CHAPTER TWO

Beyond the colonial legacies: A review of the literature

2.1. Introduction

Cultural heritage is the source of continuation for all legacies and traditions, preserving heritage is a responsibility to all generations. It is the source for cultural lessons, where valuing and understanding the traces of the past determines the significance and the memories of cities reflected in their historical centers and monuments. The colonial heritage represents a complex passage for protection actions, the interpretation of this latter is a subject that requires profound evaluation. What happens when the abstract definitions of heritage are presented in difficult contexts? How do we interpret the values and significance of these legacies?

In this chapter, the aim is to answer questions around the complexities of the French heritage in Algeria, focusing on the procedures of creating French architecture and urbanism. Chapter two presents two main objectives, the first is to introduce the concepts, theories, and main definitions related to cultural heritage, with the methods and approaches to construct the knowledge base for the intervention studies.

The second objective is to review and evaluate the literature directly related to the production of the French legacy in Algeria, the characterization of the colonial and pre-colonial periods, based on the analysis of the historical documents, national and French archives together with the collected data from books and scientific articles, all in the frame of the international and national regulations and laws of heritage protection.

2.2. Concepts, theories and interpretations

The issues of heritage conservation and the need for preservation became a veritable manifestation after the French revolution. The faces of uncontrolled urbanization and vandalism acts, affecting the historic memory and the heritage of France, were the drive for many authors, architects and heritage activists. In 1829, an article written by Victor Hugo in Paris revue, titled in French "*guerre*

aux démolisseurs" (War for the demolishers) calls for an end of this careless actions, and proposed the establishment of new patrimonial rules to protect the interest of collective properties and the prohibition of its destruction. This turn in history is one of the remarkable movements in favor of safeguarding the heritage of France and furthermore the lost heritage of the world. *(Hugo.V.1829)*

Cultural heritage, with its different forms, tangible or intangible, is considered as a historical and social product. It is the expression of inherited ways of living and the passing of its practices and values from generation to another *(ICOMOS, 2002)*.

The evolution of the term heritage is strongly related to the importance of historical monuments. According to the international charter on the conservation and the restauration of monuments and sites *(Venice charter 1967)*, in article 1, the notion historic monuments include single architectural creations, but also urban and rural sites, which hold the evidence of a particular civilization and the significative evolution of a historic event. It considers great creations, as well as modest art works of the past that have acquired a cultural signification with time.

The concept of safeguarding cultural heritage became an essential principle when dealing with ancient productions of high interest. The recommendations of Varsovie-Nairobi 26 November 1976, relative to the safeguarding of historical or traditional ensembles and their role to contemporary life, adopted by the general conference of the UNESCO, defines the concept as the identification, protection, conservation, rehabilitation, maintenance and revitalization of historic ensembles along to its environments. This action does not only aim to fix the current states, but also to create a certain social animation in the heart of traditional cities while preserving its cultural and symbolic values. As followed, the ensemble of monuments and sites with respect of its authenticity, become an essential reflection of history. *(UNESCO,1976)*.

The Nara conference and document of authenticity 1994 adopted by the ICOMOS defines the principal guidelines. It covers all operations that aim to understand cultural heritage with its diversities, to know its history and signification, and ensure its conservation, restauration and eventually enhancing its values. The ability to understand these values and their meaning in relation to the original character of heritage is an essential basis for assessing various aspects of authenticity. *(ICOMOS,1994)*.

Conservation is all procedures of maintaining a place in the goal of conserving its cultural importance. This can include according to the circumstances, the process of reintroducing its use

or maintaining its souvenirs and significations, moreover all process of preservation, restauration, adaptation and interpretation, and more often implies a combination of many of these processes. (*(ICOMOS, 1999)*.

The patrimonial evaluations consider values as the instrument of recognizing the interest and the management of heritage, in order to assign the legal protection status. With the definition of the term value, a positive character is attributed to cultural places and objects, by individual or professional authorities. By this definition, the elements of heritage in their initial forms do not necessarily reflect value, but rather produced over time by their interactions and the social contexts. (reference).

According to Burra charter 1979, in article 5, the conservation of a place or patrimonial property must state and consider all aspects of cultural or natural values, without granting unjustified preferences to one or the other. The conservation action on a heritage can differ following the degrees of cultural values and significance associated to the historical monuments and sites and defined with the different principles related to these past values and its various aspects, whether it is social, scientific, aesthetic, or even spiritual. (*The Burra charter 2013*).

Moreover, a value can be interpreted as the beliefs that has an importance in the point of view of individuals or cultural groups, it can be spiritual, political, religious or moral, without only limiting to these aspects, the values attached to the place can vary and are perpetually negotiated (*ICOMOS, Madrid 2002*).

Reigl (1902)	Lipe (1984)	Burra Charter (1998)	Frey (1997)	English Heritage (1997)
Age	Economic	Aesthetic	Monetary	Cultural
Historical	Aesthetic	Historic	Option	Educational and academic
Commemorative	Associative-symbolic	Scientific	Existence	Economic
Use	Informational	Social (including spiritual,	Bequest	Resource
Newness		political, national, other	Prestige	Recreational
		cultural)	Educational	Aesthetic

Figure 10. *The summary of heritage value typologies (The Getty conservation institute)*

2.3. Perspectives for the heritage of the 19th and the 20th century

Marta De la Torre, affirms that values and significance are considered as unifying principals for conservation practices. Today conservation is an action to maintain the cultural significance of heritage, and it starts at the moment the place is associated to a cultural value, where all protection decisions require prioritizing multiple values related to specific situations.
Furthermore, the need for the flexibility in selecting the right protection approach, along to the conservation of unique significance, is based on the recognition of the values complexities, and thus it is unlikely that two heritage places will have the same significance and as a result the same conservation approach. It is needed that heritage properties must be considered within the cultural contexts, where the evaluation of values and authenticities does not limit to fixed protection decisions. (*Marta de la Torre.2013*).

Karina V. Korostelina in her chapter heritage conservation in the Midst of identity-based conflicts, clarifies that the values attached to heritage sites or objects are profoundly linked to the needs of self-esteem and pride in the circles of healing from the traumas of the past, moreover social groups in many cases hold challenging and conflictual values attached to the cultural heritage. The understanding of common values and identities is a crucial practice to connect societies to critical history and complex representations of values, it is essential that heritage specialists and conservatives collaborate in the aim of managing heritage that go beyond the traditional definitions to new aspects that consider reconciliation and seek balance in social hierarchies and heritage places. (*Randall M, and David M.2019)*

The consideration of colonial architecture as cultural heritage has been the question of many modern studies, according to Vanessa Jane Ruhlig, the history of the German colonial period in the city of Windhoek Namibia reflects pain and trauma of the Namibian war and genocide (1904, 1908) where memory plays an essential role in evoking the sense of ownership and place identity. Colonial architecture as a result is an important tool that sustains memory and carries meaning, significance, and potential to the colonial monuments and spaces of this period. (*Vanessa Jane Ruhlig.2018*).

A similar approach examines the impact of the colonial architectural heritage on South Koreans national identity, where the Japanese occupation affects the contemporary South Korean society. The development of people-cultural heritage relations in the process of investigating identities and the construction of memories. Colonial heritage becomes an essential part of the social identity, which influence its meanings and is equally transformed by personal values, beliefs and experiences. *(Seung Ho Youn.2014).*

Although the history of colonial heritage reflects difficult memories and controversial positions, the recognition of the produced architectures and the design of cultural spaces of these contexts is undeniable. The colonial city of Santo Domingo, declared a world heritage site by the UNESCO, is the example for potentials and new perspectives for a colonial heritage. With its outstanding universal value, it represents the city of encounters, where European and African cultures crossed, developing multicultural understanding and sharing of knowledge. From integrity to authenticity, the colonial city responds to the criterions of selection (Nr. II, IV, VI) and resumes a model for modern town planners, conserving its grip plan and urban patterns, along to its historical and symbolic values. (*UNESCO*).

This aspect of value sharing and meeting in the same context is also witnessed in the historic city of Vigan, established in the 19th century, it is the perfect example of a planned Spanish colonial town in Asia. The world heritage city in the Philippines reflects the coming together of architecture and cultural elements, resulting in a unique town that has preserved much of its Spanish character and influenced by various cultures from China, Europe and Mexico. (*UNESCO*).

The revaluation of the French heritage has been the subject of interest for many preservation projects that consider the safeguarding of the historical legacies regardless of the periods it reflects, but rather to the impact it has on the city today. The preservation of the local Medina in North African cities and the Grand Maghreb region has been lately complemented by actions of conserving the recent heritage of the colonial period, completing the preservation of the whole image of the city. The Aga Khan award for the Tunis project of rehabilitation of the French façades near the old Medina of Tunis (Figure1) is one more affirmation for the necessity of this period's awareness. Most people, as a result, recognized this architecture's qualities by several rehabilitation actions on the urban façades and the restoration of essential monuments, calling for explicit

insights on both the local and colonial cultural heritages. (Aga Khan award for architecture 2008-2010 cycle).

2.4. The Legal Frame and regulations in Algeria

The current law to the preservation of cultural heritage in Algeria, is the 98.04 law with the general objective of introducing heritage to society and defining the rules to its protection and revitalization (Article 1). The law contains 108 articles divided to 9 chapters setting the related directions and orientations.

The safeguarding and the processes of cultural heritage procedures are defined according to (Article 8). All cultural assets can be submitted to one of three protection actions:

- ❖ The inscription to the inventory additional list
- ❖ The official classification
- ❖ The determination of a safeguarded sector
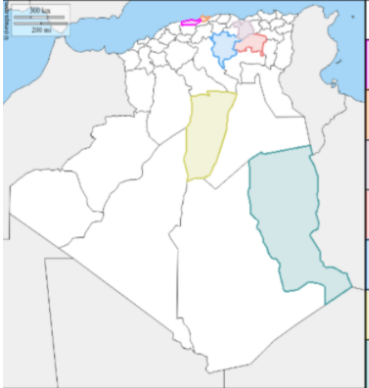
For all cultural properties that do not have an official classification, however present a patrimonial interest, either historical, artistic, cultural, etc., a provisional period of 10 years is applied and can be retrieved from the list if no classification action is proceeded. (Article 10). The classification is the highest form of protection actions and determines official protection measures. (Article 16).

Finally, the delimitation and definition of a safeguarded sector, that considers urban and rural settlements including indigenous structures like the Medinas, Kasbahs and Ksours that are characterized with a specific character and a defined importance, historical, artistic, traditional or other. (article 41).

2.5. Lessons and challenges of the historical center of the Kasbah

The legacy of the Kasbah, and the historical medina of Al-jazair, is the perfect example of a typical traditional city that has witnessed French transformations after the colonization and reflects the objectives of the study. The Kasbah of Algiers is the historical essence of the Medina; it is a dense

vernacular system, relevant to the times of the ottoman regency, and influenced by the local style fund in Algeria. *(Çelik, Z. 1997), (Ben Hamouche, M.2018)*.

Name	Location	Year	Type	Property	Criterions
Les ruines de Tipaza	Tipaza	1982	Cultural	52.16 ha	(ii), (v)
La casbah d'Alger	Algiers	1992	Cultural	54.7 ha	(ii), (v)
Le site de Djémila	Sétif	1982	Cultural	30,6 ha	(iii), (iv)
Le site de Timguad	Batna	1982	Cultural	90.54 ha	(ii), (iii), (iv)
Kaláa des Béni Hammad	Méssila	1980	Cultural	150 ha	(iii)
La vallée du M'zab	Ghardaia	1982	Cultural	665,03 ha	(ii), (iii), (iv)
Le Tassili N'ajjer	Illizi	1982	Mixed	7 200 000 ha	(i), (iii), (vii), (viii)

Figure 11. The seven world heritage sites in Algeria (interpreted by author)

historical center of the Kasbah of Algiers is the synthesis of the change and the evolution from an ottoman medina to the adaptation of the French engineering. It is considered as UNESCO world heritage, and the preservation of its qualities is necessary. The historical center although it represents a historical significance and multi-dimensional lessons, is losing its qualities gradually, the buildings and the Moorish constructions are degrading every day. Many problems are threatening the future of the Kasbah today, representing other issues in the preservation approaches.

Figure 12. Overview on the Kasbah of Algiers, Algeria

2.6. The first steps towards a colonial legacy

Algeria, the North African country, belongs to the region of the Maghreb, it has been defined by many cultural influences and the passage of several civilizations and dynasties. The French period is the last phase before the modern era and the contemporary change. This transition had the strongest impact on the history of the country, moreover, it is printed in the lines of its cities and the details of its architecture.

The beginnings of the French legacies in Algeria, and the regions of North Africa, started with a fascination for the oriental world in the early years of colonization, it is along the periods of discoveries and artistic missions by poets, painters, and architects, who perused there oriental passion through the creation of a database and documentation of the colonized space, the discourses of voyages, the paintings, and the sketches will be used by the French military engineers in the productions of the colonial vision. *(Oulebsir.N.1994).*

Figure 13. Women of Algiers, a painting by Eugene de la Croix

Women of Algiers, a painting by Eugene de la Croix, 1832 *Figure 9*, is an example of the artistic interest in reporting not only the human figures but also deeper attention to recreating the interior ambiances and the social life. Similar artists and photographs have provided detailed catalogs of the Moorish houses and the private gathering of the Algerian women. It is by references to those

social and architectural details, that the colonial legacy marked its foundations in French Algeria. By unlocking the Moorish houses, the colonization metaphorically reached its apogee, as it was the most private entity of the traditional composition (*Celik, Zeynep*).

2.7. The emergence of colonial styles: Strategies and productions

Following the primary phases of discovery, and from 1830 the traces of new urbanism was slowly changing the local features of the country. The aspects of the European planning met with the indigenous and vernacular character is the general result of French Algeria. The French interventions and the design strategies knew two different strategies, the Vainqueur (a French term specific to the period, the closest translation is the victorious, showing the colonial power of winning the country) and the protector periods. Where the first follows the guideline of classical architecture and typical European structures, the second is a period of reinterpretation of the local forms. Both visions are defined by the emergence of three sub-periods that define the urbanism and architectural styles in the creation of the French heritage between 1830 to 1962. *(Barbara.H Molnár T,2019).*
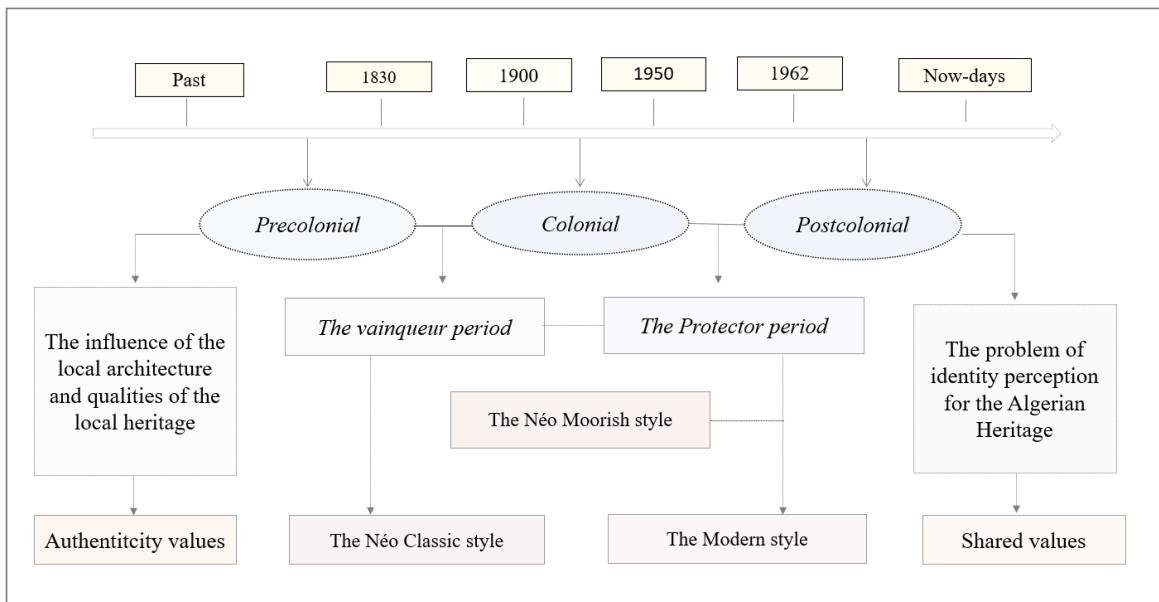
Figure 14. The colonial styles in Algeria (Author,2021)

I.   *The neo-classical period (1830-1900): The visage of another France*

The forms of the first decade of colonization are known by the recreation of initial classical models and Romano-Byzantine vocabulary. The planning and city design adopted perfect regularities and integrated Haussmann buildings and occidental structures in the process. The new plans however were followed by projects of destruction and transformation of large parts of the local medina and historical center, and as consequence, the Vainqueur style emerged with an arguable loss of local identities. *(Picard A,1994).*
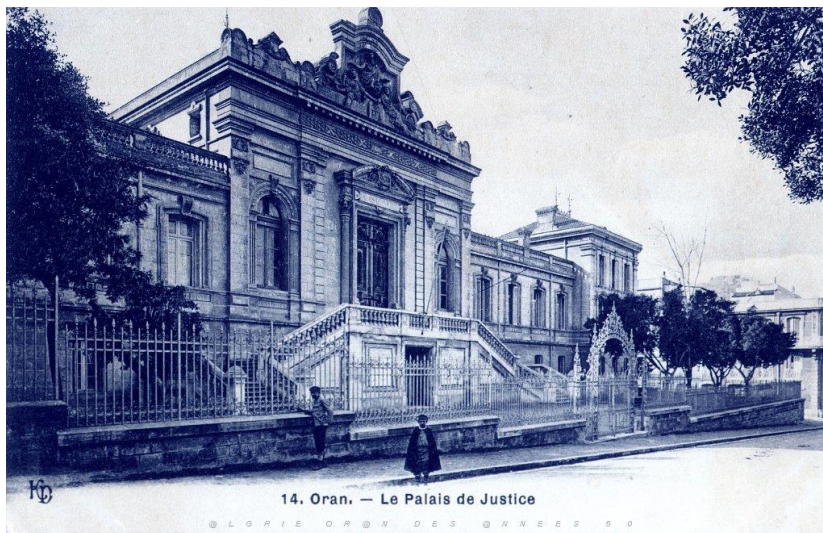
Figure 15. The Palace of Justice, Oran, Algeria

II.   *The Neo-Moorish period (1900-1950): A message of reconciliation*

From 1900, the second phase of the French approach in Algeria adopts a new strategy, the image of a protective France was the aim of this reconciliation period. It is with the creation of a new colonial image, respective of local traditions, cultures, and space, this transition allows a certain balance in French Algeria, with the creation of new forms familiar to what used to be found in the pre-colonial know how and design approaches. With the influence of the Moorish style and the intention of forming new experiences of orientalism, the birth of the Arabisance was the headline of this period. Also known as the Arabisance or the Jonnart style, it follows the directions of the general French governor of Algiers Charles Celestin Jonnart, 1900, it is a basic reinterpretation of the indigenous forms of the city and its architecture. The creation of the Arabisance represents a

passage from artistic orientalism to a more concrete style translated into the details of architecture and urbanism. *(Godin, Béguin.F.1983).*

Figure 16. The Grand Poste, Algiers, Algeria

III.   *The Modernism period (1950): A continuation to the Arabisance*

The final phase and the times of modernity have similar objectives to the Arabisance period, with respect and inspiration from the local character and identity, it represents merged models that explore a sharing of visions and design concepts.

The modernism period introduces the use of new materials from 1920 to 1935, like metallic structures. Many names have marked the significance of this period, the movement of the Algerianists, including Ronald Simonet, Marcel Lathuillere and other architects like Le Corbusier, Fernand Pouillon, and André Ravéraux and modern manifestations delivered original projects, characterized by rationalism and minimalism, that revisits the authenticity of the vernacular forms. *(Picard A,1994).*

THE COLONIAL STYLES IN ALGERIA

A comparaison (1830 - Independence)

A stylistic lecture of the French styles in Algeria , with a comparaison of its main characteristics to mark the important differences.

Style	The Neo-Classical 1830-1900	The Neo-Moorish 1900-1950	Modernism 1950- 1962
Planning and Design	The Ground floor borders the places and the allures in a set back arcades (reserved for shops) 2-3 Floor levels (rarely 4) Inaccessible roof - Terraces	The interior planning and spatial organisation , responded to the functions which varied according to the needs of the French engineers Ex : Caserne , les hôpitaux et les bâtiments public	Open Plan , the concept of Transparency : The use of glass Liberation of the Ground Floor The use of piles
Form and exterior volume	Parallelepiped Shaped construction /almost cubic Large openings / The use of balconies with regular dispositions on th façades	The use of The Minaret and the coupole as marking elements for the public constructions	Simple volumes Inaccessible roof - Terraces Elevation of the constructions (Bar and Tours)
Construction / Decoration materials	Cut stones with concrete and forged Iron decorations The use of Mable , Gypsum and Stuc The use of tiles for the roofs Decorative Iron works for the balconies, windows and corbels (Consoles)	Horseshoe arches, Pelmet arches ,and Mauqarnas arches Cylindrical/ Fluted columns , Twisted columns Wooden panels for balconies Spandrels with polychrome tiles	Reinforced concrete structures and the use of Brick walls The introduction of some metallic structures
Façades and Ornementation	Symmetry and Rhythmic disposition of openings The use of columns and orders Triangulaire / Segmental forheads Balusters and Cornices with Floral relief / the use of exterior Gantries	Monumental entrance doors Framing of the openings in ceramic tiles with floral and arabesque motifs Wooden Balustrades (railings) Simple capitals, The use of Merlons and pinnacles	Simple Buildings with no ornementation Openings in width, with the use of sun-blockers in the Aéro-Habitat (Habitation unit)

Table.1. *A comparison of the colonial styles in Algeria (Author,2021)*

2.8. Characteristics of the colonial city

Algiers, the capital is characterized by specific topography, descending from higher terrains to the sea, the kasbah of Algiers as a result follows the morphologies of the terrain and integrates perfectly the irregularities. The transformation of Algiers after the French arrival in 1830 is the conclusion of the same urban figures as in the rest of the country regions. The military engineers introduced the European quarter by replanning the capital and its historical center, following military necessities and political strategies. *(Malverti, Xavier.1994)* **Figure 12**
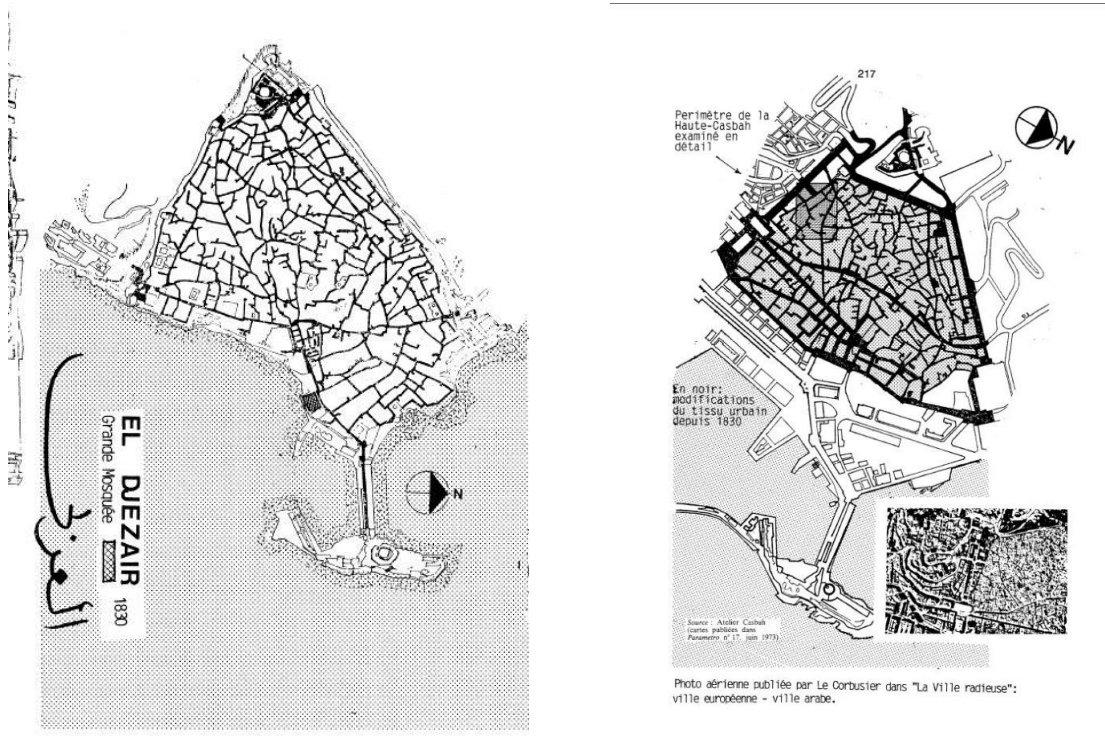
Figure 17. The transformations of the historical center of the Kasbah (Alex Gerber)

The foundation of the kasbah of Algiers, stands on a strictly rough terrain with a considerable difference of levels which lowers sequentially to the direction of the sea. The conception of this urban settlement answers to the constraint of the site, where the urban layout and its components harmonize with its geological change. Coming down from the old historic center of the Medina of Aljazair, the new European city *Figure 13,* fund its military quarter, with a superposition and a transformation of large parts of the local fabric and its vernacular structure *(Çelik, Z. 1997).*

Figure 18. *The new face of Algiers, A European façade meets the traces of the local city*

The French Algerian cities as result were characterized by simplicity and regularity which dictates the forms of the streets and the general layout. The grid plan changes according to the topography and the relief of the terrain, to answer its geophysical constraints and the difficulties to the adaptation with the existent local fabric, which has specificities on its own *(Malverti, X.1994).*

The development of the urban planning of Algiers, emerged until 1837, with the announcement of the alignment project of the ensemble, proceeded by the creation of the urban arcade and the Empress boulevard, and concluded by the extension of the urban enclosure of the kasbah. The alignment plan as a result aims for the realization of both a military city and a civil quarter that receives the Europeans and enhances the qualities of this urban planning *(Taskopoulos, P. 1994).*

The traces of the French urbanism and interventions were achieved on a strategic location to the Mediterranean Sea, where the urban facade linked by the marine port framed the new image of French Algeria, introduced by a typical French veil that hides what was left from the old Medina. *(Celik, Z. 1997).*

2.9. Characteristics of the pre-colonial city

In the process of reviewing the creation of the French architectural and urban forms, it is essential to analyze the forms of the local structure before the French arrival. The traditional characteristics and the vernacular solutions in the indigenous city represent a vital step in the analysis study.

The local city and the traditional entities in pre-colonial Algeria represent a complex, and spontaneous creation. It reflects unique know-how and social thinking. The traditional settlements are formed with high respect to the topography of the terrain and climate, in all its forms and difficulties. *(Ben Hamouche, M. 2018). **Figure 14***
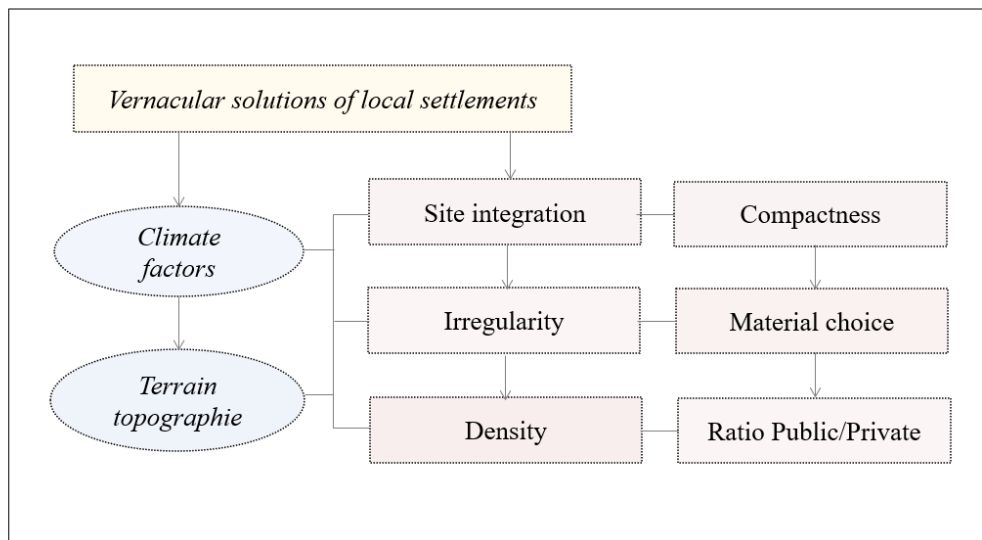
Figure 19. The vernacular solutions of the traditional settlements (Author,2021)

Figure 20. vernacular character of the local cities

The villages, the oasis, the Ksours, the Medina, are names for the local settlements, that characterize pre-French Algeria. These urban ensembles share similar features, in an architectural and an urban scale, where the vernacular solutions are characterized by an integration to the site and a dense urban layout. The vernacular city is characterized by an absence of any geometrical order, the character of irregularity and compactness is the overall aspects of these structures, it has resulted in very narrow alleys and streets, which reflects the social quality of adjacency and closeness in the neighborhood, this justifies the organization between the public and the private, and the gender-based separation in the spatial design. It is a degree of intimacy only found in the heart of the vernacular city (*Djiar, K.2009).*
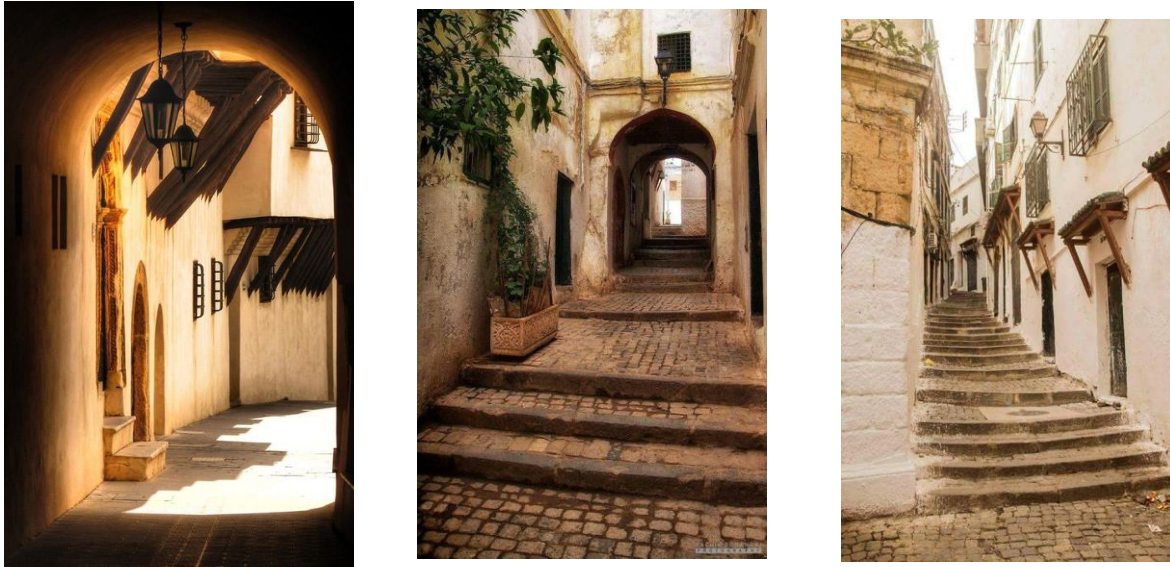
Figure 21. *Characteristics of the streets in the local city, example of the Kasbah*

2.10. The architecture of a shared identity

The precolonial and indigenous cities are the basis of French architecture and urbanism, it is with an influence of the local architecture and reinterpretation in colonial forms that the colonial city took place, and it announces the problems in the post-colonial period, and the issue of identity in the Algerian heritage today.

The examination and the morphological analysis of both the local and pre-colonial forms, from architectural to urban point of views, demonstrates a particular thinking and complex design methodologies. Whether it is a dense local fabric or regular French planning, it is the meeting of the two visions that created a convergence line for the understanding of cultural built heritage. *(Barbara, Molnár T,2019).*
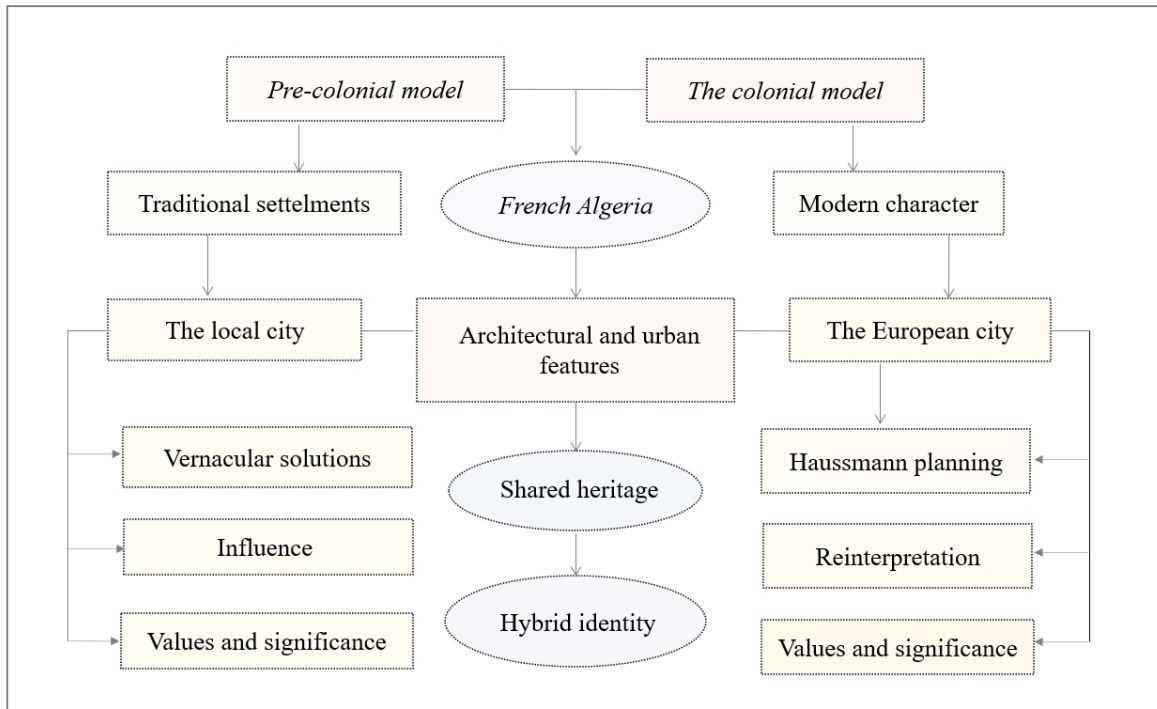
Figure 22*. A comparison model of the local and European cities*

The French legacy is a result of series of interventions and productions in the indigenous cities, that is readable in the many features of the buildings and the monuments, moreover, the colonial heritage can be resumed in two scenarios. The first was the superposition of the new plan on the original layout, and consequently the transformation of large parts of the local fabric, and the erasing of other urban and architectural elements. Witnessed in the case of the Kasbah of Algiers, where the new urban morphology covers two juxtaposed sets, between the French Marine quarter and the historic center of the Kasbah and resulted in the separation into the high Kasbah with the original center that gathers the locals and the low Kasbah mainly dedicated to the European society.

The second scenario is the creation of separate structures on the side of the local settlements, that reflects the optimal European city in the urban planning and overall look. This scenario was applied in many regions in Algeria creating the legacy of colonial cities. *(Barbara, Molnár T,2019).*

Figure 23. *An example of the French integration with oasis, Biskra, Algeria (Pizzaferri Paul)*

The action and intervention projects in Algeria are generally focused on northern and coastal cities moreover, bigger historical and local sites with international values. While the kasbah, the valley of Mzab is having the attention of the authorities, smaller regions and historical centers are not receiving the same interest. The focus on the local heritage as the representative of identity, together with other precolonial periods, represented in archeological and natural sites is another issue facing the preservation of any heritage belonging to the French period.

The French centers are mainly the center of these neglections, the colonial checkerboard in the city of Biskra is the example of a marginalized center that has not received the adequate methodologies and stands in a questionable position compared to the local heritage.

2.11.Thesis statements

The colonial styles in Algeria are originally defined by various design approaches following the periods of occupation. In the general forms, the French features adapt familiar European models, however, it is fundamentally sharing values with the local architecture. The identity of a shared heritage influenced by the specificity of the region and adaptation of pre-existing forms are the main elements that shaped the significance of the French heritage in Algeria.

The theoretical classification of the colonial and the local features shows that the qualities of the French productions in north Africa and Algeria are specific to the morphologies of the local terrains. The creation of the Arabisance style proves that interpretation of the local features is an emphasis on the hybrid quality and a new definition for the colonial value.

The Analysis of the historical emergence of the colonial heritage in Algeria is the first step in the research, with the definition of the urban and architectural characteristics of the colonial heritage. The classification of the French styles, that correlate along to the main three periods of occupation was the result of the historical evaluation and documentation phase.

The presentation of critical reviews of the colonial features, from historical, architectural, and urban perspectives aims for identification of the French period characteristics in comparison to the precolonial period and its impact on the post-colonial reality.
 A comparison model has been presented, to indicate the qualities of shared heritage between the traditional city and the new European structures.

PART II

RETHINKING THE PRESENT,

The quest for change

CHAPTER THREE

The colonial checkerboard: The Context of the study

3.1. Introduction

The oasis of the Ziban presents the first glimpse of the Grand Sahara of Algeria. With a unique character and a vernacular outlook, the Saharan Kasbah of the old Biskra reflects the typical local planning of the region's traditional settlements.

Following the theoretical framework and the empirical findings of the previous chapter, and to narrow the focus of the research in one case, the choice of the historical center of the colonial checkerboard in the city of Biskra is presented and justified. It is important to give an overview of the historical evolution and creation of the site, by discovering the monography of the site within the historical documentation.

The chapter presents the objectives of the research. The review of the scientific approaches in the colonial site is an essential step in introducing the literature limitations and the knowledge gaps. It constructs the foundation for the creative design of the conceptual framework, presenting the fundamental concepts and objectives in conducting the research.

Following the theoretical critical study from the previous chapter, the literature review founds the knowledge base of this research. The historical, theoretical, and concept review gathers the main methods and approaches of the study. In this chapter the presentation and the evaluation of the French historical center, the colonial checkerboard of Biskra follows the objectives of the research.

The design of the conceptual framework is adapted after gathering all the necessary literature on the general context and the case study.

3.2. Overview of the old oasis

The Algerian city Biskra, located north of the Grand Sahara, is considered the gate of the desert, and characterized by its hot and dry climate. In French times, Biskra reflected the potential of

strong tourism and formed a dynamic connection between territories. The region attracted many tourists, historians, and artists, and created the significance of its architecture and heritage.

The city of the oasis witnessed a shift in architectural and urban methods. From the modest use of local materials and integration with the typologies of the site; to the translation of a different French vocabulary that adapts regularity and modern forms to the design of the city, which comes around to create the significance of the site represented by architectural diversity and cultural engagement.

Like the history of Algiers, the French legacy marked its traces in the old oasis of Biskra, following urban strategies and planning. The colonial checkerboard is the result of thinking and a creative process of including new visions with local adaptations. *(cote, M.2005),(Pizzafferri.P.2011)*
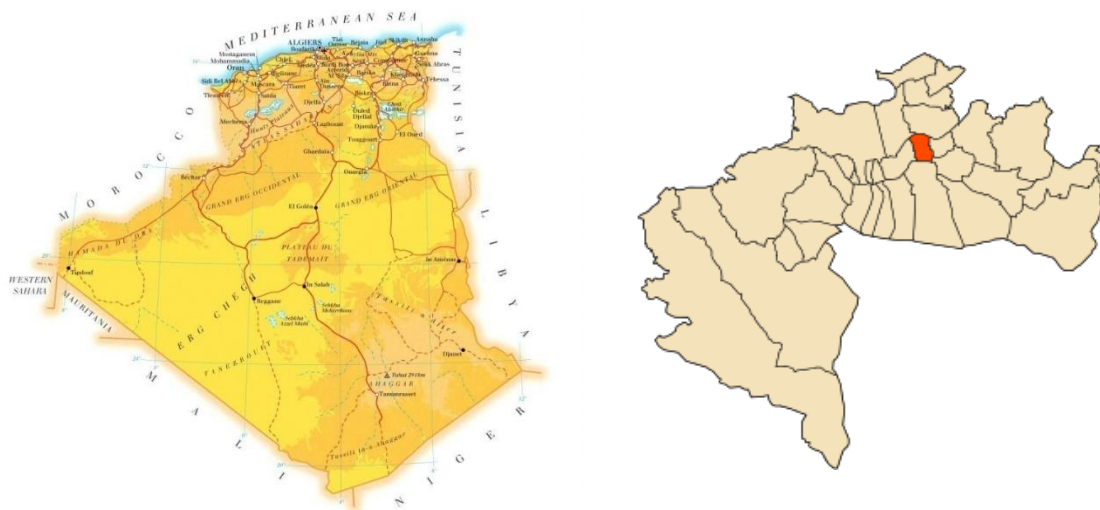
Figure 24. The localization of the city Biskra in Algeria

3.3. A European city: the colonial checkerboard

The colonial checkerboard or the so-called ex-European city in Biskra, reflects the obvious traces of the French influence in Algeria. Presented with an orthogonal grid planning, the historical center comes to introduce an occidental design vision different from the traditional compositions known in the pre-colonial city. The design of the European quarter follows the second scenario of the

French intervention on the local settlements, with the creation of a new structure separate from the Saharan Kasbah of Biskra and the old oasis.
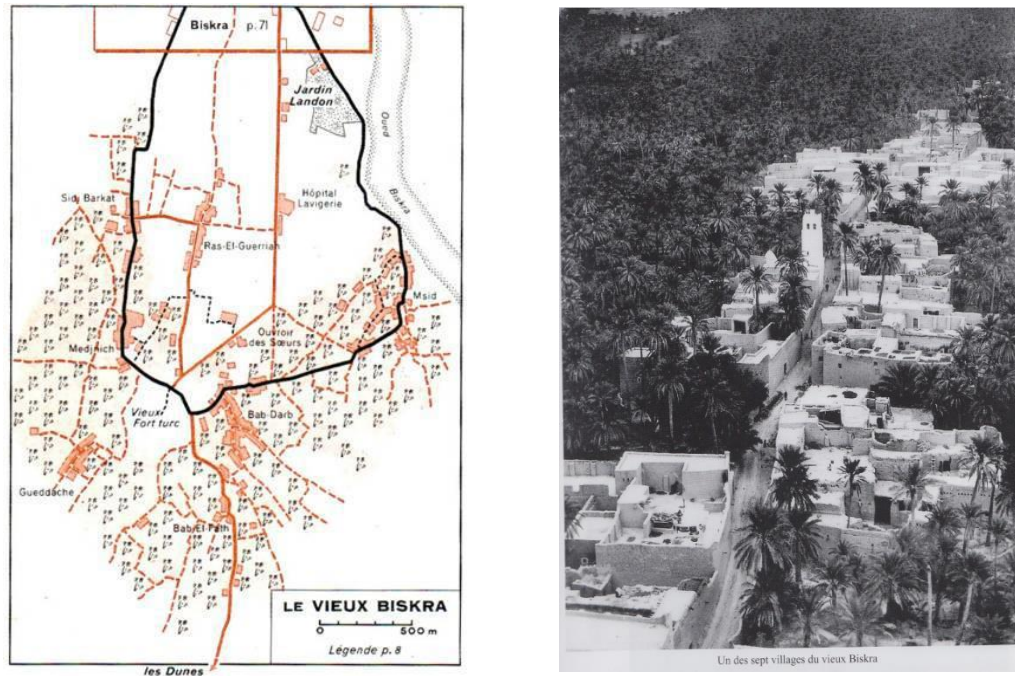
Figure 25. Overview on old villages in the local structure (Pizzaferri Paul)

While first visiting the French center in Biskra, a distinct regularity is introduced, visually different from the rest of the city. The spatial and functional organization, together with the regular distribution of the equipment and its activities; facilitates the public use of the site. The colonial checkboard reflects the traces of a European city, which occurred in a specific time of history. With the French arrival, the alignment project in the Northern side of the old oasis with an orthogonal grid planning, introduced with a distinct regularity, when sighted with the general local structure of Biskra. *(Pizzafferri.P.2011), (Barbara, Molnár T,2019).*

 The hot and difficult conditions of the North Sahara region reflect the creative thinking and implantation of the French engineering in adapting to the particularities of the site and its arid climate *(Côte, M. 2005).* The French checkerboard presents important values and significant imagery in the city, it reflects the military genius in producing specific architecture on different

platforms. The influences and lessons from the local vocabulary are another element that characterizes the historical center.

Figure 26. Overview on the urban structure of the checkerboard (Pozzaferri Paul)

3.4. Genesis and historical evolution

The French checkerboard initially responds to the rules of the Haussmann planning, famously known in France and around Europe, blocks of rectangular shapes, divided into multiple plots, and framed by a regular hierarchy of streets and boulevards. This design vision, as follows gives a high interest towards the planning of public spaces, which asserts the homogeneity of the urban unit and the distribution of its functions.

The checkboard introduces the initiation of modernizing the Algerian cities and adapting its requirements, as a result, the face of this new regularity presents an urban mutation when sighted with the old structure of Biskra.

According to Farhi Abdallah, the colonial period in Biskra (1844, 1962) produced a colonial city, located in the north of the palm trees based on a checkerboard pot, intending to separate the indigenous and the European populations, the city resulted in an urban model that is different in the details of plans and architectural conceptions. It is with an installation near the water distribution sources from Fort Saint-German, that the French unit took place. *(Farhi.A.2002).*

The logic behind the creation of the historical center starts with the urban traces of the Saint-German fortress and from successive periods of evolution and extension.
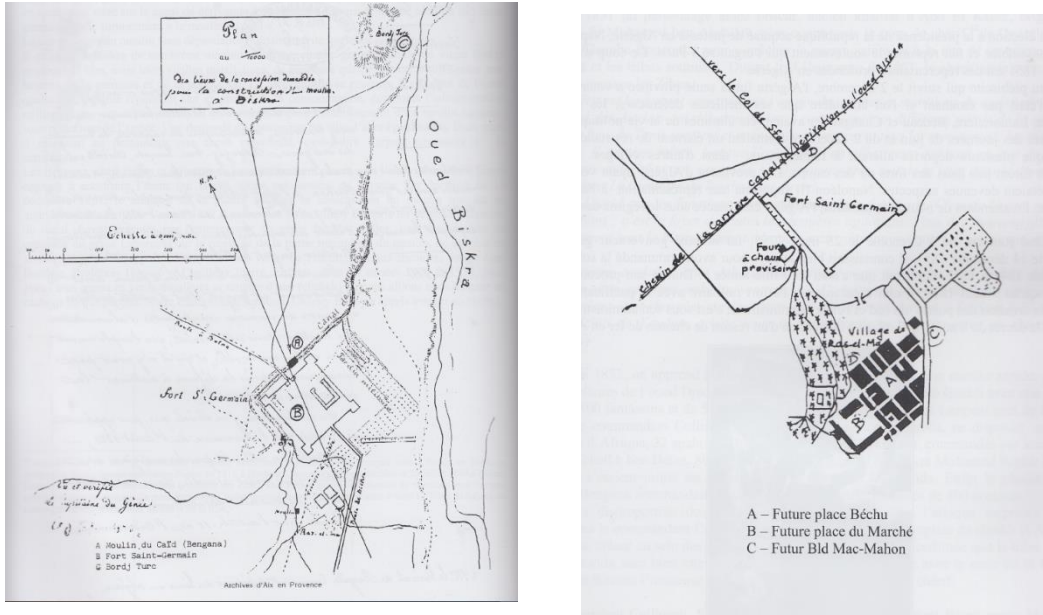
Figure 27. *The evolution and planning of the colonial checkerboard (Pizzafferri Paul)*
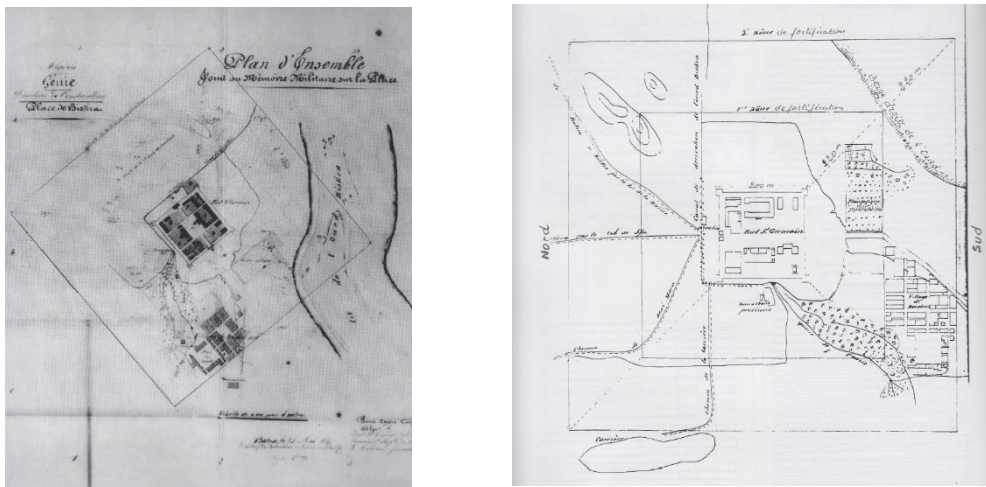
Figure 28. *The planning of the Ancient Fort Saint Germain (Pizzafferri Paul)*
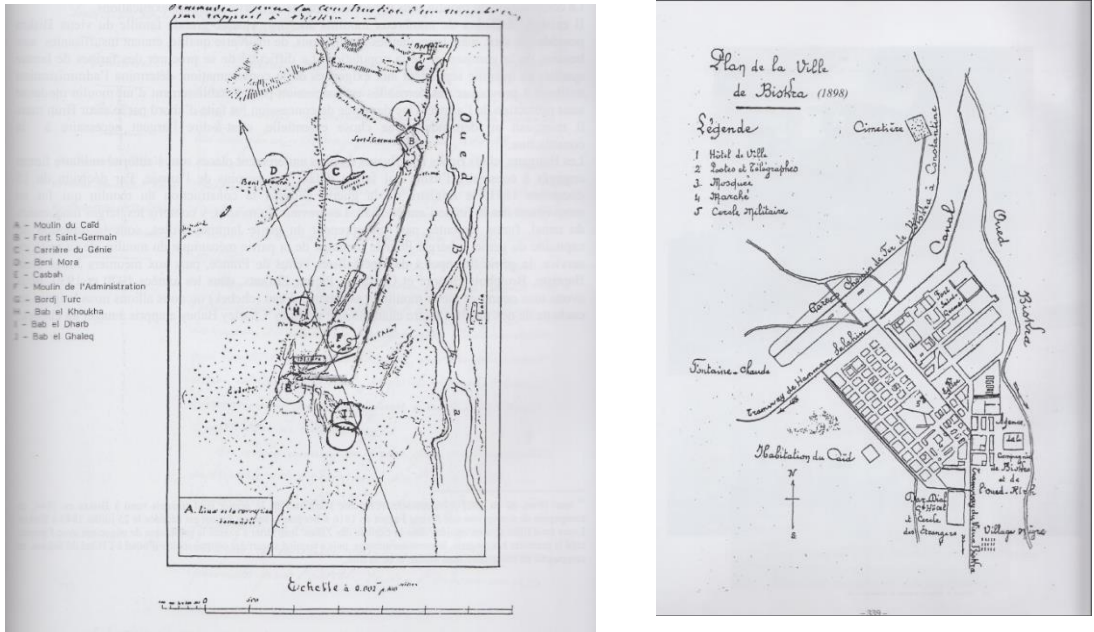
Figure 29. *The passage from the local planning of the village to a new form of the city*

3.5. Patrimonial significance of the historical center

The colonial checkerboard enclosed the qualities of the ultimate European city, with organized repartition of the equipment's responding to the needs of the city and its occupants, and reflecting the significance of its built heritage, along with the improvement of public and private buildings with various stylistic vocabularies.

The train station's creation conformed to the importance of the commercial roads and railways between the desert and north. The educational institutions, the series of hotels, and a variety of leisure constructions provided high touristic value to the city as the winter destination for comfort and discovery. *(Pizzafferri.P.2011),*

The existence of other religious equipment counting the small chapel in the public garden and the mosque near the military square gives a cultural diversity to the functions of the European city, Finally, the Market place, which represents the physical link for the meeting between the two communities in Biskra. It is a structuring entity for economic dynamism and commercial activities in the French quarter.

The city of Biskra is witnessing today an interesting rate when it comes to urban growth. This phenomenon is directly affecting the qualities of the French historical center that is suffering from severe and advanced deterioration affecting the stability and permanence of its built heritage. The Market place remains the living core of the site; the rest of the structure lacks the same vitality and became gradually neglected and enclosed compared to the city's expansion towards the peripheries in favor of modern settlements *(Cote.M.2005), (Sriti.L, Boussoura.K, Saouli.A, Belakhal.A. 2002)*
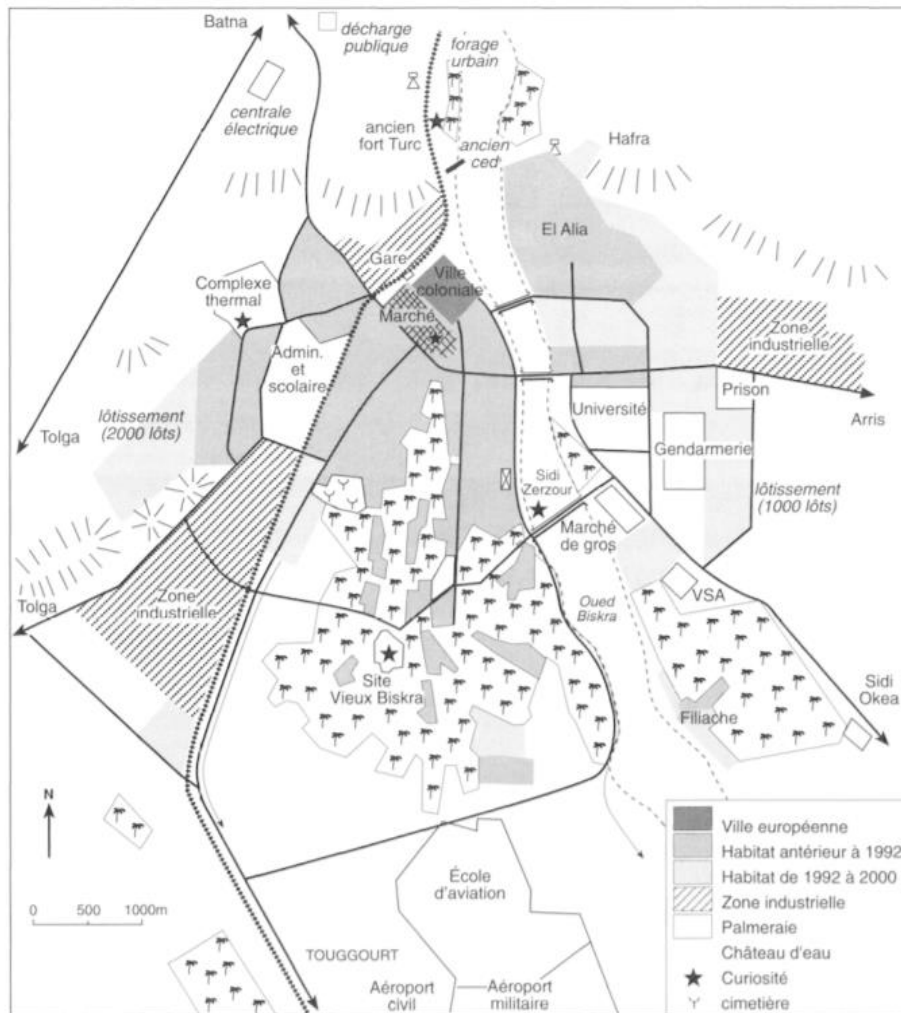
FIG. 1 - L'AGGLOMÉRATION DE BISKRA EN 2001

Figure 29. The agglomeration of Biskra in 2001, (Farhi.A.2002).

3.6. Alterations and loss of quality

The ex-European city with its checkerboard disposition has an inevitable impact on the rest of the city network and contributes to the definition of the urban images of Biskra. The French center despite its importance in the city, suffers today from modern neglects compared to the interest given for the urban extensions and new settlements. The historical center represents today's marginalized structure, according to the study of 2002, it suffers from an urban decline on various levels: activities, housing, social practices, appropriation of spatial forms, and identification. It is its first logic of creation that separates it from the city structure that seems to be one of the main reasons for its neglect. *(Sriti.L, Boussoura.K, Saouli.A, Belakhal.A. 2002)*

Moreover, severe problems threaten the stability of the quarter's structure, a continuous process of degradation of the built environment, and the loss of its qualities is reviled, not to mention the absence of legislation and the public authorities' approach to these structures.

According to Dali's study in 1998, the use of earth materials has participated directly in the destruction of the colonial houses, where 85% of the habitants consider the material as poor, and difficult to maintain. *(Cote.M.2005).*
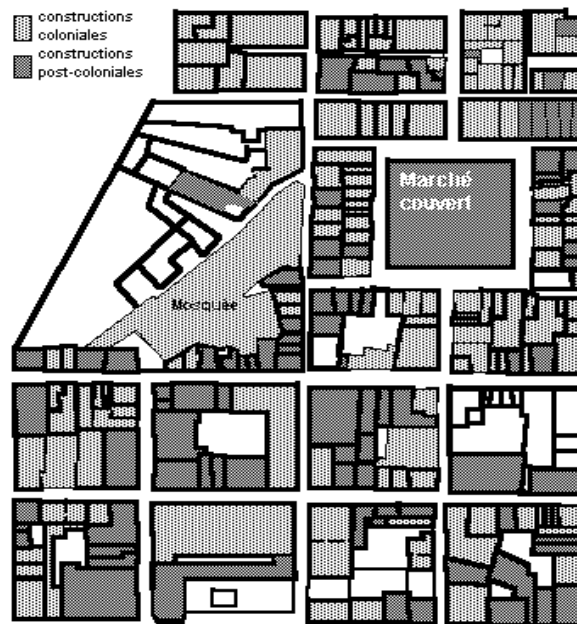
Figure 30. The condition of the colonial buildings in 2001(Sriti.L, Boussoura.K, Saouli.A, Belakhal.A. 2002)

The historical significance of the checkerboard and the loss of its qualities today, present the main motive for the research. The preservation and the search of new thinking when dealing with the lost heritage of the city, furthermore, the colonial heritage of Algeria is the objective that orients towards creating a new approach for integrating the French center of Biskra with the urban development, based on field investigation findings and the definition of related intervention strategies.

3.7. Limitations and knowledge gaps

After a long analysis and critical review of the literature, the definition of the limitations and knowledge gap is an important step to conduct the main phases of the data collections and the reflection on the findings. The missing data and the work required on the integration of the French heritage and requalification of the colonial checkerboard are important to conduct the research.

Following the information and the reviews of chapter two and three, considering the French heritage in Algeria, and the case study of the checkerboard in Biskra, it has been clear that there are insufficient studies and approaches treating the cultural built heritage of the colonial period, the assumptions are justified according to the following arguments:

There is an intensive focus on the preservation of local heritage and the need to revalue and reidentify local legacies that were lost in the colonial period while neglecting the French heritage because of conscious or unconscious attempts of reconciliation in the field of heritage protection, which has limited modern actions and interests towards the values of the French abstract creations on the architectural and the urban scales.

Although some studies and initiations are presented in the last years on the research of colonial heritage in Algeria, it remains a very small action faced to the continuous loss and degradations. Recent research focuses on the stylistic analysis and the formal design of the colonial façades, with the interest in creating a corpus of similar typologies to generalize results on typo morphological studies. It contributes to the catalogs of style, ornamentation, and form, however, needs to proceed with studies specifically oriented towards heritage preservation strategies and action inventory.

Another step was introduced in the field of heritage preservation, as virtual propositions and the treatment of the monuments as singular units, most of the work was done in master phases where students chose a construction of considerable significance and made a detailed assessment, the results are presented as detailed documentation of the case studies and intervention projects proposals, however, were not applied in reality.

The historical descriptions of the monuments are generally narrowed to a collection of documents, that serves as a crucial database for all studies but only focuses on the history and do not provide future perspectives, plans, and archival reports that need to be developed into strategic actions in the field.

In present days, the lack of comprehension towards this period, and the treatment of the cases as singular units detached from their urban contexts, the need for a methodology and comprehension approach to provide guidelines and create a logical process that links the issue from its historical roots, covers its current conditions and constructs the practical strategies for its future use and development is needed.
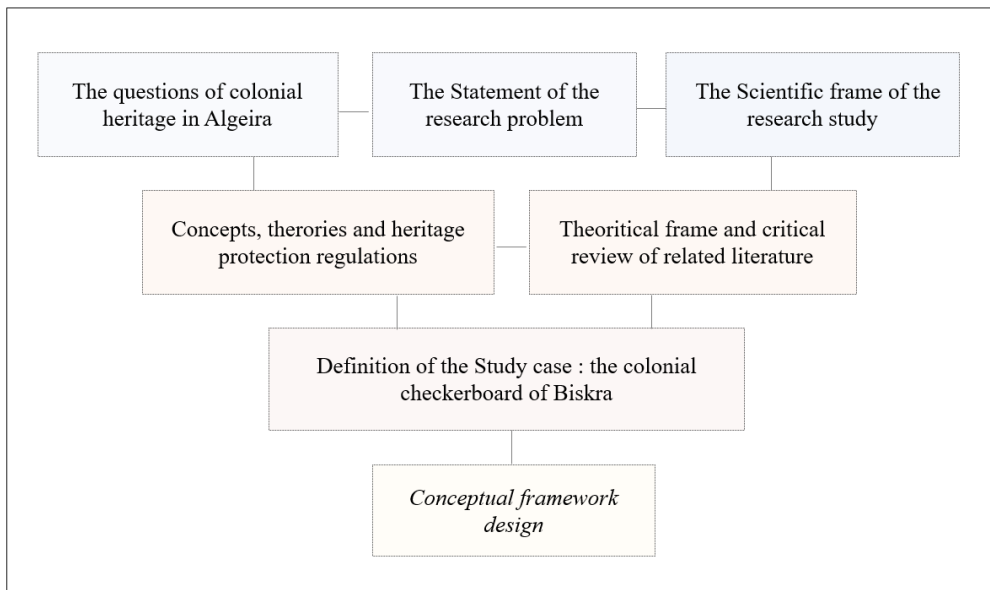
Figure 32. The process of limitation and conceptual design (Author2021)

3.8. Conceptual Framework design

The main aim is to present a new approach for the integration of the French legacy in Algeria, mainly investigating the colonial checkerboard in the city of Biskra. The creative design of the conceptual framework was a result of the critical review of the theories, methods, and the reflection on the literature available on the subject, intending to respond to the gaps and limitations of the previous studies. The conceptual framework is designed around two main axes: the values of the French legacy and its loss.
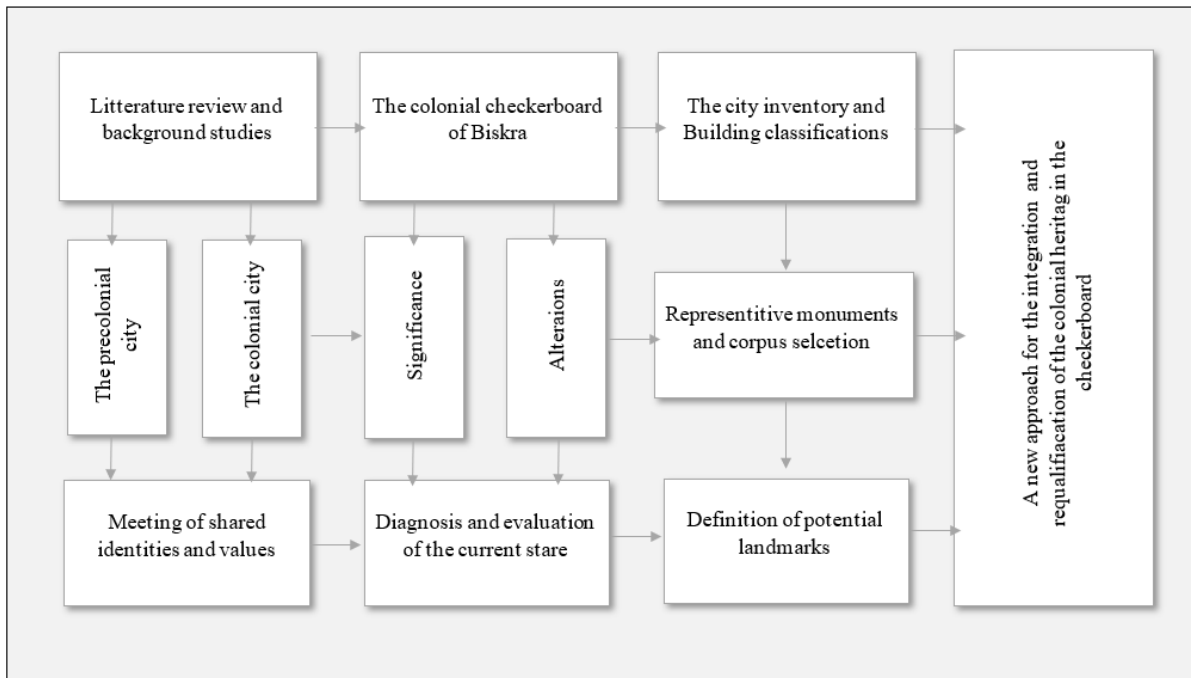
Figure 33. The conceptual framework of the study (Author 2021)

3.9. Thesis statements

The situation of southern heritage in Algeria generally does not receive the same interest as coastal and northern cities. Moreover, there is an unbalance in preservation strategies between the local and the colonial. The lack of adequate approaches that deal with smaller historical centers like the checkerboard of Biskra is the essential cause for the degradation of the colonial heritage.

The creative design of the conceptual framework is based on the empirical findings of the theoretical review. The development of the methodology focuses on the historical center of the colonial checkerboard in the city of Biskra. The site choice is justified after the reflections on the limitations and knowledge gaps, and the diverse situation of the center's structure, where intervention measures need to be applied.

The introduction of the significance and qualities of the colonial checkerboard in Biskra is based on the historical overview and monographic reconstruction of the site, from the historical evolution to the transformation between the oasis to the European city.

According to the research, historical centers like the colonial checkerboard of Biskra are neglected and degraded faced to other preservation actions, that concentrate on bigger sites, of local identity. Based on the definition of the knowledge gaps, the conservation practices in Algeria are somehow focusing on the collection of architectural surveys and monographic descriptions of monuments. Although this is an essential step in the historical documentation, it is shown that there is a lack of accurate strategies for the revalorization of the colonial heritage.

CHAPTER FOUR

The diagnosis of the current state and the threatening mutation in the French historical center of Biskra

4.1. Introduction

The Assessment of historical monuments and ancient building's conditions is a primary process before all decision-making strategies for the inspected cases. The building diagnostics and the evaluation of deteriorated structures determine the appropriate measures for better performance and future potentials of the built heritage.

The findings in this chapter introduce a detailed assessment of the current conditions in the colonial checkerboard of Biskra. The analysis and the classification of the building's conservation statuses constructs a database for the interventions on the historical site. The research focuses on evaluating each construction of every block in the defined study area, according to multiple criteria definitions. The site inventory represents a practical approach in generating the current state, followed by the diagnosis of degradations and building pathologies, and eventually contributes to the requalification of the historical center in Biskra.

4.2. Delimitation of the study area

The colonial checkerboard in Biskra is the focus of the field investigation, in previous studies, the historical center's condition has been mentioned. In 1998, a research covering the French-built state shows 65% of constructions are in good condition that in a total of 71.6% colonial cases *(Cote M 2005)* The 2001 survey, specify the study on the first historical implantation of the site, starting from the old village Ras Elma. The research implies that most cases of 62% return to the colonial period, and found between good and average conditions, whereas 38% of the constructions belong to the post-colonial period *(Sriti L., Belakehal A., Boussora K., Saouli A. Z 2002)*

As follows, the choice of the study area aims to cover the rest of the site based on the outlining of the European quarter's historical implantations. and aims to report the finding compared to the previous researches.

The historical evolution of the center suggests the planning according to the logical order of three successive phases. Whereas the first implantation starts from the south of Fort Saint Germain and the old core of the village Ras Elma, the next two structures follow the existing axes of the urban composition. *(Sriti L., Belakehal A., Boussora K., Saouli A. Z 2002)*.The study zone delimitation was narrowed to the last two implantations as they represent no visible link with the local planning. While the first disposition still shares some connection with the old village. The chosen area seems to reflect an obvious regularity compared to the urban structure of the old oasis (Fig.3).
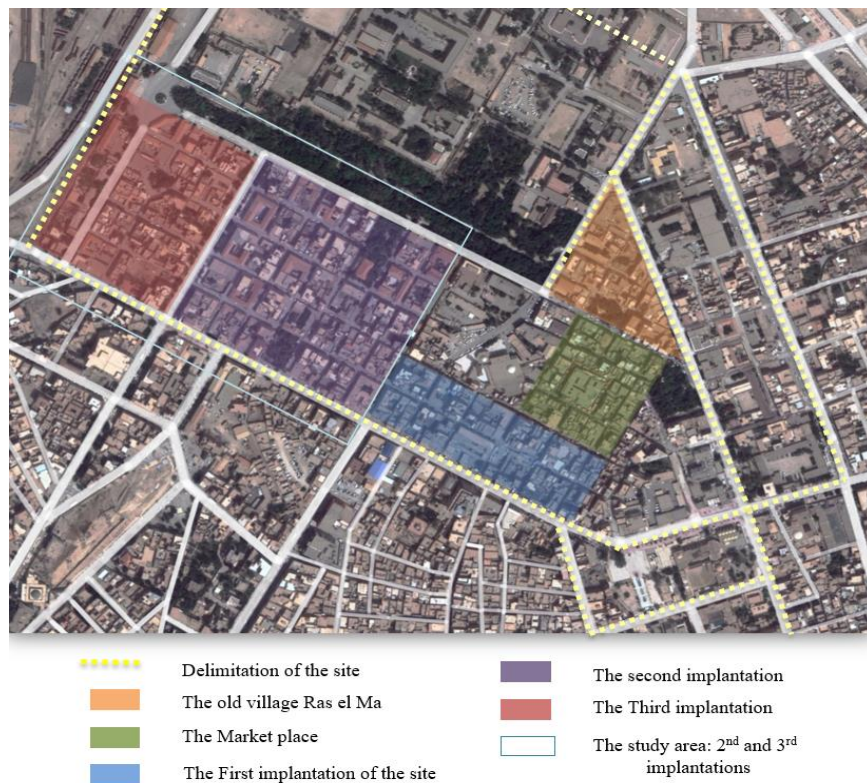
Figure 34. The urban plan of the checkerboard and the study area

4.3. Field study process and investigation method

The process of the investigation requires long and continuous visits to the site, it was carried out based on observations, taking multiple photos, sketches, videos, and notes. The evaluation of historical documents and the use of ancient plans and photographs are essential foundations to the study. The analysis of different modifications in the historical center and the stratification

comparisons is important to rebuild its evolutionary timeline. The use of oral stories and narratives from residents, as well as past descriptions, add value to the data collection and documentation of the checkerboard. *(Barbara.H, Molnár T,2021).*

4.4. Definition of the research criterions

Criteria	Definition		Coding
Functions	Public	Non residential	PU
	Private	Residential	PR
Aesthetic Styles	1830-1910	Neo-Classical	NC
	1910-1930	Neo-Moorish	NM
	1930-1962	Modernism	M
	Post 1962	Post-Independence	PI
Modifications	French in original state		FO
	Reconstructed with original character		FRO
	Reconstructed with modern character		FRN
	Completely renewed		N
Construction system	Traditional	Local earth materials	TRD
	Mixed	Traditional and modern	Mx
	Modern	Concrete and steel materials	Mn
Stories	Ground level		G
	Multiple levels		G+ n°
Conditions	Good	No visible pathologies	1
	Average	Superficial pathologies	2
	Bad	Threatening pathologies	3
	Very bad	Abandoned constructions	4
	Demolished	Terrains in ruins	5

***Table 2**. Coding and definition of the research criteria*

The evaluation method of the historical center starts with the division of the study area into several blocks. Each block is divided into series of constructions and coded accordingly. As a result, the assessment was conducted on a total of 273 plots occupying 46 blocks in the quarter.

The choice of criteria regroups the checkerboard neighborhoods into related categories of various cases. The abbreviation and coding of the collected data facilitate the assessment and inventory process. *(Barbara.H, Molnár T,2019).*
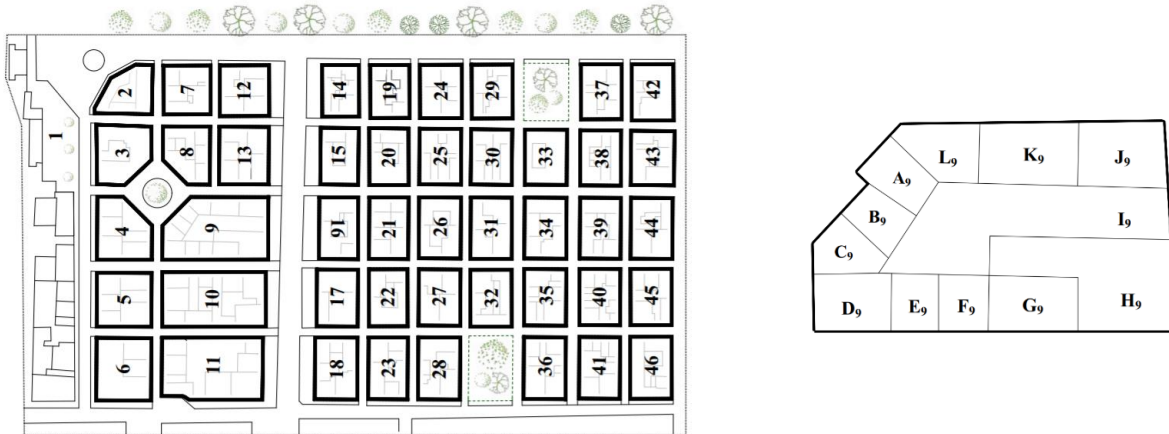
Figure 35. *The division and coding of the blocs in the site*

Figure 36. *Overview on the constructions of the site (Author,2021)*

The functions of the buildings

A dense residential fabric takes over most of the site, however; important distributions are introduced in several blocks presenting more or less valuable monuments. Newly added activities, mostly commercial are present in the checkerboard in forms of different stores in the Neo-classical arcades characterizing the site's urban façades.

The aesthetic styles

The historical emergence of the French styles introduces a variety of designs when it comes to the ornamentations and the aesthetics of the buildings (Barbara H, Molnar T 2005). The approach adapts the post-revolution style for most of the construction, known with the Neo-classical and the Neo-Moorish design styles, mostly used in the larger scale constructions that require attractive exteriors and façades, and other details of private residences. Some examples of the Eclecticism style, especially in the former city hall's features, construct one of the crucial landmarks in the checkerboard.

The stratification, evolution, and modifications

Even though the colonial checkerboard appears to be in the original form of its first planning, the constructions show multiple changes and modifications. Three main elements stratify the buildings' changes: Firstly, the actions of time and climate, figuring in the rapid ageing of the constructions. Secondly the modern additions and the introduction of new materials to the original units. Thirdly the neglect and the abandonment of other groups for various reasons, either related to the regional development plans or the habitant's personal choices.

The constructive system

The use of the materials available in the site is the main logic of the local auto constructed system, which vastly influenced the French adaptations in the checkerboard. Earth materials: local clays bricks dried in the sun, and stones of the river, all form the face of the traditional constructive system (Pizafferi P 2011) 9]. A radical change was known after introducing modern materials, including concrete and steel. However, the French layout's homogeneity does not separate from the recognition of its modifications and the use of these construction systems. The meeting of the

moderate logic of the local designs and modern regularity is the essential thinking behind the planning of the checkerboard in the Sahara's low regions.

The number of stories

Historically speaking, the checkerboard creation generates ground floor planning and one level building for the private residences [9]. For public units, a certain monumentality is given to the design, among the decorative style's choice and the overall appearance of the urban façades. Nonetheless, the post-independence buildings present the high residential units that can reach more than four levels, which eventually impacts the harmony of the different blocks and their constructions' typology.

The condition of the buildings

The analysis approach is based on the previous criterion and represents the most critical phase of this study. The definition of the condition states is followed by the logical sequencing of different types of buildings. The aesthetic of the façades and its visual appearance and the buildings' structural functioning are crucial elements to assessing the general harmony with the surrounding environment and the diagnosis of the physical and humid pathologies. Respectively, a scale from 1 to 5 was defined, where 5 represents the worst state of conservation, and the total abandonment of the built space. The logical description of each situation was constituted as follows:

1: Good, 2: Average, 3: Bad, 4: Very bad 5: demolished/in ruins

The tables below show examples of the inventory sheets and the analysis method on different blocks mentioned as an example for the block division of the study area.

Blocks	Function	Aesthetic Style	Stratification	Constructif system	Storey	Condition				
						1	2	3	4	5
A1	PU	NC	FO	TRD	R1			●		
B1	PU	NC	FO	TRD	RDC				●	
C1	PU	NC	FO	TRD					●	
D1	PR	NC	FRO	Mx					●	
E1	PR	PI	FRM	Mx	R1		●			
F1	PR	PI	N	Mn	R1		●			
G1	PR	PI	N	Mn			●			
H1	PR	PI	N	Mn	RDC		●			
I1	PR	PI	N	Mn	RDC		●			
J1	PR	PI	N	Mn	R1	●	●			
K1	PR	PI	N	Mn		●				
L1	PR	PI	N	Mn	R2		●			
A2	PU	NM	FO	TRD	R1			●		

Table 3. The evaluation inventory sheet of the constructions in Blocks 1, 2

Blocks	Function	Aesthetic Style	Stratification	Constructif system	Storey	1	2	3	4	5
A3	PR	NC	FO	TRD	RDC		●			
B3	PU	PI	FRM	Mx	R+1		●			
A4	PR	PI	N	Mn	R 1	●				
B4	PR	PI	N	Mn	R2	●				
C4	PR	NC-PI	FRO	Mx	R1		●			
D4	PR	PI	N	Mn	R2	●				
E4	PR	PI	N	Mn	R2	●				
F4	PR	NC	FRO	Mx	R1	●				
G4	PR	NC	FRO	Mx	R1			●		
H4	PR	PI	N	Mn	R3	●				
I4	PR	PI	N	Mn	R2	●				

Table 4. The evaluation inventory sheet of the constructions in Blocks 3, 4

Blocks	Function	Aesthetic Style	Stratification	Constructif system	Storey	1	2	3	4	5
A5	PR	PI	N	Mn	R3	●				
B5	PR	PI	N	Mn	R1	●				
C5	PR	NC	FRO	Mx	R1			●		
D5	PR	PI	FRM	Mn	R2	●				
E5	PR	NC - PI	FRO	Mx				●		
F5	PR	NC	FO	TRD				●		
G5	PR	PI	N	Mn	R3	●				

Table 5. The evaluation inventory sheet of the constructions in Block 5

A6	PR	NC	FO	TRD	RDC		●			
B6	PU	NC	FRO	Mx			●			
C6	PR	NC	FO	TRD	RDC			●		
D6	PR	NC	FO	TRD	RDC			●		
A7	PR	NC	FO	TRD	RDC			●		
B7	PR	NC	FO	TRD	RDC			●		
C7	PR	NC	FRO	TRD	R2	●				
D7	PR	NC	FRO	TRD	R1			●		
E7	PR	NC	FO	TRD	RDC			●		
F7	PR	NC	FO	TRD	RDC			●		

Table 6. The evaluation inventory sheet of the constructions in Blocks 6, 7

A8	PR	NC	FO	TRD	RDC			●		
B8	PR	NC	FO	TRD	RDC			●		
C8	PR	NC	FO	TRD	RDC			●		
D8	PR	PI	N	Mn	R2	●				
E8	PR	PI	N	Mn	R4	●				
F8	PR	NC - PI	FRO	Mx			●			
G8	PR	PI	N	Mn	R2	●				

Table 7. The evaluation inventory sheet of the constructions in Block 8

A9	PR	PI	N	Mn	R2	●				
B9	PR	NC	FO	TRD	RDC			●		
C9	PR	NC	FO	TRD	RDC			●		
D9	PR	NC	FO	TRD	RDC			●		
E9	PR	PI- NC	FRM	Mx	RDC		●			
F9	PR	NC	FO	TRD	RDC			●		
G9	PR	NC	FO	TRD	RDC			●		
H9	PR- PU	PI	FRM	Mx	RDC	●				
I9	PR - PU	PI	FRM	Mx	R2	●				
J9	PU	NM	FO	TRD	R2	●				
K9	PR	NC	FO	TRD				●		

A10	PR	PI	N	Mn	R3	●				
B10	PR	PI	N	Mn	R1	●				
C10	PR	PI	N	Mn	R2	●				
D10										●
E10	PR	PI	N	Mn	R1					
F10	PR	PI	N	Mn	R1					
G10	PR	PI	N	Mn	R1	●				
H10	PR	PI	N	Mn	R3	●				
I10	PR	NC	FO	TRD	RDC			●		
J10	PR	PI	N	Mn	R2	●				
K10	PR	PI	N	Mn	R2	●				
L10	PR	PI	N	Mn	R1	●				
M10	PR	PI	N	Mn	R2	●				

Table 9. The evaluation inventory sheet of the constructions in Block 10

4.4. Building classifications

The initial results of the study findings of the assessment and the diagnosis phase (Fig.5), were directly conducted by the criteria of the research, revealing the global condition of the French checkerboard. The modern innovations of the constructions; resume an influential time-lapse for architectural and urban mutations in the site. As stated in the preliminary observations of the 46 blocks; the majority of the built heritage in the center is in an extreme state of disrepair, while there are an important number of valuable monuments; some are standing in a moderate state against a lot more that are in danger; neglected and calling for action. Three general categories were classified during the study, regrouping the total of the evaluated constructions:

A. French buildings in the original state;
B. French buildings in a reconstructed state, two subcategories were defined:
    B.1.Reconstructed state, where most pieces are remaining French (French character);
    B.2.Reconstructed state, where most pieces are renewed (modern character);
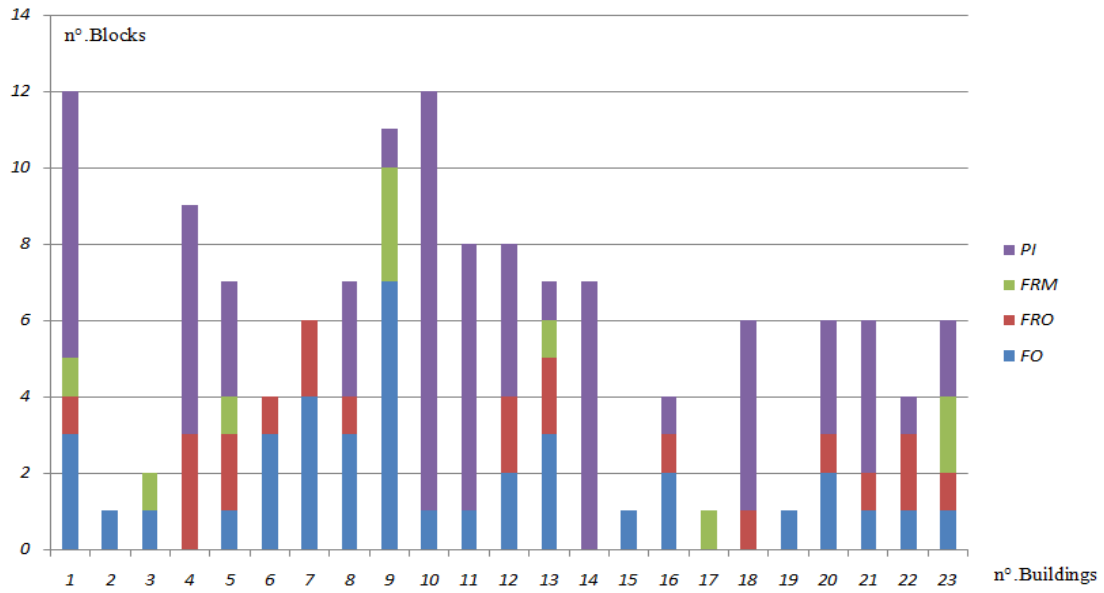
C. Post independent buildings in a new state.

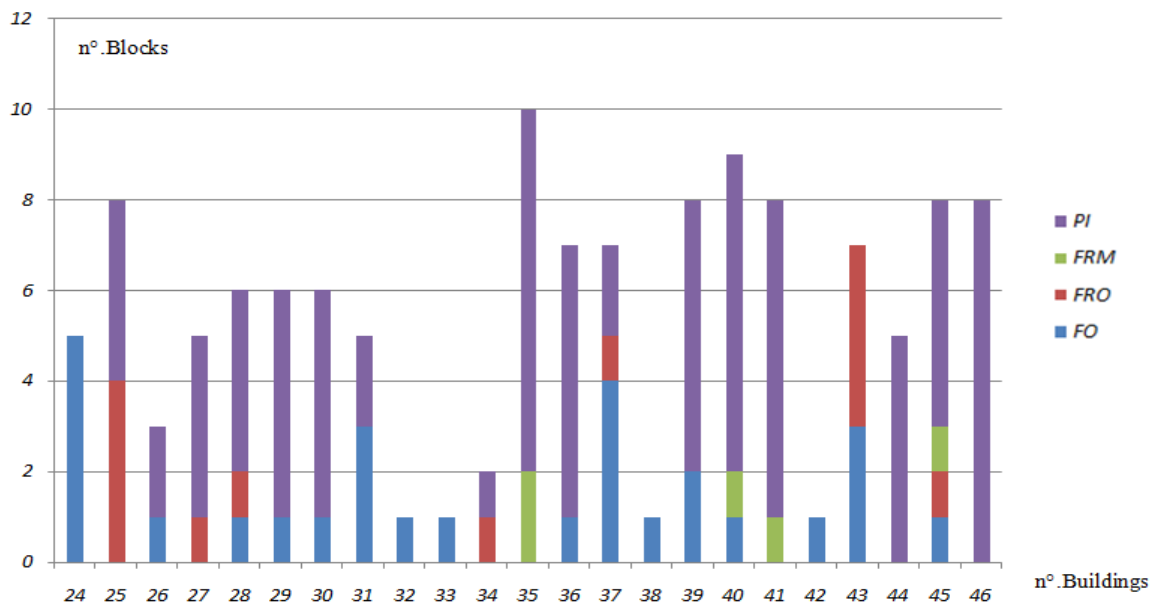*Figure 36*. *The classification of the buildings in the site, Block 1 to 23*

Figure 37. *The classification of the buildings in the site, blocks 24 to 46*

The interpretation of the results in the data collection phase indicates the analysis of 273 plots. However, ten terrains are found demolished or in ruins, decreasing the built space's total to 263 constructions, 147 in which are entirely renewed in the post-colonial periods, with modern architectural style, 49 properties are partially reconstructed, where 34 buildings preserve a French character; 15 are rebuilt with a contemporary style, but still indicate the effects of the French design styles. Lastly, 67 constructions stand in the original French state, with minor changes in the authentic architectural and structural systems.

Condition	Good	Average	Bad	Very Bad	Total	Percentage
F. O	1	11	45	10	67	24.54%
F.R. O	1	23	6	4	34	12.45%
F.R.M	3	11	1	/	15	5.49%
Total	5	45	52	15	273	100%

Table 10. The current conservation status in the colonial checkerboard

4.5. The state of conservation in the colonial checkerboard

According to the assessment scale of the building conditions, 11 of the original French constructions are considered in an average state; 45 are classified in bad condition, whereas other 10 are in endangered status; either by the severe collapse of the load-bearing elements or the total abandonment of the units. The results on the reconstructed buildings of a modern character cover 11 properties; moreover 23 reconstructed buildings conserving an authentic style are classified between the average and the bad state, rarely a good condition (Table III). Contrarily to the post-independent constructions that reflect (54%) of a good condition. Very few public monuments and French buildings are classified in a valuable state.

4.6. The interpretation and the reflection on the findings

The interest of the present research project indicates the decline of the status of the French buildings and the advanced issues affecting the historical center. The original findings validate the continuous degradations; thus, the rate of renewal and reconstructions in the modern period has rapidly increased. The private residences create a problematic state when most original constructions are in a very bad condition; the well-shaped buildings are taking over significant parts of the checkerboard. The use of high story buildings is the modern approach in the urban center that presents a contradiction to the single-story buildings known in the French period, which profoundly influences the authenticity; the harmony and the urban image of the ex-European city in Biskra. *(Barbara.H, Molnár T,2019).*

4.7.Diagnosis of pathologies and mutations

On the micro-level, the architectural envelope analysis affirms that deteriorations are encountering the bad condition of the buildings. A generation of the alterations resumes the leading causes of the degradation, where the majority of the structure suffers from the effects of humid deteriorations, caused by infiltrations from the terrain; many parts sustain superficial and deep cracks, which affect the structural system and the foundations; threatening the stability of the constructions. In general, the same types of pathologies were repetitive and revealed during the study, including the followings:

❖ Physical pathologies: from different types of cracking to the collapse of the old parts, along with the crumbling of earth material and the detachment of the mortar

❖ Humid pathologies: presented with water infiltrations, condensations, humidity stains, and capillary effect are the essential issue of the terrain and is probably justified with the historical disposition of the checkerboard along the Seguias channels (cote M 2005) presenting the dangerous effect of water on the traditional system using earth as the primary material of construction.

Figure 39. *Some of the pathologies diagnosed in the site.*

On a macro level, the urban issues are the conclusion for many problems at the site. The degradation of the built environment is added up to the devaluation of the public spaces, the streetscapes and the urban structuring units. The non-supportable streets and the increase of car use, in addition to the insufficiency of the parking spots, has a negative impact on the pedestrian experience and the user's perception of the significance and qualities of the historical center, the attention towards this issues is highly recommended to preserve the values of the place and guide its future development *(Sriti L., Belakehal A., Boussora K., Saouli A. Z 2002), (Kovács-Andor K 2014)* The modern refurbishments of the colonial center create a contradictory state compared to the original French constructions. Even though it seems to be in good condition, the unplanned renewals do not necessarily present the same qualities. The reconstructed buildings give a focused interest to the design of the interiors rather than the exterior envelope. When the interior answer modernity needs, some of the façades remain unfinished, influencing as a result, the urban image of the checkerboard, and the sustainability of the historical heritage of this period.
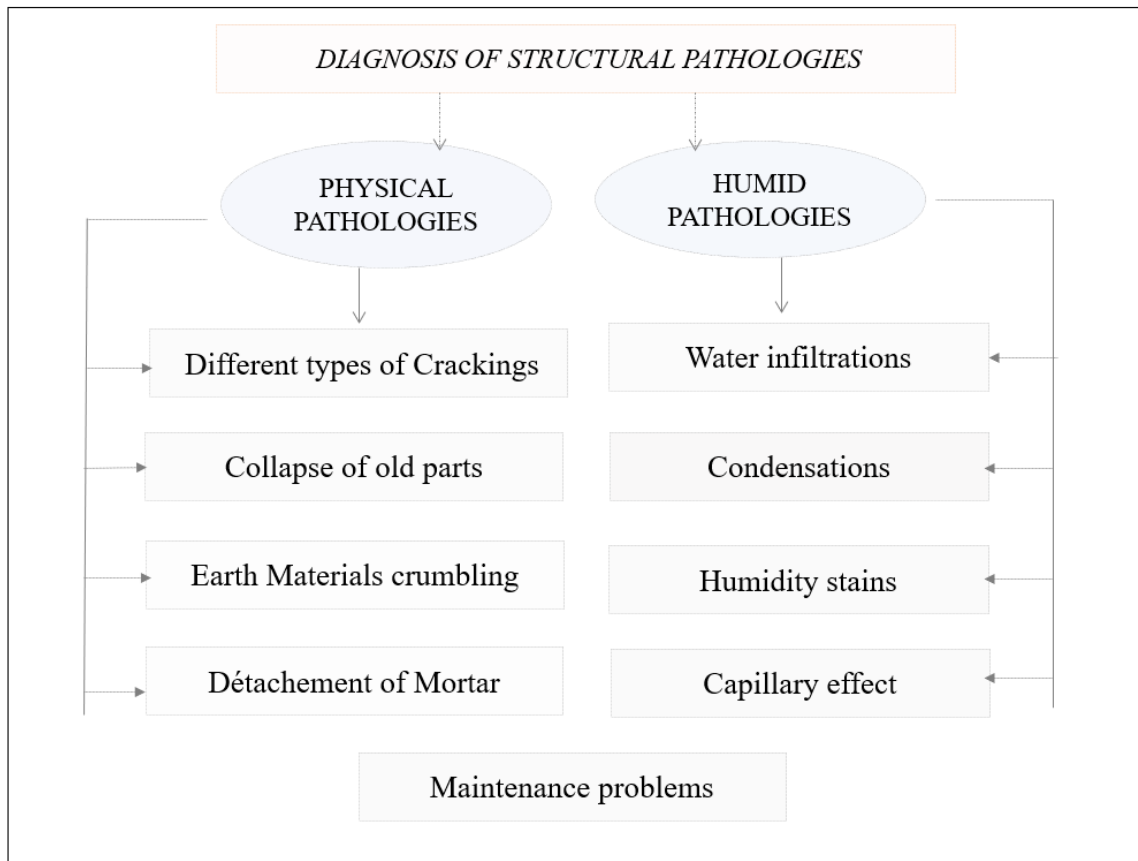
Figure 39. Some of the pathologies diagnosed in the site.

4.8. Thesis statements

The criteria-based assessment of 273 constructions and the classification of buildings, proved that 54% of the area is occupied by post-independent constructions that are in a good condition. This shows that a significant part of the Algerian history of architecture is gradually disappearing.

The diagnosis of the current conditions and threatening mutations in the French checkerboard, based on the creation of an inventory catalog on the constructions occupying the study area, presents a detailed database for each block in the former French center. A criteria-based evaluation

approach has been developed that is illustrated in the results of the building classifications and the related conservation statuses.

The Findings show that three main categories can be classified, which can cover all conditions in the historical center,

A. French buildings in the original state

B. French buildings in a reconstructed state, two subcategories were defined

B.1.Reconstructed state, where most pieces are remaining French (French character);

B.2.Reconstructed state, where most pieces are renewed (modern character);

C. Post independent buildings in a new state.

Moreover, the results show that 147 construction are entirely renewed in the post-colonial periods, with modern architectural styles, 49 properties are partially reconstructed, where 34 buildings preserve a French character; 15 are rebuilt with some indications from the French design styles. 67 constructions in the original French state, stand in serious conditions, with minor changes in the authentic architectural and structural systems.

This rate of change is impacting the image and the continuity of the French heritage in the former European city. The diagnosis report indicates serious pathologies and mutations that need immediate interventions.

PART III

REINVINTING THE FUTURE,

Qualities and potentials

CHAPTER FIVE

An inventory for the requalification of potential landmarks and the image of the French checkerboard

5.1. Introduction

Based on the findings in chapter four and the database of the site inventory catalogue, this chapter presents a new logic that defines the probabilities of possible cases and representative monuments, following a structured matrix of assessing potential landmarks. Each chosen monument represents different situation that call for a different action, evaluated and interpreted in intervention approaches in the aim to requalify the image of the colonial checkerboard, the introduction of a tool and new strategy to deal with French legacy in the colonial checkerboard, moreover in the heritage of the 19th and the 20th century in Algeria. Understanding the qualities of this period and a practical intervention manual of preservation.

5.2. The definition of potential landmarks: Significance assessment and evaluation

In the aim of maintaining the problems affecting the general image of the colonial historical center, a selection of emblematic cases was necessary. The historical monuments present not the qualities of the French productions but also reflect the current degradations in the site. Each monument as a result is a possible case of the condition that can be found in the center today.

The idea is to project the past qualities, originally presented with the French engineers in the colonial times and link it to present situation and the remaining values, in order to define the right strategy that resolves the problems of the particular case.

The intervention and preservation strategy changes because of the nature of pathologies and problems, not to mention the function of the buildings that differs from one building to another. In this logic the choice of the monuments was based on its strong impact on the surrounding environment, either because of its appealing ornamentations, or by its special architecture that does not necessarily integrate with the rest of the local typology.

This visual character in the skyline of the colonial checkerboard, promotes these historical monuments for being landmarks, not only to the site, but to the rest of Biskra city.

The selection was narrowed to a selection of historic monuments, where the choice represents a cultural and architectural diversity, following the first planning of the military engineers. The landmarks also differ from private to public monuments, built with different decorative styles and are found in a good to a bad condition. This selection covers the research objectives of finding solutions to preserve the qualities and the image of the checkerboard.

A train station, the Rodari villas, the chapel in the public garden, the city hall, the Sahara Hotel, the Victoria Hotel, the Terminus Hotel, these names belong to the French period, where these constructions either hold the same functions or changed according to the modern needs. The worst of all the situations is when the monuments are abandoned and left to the fade with time.

In this heritage evaluation, the focus is the to create a detailed synthesis and identification of the values of each historical monument, in order to justify its importance and signification. The historical monographies and the evolution of the buildings is an important indicator to its current situation.

Potential landmarks	Functions		Aesthetic styles			Stratifications				Constructive system			Storeys		Conditons				
	PU	PR	NC	NM	M	FO	FRO	FRN	PI	TRD	Mx	Mn	G	G.n	1	2	3	4	5
The city hall	⊕		⊕			⊕				⊕				⊕		⊕			
Hotel Sahara	⊕		⊕			⊕				⊕				⊕					⊕
The Train station	⊕		⊕			⊕				⊕				⊕			⊕		
The terminus hotel	⊕					⊕				⊕				⊕			⊕		
The Rodari villas		⊕		⊕		⊕				⊕				⊕			⊕		
Victoria Hotel	⊕		⊕				⊕				⊕			⊕					⊕
Casnave villa	⊕		⊕			⊕				⊕				⊕	⊕				

Figure 40. The selection and evaluation of potential landmarks (Author,2021)

The observation of the landmarks is an important aspect that contributes to the creation of the urban scenery and the planning of its layouts, with the needs of its users. The French monuments in the colonial checkboard, for instance, provide a variety of design styles and architectural concepts that has a significant impact on the rest of the cityscape, concerning beauty, harmony, and attraction, which makes it not only visible as landmarks, but also proportionally distinguishable on the macro scale of the city. *(Barbara Molnár T,2020).*

The construction of the original sequences of the colonial checkboard in the urban and historical timeline of the Biskra's old oasis undoubtedly contributes to the formation of the memories and nostalgias of this recent heritage and, as a result, the adaptation of a unique patrimonial identity.

The series of monuments conceived in the checkerboard during different periods of the French existence contribute to the shaping of the site's urban forms. With a variety of architectural styles, from Neo-classical to Neo-Moorish decorations and many other examples. The impressive buildings represent an affirmation to the importance of the oasis of the Ziban.

With the idea of reinviting the image of the colonial checkerboard, the selected monuments are linked in a form of a patrimonial circuit, that could be equally applied in reality. The visit of the site sets the light on values and conditions of the constructions. And with this potential definition of a landmark, the recreation of the original ambiance is possible, where the preservation of the remaining values is the ultimate goal.

Because of difficulties of visiting the site to take current photos of the buildings, the illustration of the principal facades of the monuments is presented, based on archival documents, ancient postcards and historical comparisons. The illustrations use many references to produce an accurate outlook of the building including some Master's thesis that mention the monographies of the buildings and its architectural survey.

The city hall

The former city hall is one of the most prestigious buildings in the city of Biskra, established by the French engineering during the colonial occupation. The city hall is located in the center of the checkerboard, surrounded by important French constructions, facing the ancient post office, and not far away from the ex-Gendarmerie, currently the radio station. In a dense fabric of private residences marking the French styles of the period.

According to master studies, and the reconstruction of the historical evolution of the monument, the date of construction goes back to 1890, where it was conceived by the French architect Paul Marie Pierlot.
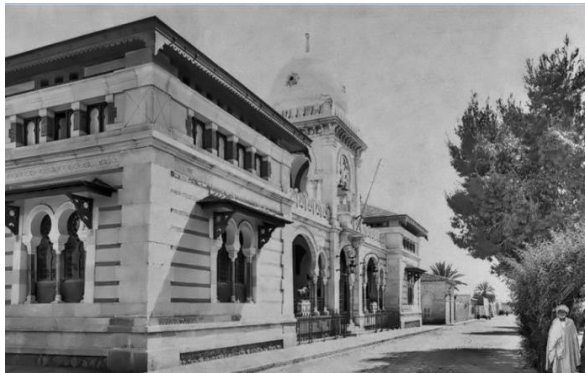
Figure 41. The former city hall, between the past and present (Author,2021)

Currently the historic building is the only French monument in the city of Biskra receiving an official inscription in the list of protected cultural properties. According to the heritage protection office of the municipality, it was officially included in July 18th 2010. The monument stays in a temporary period of 10 years for higher classification and national recognitions.

In order to determine the significance of this monument and its potentials, the assessment of values is essential, it is the synthesis of historical documentations and archival collections of the building, supported by recent student works that proposes the rehabilitation of the buildings by associating a new function to revitalize its use. However, the following approach suggests the importance on

detailing the existing significance and the different values, because of their changing nature. It is important to produce a detailed evaluation of these qualities to help all intervention decisions.

The building is the first and oldest city hall in the ex-European city, and a historical monument of the 19th century. It is the proof of the French existence, presenting a strong historical value.
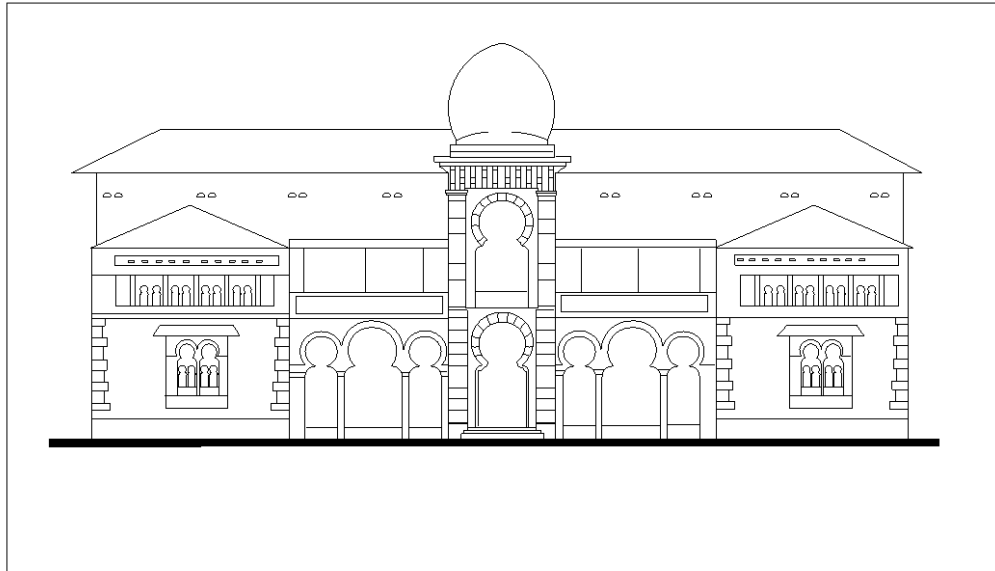
Figure 42. An illustration of the city hall facade (Author,2021)

The architecture of the building and style of construction is a unique example of the design lessons shared with the local context, the eclectic style deriving from the neo classical vocabulary presents the prestigious details of the decoration and ornamentations. From the first glance, the principal façade reflects the beauty and richness of this work of art, defining the aesthetic and the architectural values of the monument.

Urbanely speaking the monument is located in a dense fabric and has strong impact on the rest of the urban layout. The uniqueness and the height of the building form a strong visual influence imposed by its attractiveness compared to the ground level and one-story buildings in the surroundings. Forming the urban value of the historical building. All of these values construct the

patrimonial interest of the building, and helps to promote it as a future landmark, that needs specific preservation measures.

The Sahara Hotel

The Sahara Hotel is the example for an endangered French monument., Currently abandoned and in a very bad state, the hotel is losing its original qualities, and is in danger of disappearing.

Not far from the city hall, the Sahara hotel is located in the former Berthe road (currently the Republic boulevard) facing the public garden. According to the historical research the hotel was established following the aim of the French engineers on making the city a winter station that attracts tourists and visitors passing from the North of the country to the Grand Sahara. Constructed in the colonial period, with the French arrivals in 1851. Studies show that it was constructed somewhere between 1851 and 1861.

Figure 43. The Sahara hotel between the past and present (Author,2021)

The historical monument is one of the unique achievements in Algeria, and is considered to be one of the first hotels to be conceived with earth materials. Representing the influence of a local context, fused with the details of a colonial neo-classical style. It reflects the ultimate meeting of

architectural and constructive values and highlight the original significance of the hotel that is slowly fading with time.

During the colonial period, the hotel was a center of attraction for tourists and visitors, artists and authors, that had the passion for discovering the qualities of the Ziban oasis, the gate of the desert. Contributing with series of hotels conceived the same period in defining the social aspect witnessed in the ex-European city.
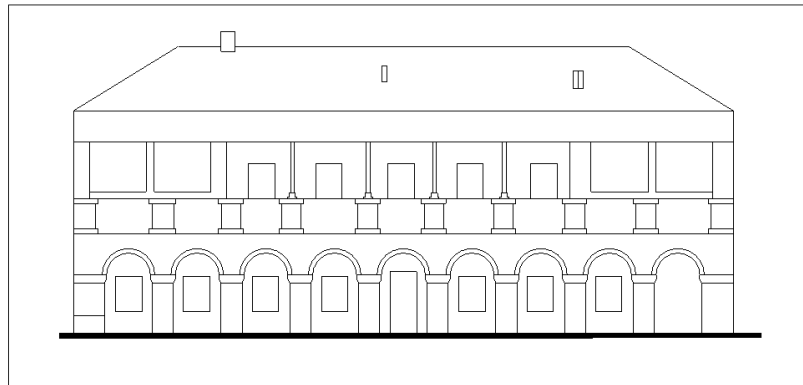
Figure 44. An illustration of the Sahara hotel façade (Author,2021)

While analyzing the urban façade along the grand boulevard, the Sahara Hotel integrates perfectly to the urban elevation with a typical Haussmann planning. The buildings are characterized with series of arcades in the ground floor, representing the typical colonial style of the French period.

The Rodari villas

Private monument's importance is no less than the public ones, with a particular Neo-Moorish style. The Rodari villas (named after the French entrepreneur and architect Rodari) stand today in the site as the testimonies of the French engineers' creative achievements and surely stimulate original urban scenes that characterize the checkboard. The two houses have similar and singular design styles, making it easy to recognize in the site.

Figure 45. Rodari villa between the past and present (Author,2021)
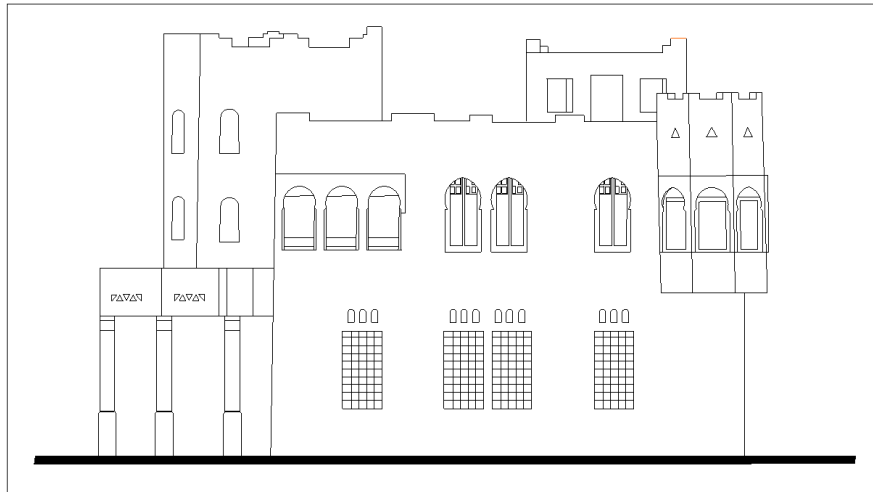
Figure 46. An illustration of the Rodari villa (Author,2021)

The Casnave villa

The Former Casnave villa is one of the famous monuments and an ancient residence in historic checkerboard of the city of Biskra. Founded after 1901, the house is a prestigious construction representing the Eclecticism period of the colonial styles The rich ornamentations of the façade it very significant to the space user and the visitors of the checkerboard, The building is located in the city center faced the public garden in a highly active public structure. It carries the name of the

former mayor CANSNAVE during the colonial period, and will be inherited to his son Jean CASNAVE the second. Today the private residence is transformed to a public building, it stands as the national organization of Mujahideen (national revolutionists).

Figure 47. *Old photo of the CASNAVE villa*
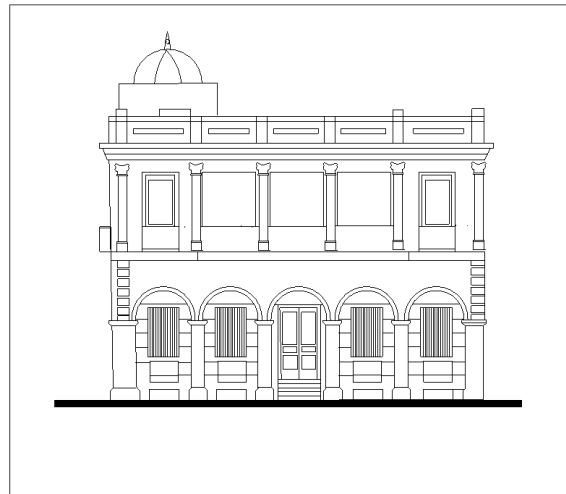
Figure 48. *An illustration of the CASNAVE villa*

(Author,2021)

The Terminus Hotel

Another example that connects to the series of hotels established in the colonial checkerboard within the French period, is the Terminus Hotel, reflecting the details of the first period of occupation, with the Vainqueur style. The hotel is characterized with a typical architecture of the period. The hotel located near Victoria Hotel and not very far from the railway station, according to the written documentation was conceived around 1923 and founded by Barthelemy Sanine and his wife.
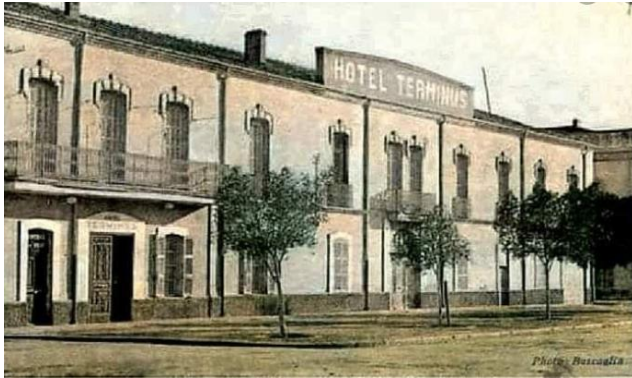
Figure 49. The terminus hotel between the past and present

The historic building is one of the ancient constructions that reflect the importance of the French thinking while planning the European quarter. It reflects a statement for the touristic significance in the colonial period. Unlike the Sahara and Victoria Hotel that stand today in critical conditions, the Terminus hotel is in somewhat acceptable state. It represents similar constructive values that is found based on the reinterpretation of local strategies and the choice of building materials. In general, the details of the architectural design style uniform the holistic vision for the series of touristic settlements of the historical center.

The hotel is historically located in a strategic cross point, in an urban area that is close to the train station and receives the first arrivals to the city. It has a high impact on the urban structure and is considered as an orienting unit in the quarter.
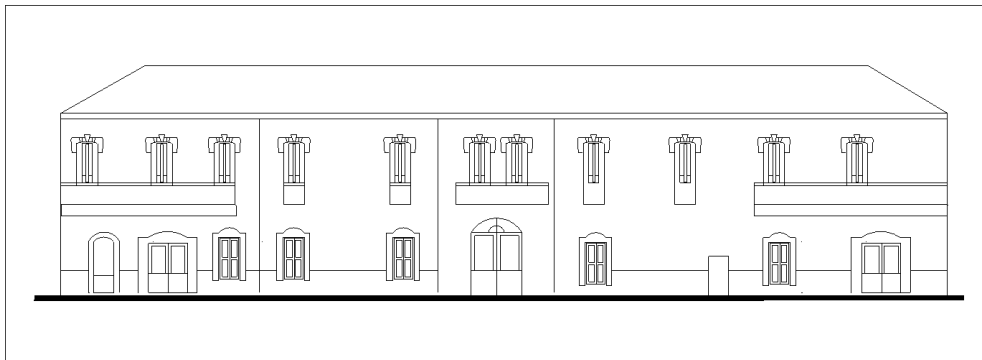
Figure 50. An illustration of the Terminus hotel

The Victoria Hotel

The Victoria Hotel is situated not far away from the railway station, and located between the former Gambetta boulevard and the Bonnaud road. The situation of the hotel today is endangered, several divisions of the property has been applied because of different owners and the hotel today has lost it value and stands in a critical condition where severe pathologies were diagnosed along the study.

According to the monographic reconstruction of the hotel's history, it was proven that the hotel was founded in period after 1850s. Similarly, to the Sahara Hotel, the Victoria Hotel presents the ultimate touristic and social value that is unfortunately lost today.

The patrimonial importance of the monument is found in its historical character that goes back to the colonial period. The design details of this historic monument consist in the use of decoration and aesthetic elements both in the exterior and the interior of the hotel.

The constructive system uses traditional earth adobes, and tiles for the roof tops. Reflecting the values of sharing the local know how and techniques specific to the difficult climate of the region.

Figure 51. Old photo of the hotel Victoria

The Train station

The Train station in the colonial checkerboard is one of the orienting units on the site, with a strategically positioned core, it serves as a historical landmark. The central position of the stations presents it as the connecting point, while viewed from the principal boulevard, the monument can be observed from a distance and has a strong impact along with multiple serial visions.

The monuments present the historical values of the colonial period, it follows the French engineer's conception for promoting the city of Biskra to tourists and visitors. With its current condition, the station lacks the same historical vitality, for a long period the station was closed and out of service. The physical condition and the structural state seem to be very average; series of physical and humid pathologies are visible in exterior facades.

Figure 52. The train station between the past and the present

Because of its location in the checkerboard, the train station presents a high potential, it responds perfectly to the landmark aspects. However, detailed conservation planning is recommended to follow the evolution and classify the building in official lists of protection.
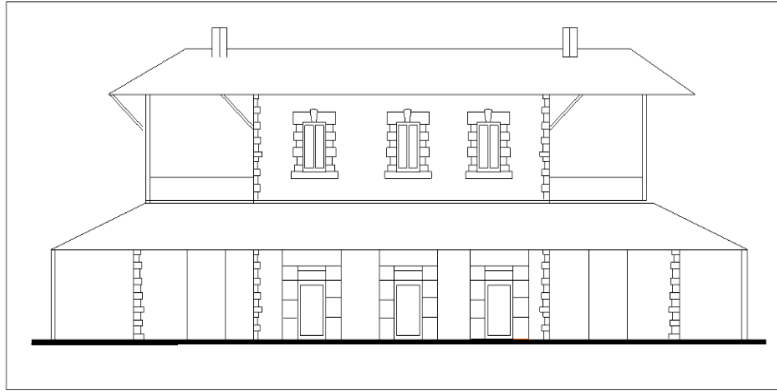
Figure 53. *An illustration of the Train station*

5.3. Synthesis of an integration and preservation strategy

In the process of developing a comprehensive approach to the preservation of the colonial checkerboard significance and the revaluing of its lost image, a realization of the theoretical manual proceeded from the need to control the bad and uncertain practices towards the French-built heritage in the historical center of Biskra with extended perspectives that puts the theory in use for the conservation of the colonial legacy in Algeria and North Africa.

The historic structures in the Former French centers face many challenges, the degradation factors are numerous, and the need for change and reconstruction is strong and uncontrolled. The demolition of symbolic parts of the old constructions, and the replacement of the unique ornamentations and decorations details from the colonial style with random contemporary forms of personal choices, present the lack of awareness and disrespect towards the qualities of this period. It is an affirmation for the gradual disappearance of the historical significance faced to the adaptation of cultural mythologies which alternates between the protection of the built heritage structures and the need for modernization.

Certain orientations need to be respected to preserve the cultural values of this legacy, moreover, the understanding of the ancient construction system used by the French engineers and adapted from local techniques is an important step. Fundamentally, the use of modern materials to intervene in historic buildings require specific technics to avoid misinterpretations and false

readings of history. The local know-how and technics of constructions highly influenced the colonial establishment, especially in regions like Biskra, where integration and adaptation to the climatic and morphologic context is one of the main solutions. The conservation of these aspects, as a result, is an essential element in this preservation mechanism.

❖ *For the original French buildings*: High measures need to be followed to preserve all values, that still represent the original French period, and the important traces of its engineering, it is proven that the bigger area of the French checkerboard belongs to the original French period, the profound evaluations, and the monographic comparisons between the ancient and the current state are necessary to create future references in case of the total loss of the colonial structure faced to the rapid modern change.

❖ *For the reconstructed buildings that still preserve a French character*: In this case, gradual control of change is the ultimate measure that needs to be applied. With controlled actions and detailed management plans, to preserve the original French parts. For the renewed sections, respect for both the style and the construction system is essential. It is highly recommended that all conservation actions have to follow rules of integrity in the intervention projects, especially the ones that propose the rehabilitation and the introduction of new functions to the historic buildings.

❖ *For the reconstructed buildings presented with a modern character:* A learning effort is recommended, to produce the historical backgrounds of the transformed buildings. An evaluation of the structural system and the construction materials that are used in the modern parts is also important. For this case, the change has already happened, and the percentage of the modern reconstruction is higher than the percentage of the authentic French parts. Awareness procedures need to be presented for the users of the colonial checkerboard and the habitants of this type of construction. For most cases, it is difficult to control the personal choices and the design styles of the private residences, however inventory reports need to be presented within defined periods and after all reconstruction decisions.

❖ ***The Post independent buildings:*** for this case, the change cannot be rewarded, and only social awareness is key to analyze the degree of transformation. This situation presents a threatening fact to the continuity of the French legacy in the colonial checkerboard, and the loss of the original image of the center. Mostly, it is the private constructions that are more likely at risk of change, the public monuments however need immediate interventions as they still share the authenticity and the values of the French period.

The preservation strategy requires the resolving of the pathologies classified from 1 to 5 where five presents the most endangered condition, and the built heritage is either lost or in ruins. Mainly three essential phases need to be followed in the application of the theory, focusing on the ideas of significance as the key solution to preserve the values of the colonial or the lost heritage:

Firstly, in the learning phase, the assessment of the values is required, the evaluation of the historic buildings shouldn't consider the buildings as a singular unit but as part of an immediate environment. The qualities and significance of the urban heritage are fundamental to define the identity and the sense of place.

Secondly, in the diagnosis phase, the comparison of the current situation with the past, architectural, urban, and constructive descriptions are required, followed by technical reports, for the assessment of the building's pathologies and the presentation of accurate remedies proposals.

Thirdly, in the potentials phase, the comprehension of heritage values under the modern protocol of change needs to be assessed, reported, and presented in forms of patrimonial statements, for all the historic monuments and centers that reflect a valuable lesson from built legacies.

5.4. Thesis statements

Assessing the significance of the colonial checkerboard based on the values of the historical monument is a key solution to the recognition of the colonial heritage. The study narrows down

the probability of conditions from 360 to 15 representative conditions. It is determined that the definition of the potential landmarks is essential to reinvent the image of the checkerboard.

The creation of a new approach based on the city inventory findings, that has proceeded with a selection of representative and emblematic cases. The logic of the monument inventory covers the probabilities of all building conditions selecting a sample that generates possible scenarios. The theory promotes these historical monuments into potential landmarks based on the quality analysis statements and proposing intervention strategies to the different cases.

The original building classification, in the study area, introduces a total of 360 cases, when counting all the constructions in the urban blocks, however, based on the defined criteria, findings show that by multiplying the chances, the research can narrow down the count to 15 possible cases. This selected corpus is directly related to classification and the building condition. The theory presents guidelines to the different situations, where the landmark significance is essential to conclude the right measures and recommendations.

The preservation manual and the theory can be generalized in contexts with the same history and timeline of architectural productions. The identified approach is a guide to the conservation of colonial values and significance. A new definition is associated with the colonial heritage that gives meaning to the qualities rather than historical realities.

The preservation approach orients towards the significance of the French heritage in the colonial checkerboard, moreover it defines measures and strategies to deal with the current conditions. In the aim of understanding colonial heritage, similar contexts with the same history can benefit from this theory, including North African countries that share some historical details with colonial Algeria.

This research introduced the need and the necessity to preserve all productions of the past, which have a certain value and patrimonial interest. We tried to build a comprehension paradigm that can be easily applied and used for practical orientations in the field of heritage conservation.

CHAPTER SIX

Research findings and conclusions

6.1. Summary of the research findings

The French legacy in Algeria is a lesson for architectural and cultural sharing, when interpreted from right perspectives. The built heritage of this period presents various qualities that are continuously losing significance, many constructions and monuments of great value call for preservation actions. The situation of this architecture and urbanism impacts the image of the city and the lack of awareness towards this period and its use threatens the memory of the historical centers.

In this research I tried to create a new approach, to the preservation of the colonial heritage in Algeria, with the focus on the case study of the colonial checkerboard of Biskra. The study guides to the profound understanding of the recent heritage in the 19th and the 20th century, with all the complexities and questions it raises. With the comprehension of the issue, the design of the conceptual framework with proper methodology is essential. From the overview on the colonial history and the emergence of the French architecture and urbanism, to the comparison of the characteristics of both the colonial and the indigenous cities, the approach welcomes the meeting of merged identities and mutuel heritage that needs to be accepted and appreciated.

The study presents a new strategy to the understanding and the preservation of the French heritage. In the colonial checkerboard of Biskra, as a result the legacy in Algeria. The city and the monument inventory serve as a manual to the orient conservation actions and the users of the historical centers and set the light on the current conditions and the potentials of this heritage. It is a structured and a detailed database for intervention and action projects. It focuses on the concept of significance and loss in the aim of normalizing this built heritage aspects as part of the local identity and integrate it with national heritage.

The criteria-based field investigation and evaluation provide a catalog that covers most cases in the study area, it reflects on the classification and the conditions of the former French constructions

with a detailed diagnosis of the threatening alterations and pathologies. The definition of a new logic follows the practical findings, and creates probability of cases, and conditions represented with potential landmarks. The evaluation and the intervention on each case, presents a holistic strategy, for the integration and the requalification of the image of the colonial checkerboard and the qualities of the French legacy in Algeria.

6.2. Research contributions

The research presents a practical approach to the integration of French legacy with the rest of the local and national developments. The evaluation of the French historical center in Biskra was conducted, in the aim of defining a new strategy to deal with heritage of the 19th and the 20th centuries.

The diagnosis of the current alterations and the assessment of each block with all different constructions provides not only a database but a catalogue for future intervention projects and an actuality report faced to the rapid change of the checkerboard image.

The new logic of definition for potential landmarks contributes to the requalification of the image of the site and its monuments. The inventory provides the strategic methods for the use and intervention on the constructions, based on the values and significance. It helps to raise the awareness on this heritage.

The research serves as a manual for the issue of heritage preservation in Algeria and dealing with critical periods of history. It defines the guidelines to treat different scenarios and appropriately intervene on cultural properties. With the proper definition of stakeholders, the findings of the research introduce a manual for understanding the history of the heritage, its current conditions and situations and how to deal with its problems.

6.3. Recommendations and future research

The findings of this research project open the doors to the comprehension and the acceptance of the colonial heritage as part of the national identity knowing it has an impact on the cultural and physical dimensions of the space.

The determination of the colonial heritage impact, on the collective memory of the Algerians and the users presents one of the possible solutions to clear the obscurities around the subject, including the society and their perceptions in the process of heritage awareness is vital to reinforce the public conscience to the issues of heritage preservation in Algeria.

The adaptation of the social scale and the recognition of alterations and solutions for a sustainable integration with modern city planning, public image and behavior validation.

Including social participation in raising social awareness and comprehension of the 19th and the 20th century legacy in Algeria.

Technical development plans need to be developed in the process of integrating the French heritage in lists of protection and classifications.

Strategies for intervention, regarding treatment of alterations that follow up the diagnosis phases, conservation, restoration that need to be decided by stakeholders for immediate interventions and technical resolving of the issues.

Integrate the heritage in the touristic aspects based on the significance and potential studies carried out in the research are complementary in branding and understanding the colonial heritage image.

Further perspectives are oriented towards the use of digital assessment methods in field investigation and the documentation of valuable constructions to facilitate the preservation and all heritage protection process.

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APPENDIX

Appendix1. *The evaluation inventory sheets of the all the blocks in the study area*

A11	PR	NC	FO	TRD				3		
B11	PR	PI	N	Mn	R2	1				
C11	PR	PI	N	Mn	R2	1				
D11	PR	PI	N	Mn	R2	1				
E11	PR store	PI	N	Mn	R4	1				
F11	PR	PI	N	Mn	R2	1				
G11	PR	PI	N	Mn		1				
H11	PR	PI	N	Mn		1				
I11										5

A12	PR	NC	FO	TRD	R1			3		
B12	PR	NC- PI	FRO	Mx	R1		2			
C12	PR	NC - PI	FRO	Mx			2			
D12	PR	PI	N	Mn	R3	1				
E12	PR	PI	N	Mn	RDC	1				
F12	PR	PI	N	Mn	R3	1				
G12	PR	NC	FO	TRD				3		
H12	PR	PI	N	Mn			2			

A13	PR	NC	FO	TRD				3		
B13	PR	NC	FO	TRD				3		
C13	PR	NC	FO	TRD				3		
D13	PR	NC	FRO	TRD				3		
E13	PR	PI	N	Mn	R1	1				
F13	PR	Nc - PI	FRO	Mx			2			
G13	PU	PI - NC	FRM	Mx	RDC		2			

A14	PR	PI	N	Mn	R3	1				
B14	PR	PI	N	Mn	R2	1				
C14										5
D14	PR	PI	N	Mn	R3	1				
E14	PR	PI	N	Mn	R2	1				
F14	PR	PI	N	Mn	R3	1				
G14	PR	PI	N	Mn	R2	1				
H14	PR	PI	N	Mn	R2	1				

A15	PU	NM	FO	TRD	R1		2			

ID										
A16	PU	NM	FO	TRD	R1				4	
B16	PR	PI - NM	FRO	Mx	RDC		2			
C16	PU	NM	FO	TRD	R1				4	
D16	PR	PI	N	Mn	R3		2			
A17	PU	PI	FRM	Mx	?		2			
A18	PR	PI	N	Mn	R2	1				
B18	PR	PI	N	Mn	R2	1				
C18 x	PR	NC	FRO	FRO	RDC		2			
D18	PR	PI	N	Mn	R1	1				
E18	PR	PI	N	Mn	R1	1				
F18	PR	PI	N	Mn	R1	1				
A19	PR	NC	FO	TRD	R1		2			
A20	PR	PI	N	Mn	R2	1				
B20	PR	PI - NC	FRO	Mx	RDC		2			
C20	PR	PI	N	Mn	R3	1				
D20	PR	PI	N	Mn	R2	1				
E20	PR	NC	FO	TRD				3		
F20	PR	NC	FO	TRD				3		
G20										5
A21	PR	NC - PI	FRO	Mx	R1		2			
B21										5
C21	PR	PI	N	Mn	R2					
D21	PR	NC	FO	TRD	RDC			3		
E21	PR	PI	N	Mn	R3					
F21	PR	PI	N	Mn	R2		2			
G21	PR	PI	N	Mn	R2		2			
A22	PR	PI	N	Mn	R2	1				
B22	PR	NC	FO	TRD					4	
C22	PR	NC	FRO	Mx	RDC			3		
D22	PR	NC	FRO	Mx	RDC		2			
A23	PR	NC	FO	TRD				3		
B23	PR	PI - NC	FRM	Mx	RDC			3		
C23	PR	NC	FRM	Mx	R1		2			
D23	PR	NC	FRO	Mx	R1		2			
E23	PR	PI	N	Mn	R2	1				
F23	PR	PI	N	Mn	R2	1				

A25	PR	NC	FRO	Mx			2		
B25	PR	PI	N	Mn		1			
C25	PR	NC	FRO	Mx			2		
D25	PR	NC	FRO	Mx				3	
E25	PR	NC	FRO	Mx			2		
F25	PR	PI	N	Mn	R2	1			
G25	PR	PI	N	Mn	R2		2		

A26	PR	NC	FO	TRD	R1			4	
B26	PR	PI	N	Mn	R2	1			
C26	PR	PI	N	Mn	R2	1			

A27	PR	PI	N	Mn	R3	1			
B27	PR	NM	FRO	Mx	R1		2		
C27	PR	PI	N	Mn	R1	1			
D27	PR	PI	N	Mn	R1	1			
E27	PR	PI	N	Mn	R3	1			

A28	PR	NC	FO	TRD	RDC		2		
B28	PR	PI	N	Mn	R2	1			
C28	PR	PI	N	Mn	R2	1			
D28	PR	NC	FRO	TRD	R1			3	
E28	PR	PI	N	Mn	R3	1			
F28									5
G28	PR	PI	N	Mn	R3	1			

A29	PR	PI	N	Mn	R2		2		
B29	PR	NC	FO	TRD				3	
C29	PR	PI	N	Mn	R2		2		
D29	PR	PI	N	Mn	R2	1			
E29	PR	PI	N	Mn	R2	1			
F29	PR	PI	N	Mn	R2	1			

A30	PR	PI	N	Mn	R2	1				
B30	PR	PI	N	Mn	R2	1				
C30	PR	PI	N	Mn	R2	1				
D30	PR	PI	N	Mn	R2	1				
E30	PR	NC	FO	TRD	RDC		2			
F30	PR	PI	N	Mn	R2					
A31	PR	PI	N	Mn	R3	1				
B31	PR	PI	N	Mn	R3	1				
C31	PR	NC	FO	TRD	RDC			3		
D31	PR	NC	FO	TRD	R1				4	
E31	PR	NC	FO	TRD	RDC			3		
A32	PU	NM	FO	TRD	R1		2			
A33	PU	NM	FO	TRD	R1		2			
A34	PU	NM	FRO	TRD	RDC		2			
B34	PR	PI	N	Mn	R+1		2			
A35										5
B35	PR	PI	N	Mn	R3	1				
C35	PR	PI	N	Mn	R3	1				
D35	PR	PI	N	Mn	R1	1				
E35	PR	PI	N	Mn	R1	1				
F35	PR	PI	N	Mn	R1	1				
G35	PR	PI	N	Mn	R1	1				
H35	PR	PI- NC	FRM	Mx	R1		2			
I35	PR	PI	N	Mn	R3	1				
K35	PR	PI	N	Mn	R1	1				
L35	PR	PI -NC	FRM	Mx	R2		2			
A36	PR	PI	N	Mn	R2	1				
B36	PR	PI	N	Mn	R2	1				
C36	PR	PI	N	Mn	R1	1				
D36	PR	NC	FO	TRD	R1			3		
E36	PR	PI	N	Mn	R3	1				
F36	PR	PI	N	Mn	R3	1				
G36	PR	PI	N	Mn	R2	1				

A37	PU	NM - C	FO	TRD	R1		2			
B37	PU	PI	N	Mn		1				
C37	PR	NC	N	TRD	RDC			3		
D37	PR	NC	FO	TRD	RDC			3		
E37	PR	NM	FO	TRD	R1			3		
F37	PR	NC	FRO	TRD	R1		2			
G37	arcade	NC	FO	TRD					4	

A38	PU	ECL	FO	TRD	R1		2			

A39	PR	PI	N	Mn	R1	1				
B39	PR	PI	N	Mn	R1	1				
C39	PR	NC	FO	TRD	RDC			3		
D39	PR	PI	N	Mn						
E39	PR	PI	N	Mn		1				
F39	PR	PI	N	Mn	R3	1				
G39	PR	NC	N	TRD	RDC			3		
H39	PR	NC	FO	TRD	RDC			3		

A40	PR	PI	N	Mn	RDC	1				
B40	PR	PI	N	Mn	R1	1				
C40	PR	PI	N	Mn	R1	1				
D40	PR	PI	N	Mn	R1	1				
E40	PR	PI	N	Mn	R1	1				
F40	PR	NM	FRM	Mx	R1	1				
G40	PR	PI	N	Mn	R2	1				
H40	PR	PI	N	Mn	R1	1				
I40										5
J40	PR	NM	FO	TRD	R1			3		

A41	PR	PI	N	Mn	R2	1				
B41	PU	PI-NC	FRM	Mx	RDC		2			
C41	PR	PI	N	Mn	R2	1				
D41	PR	PI	N	Mn	R2	1				
E41	PR	PI	N	Mn	R1	1				
F41	PR	PI	N	Mn	R1	1				
G41	PR	PI	N	Mn	R1	1				
H41	PR	PI	N	Mn	R1	1				
I41										5

ID										
A42	PU	NC	FO	TRD	R1				4	

ID										
A43	PR	NC	FO	TRD	RDC			3		
B43	PU	NC	FRO	TRD- Mx	RDC		2			
C43	PR	NC	FRO	TRD- Mx	RDC				4	
D43	PR	NC	FRO	TRD- Mx	R1				4	
E43	PR	NC	FRO	TRD	R2				4	
F43										5
G43	PR	NC	FO	TRD	RDC				4	
H43	PR	NC	FO	TRD	RDC			3		

ID										
A44	PR	PI	N	Mn		1				
B44	PR	PI	N	Mn	R3	1				
C44	PR	PI	N	Mn		1				
G44	PR	PI	N	Mn	R3	1				
H44	PR	PI	N	Mn	R3	1				

ID										
A45	PR	PI	N	Mn	R1	1				
B45	PR	PI	FRO	Mx	R1		2			
C45	PR	PI	N	Mn	R1	1				
D45	PR	PI-NC	FRM	Mx	R1		2			
E45	PR	NC	FO	TRD	RDC			3		
F45	PR	PI	N	Mn	R2	1				
G45	PR	PI	N	Mn	R3	1				
H45	PR	PI	N	Mn	R3	1				

ID										
A46	PR	PI	N	Mn	R1	1				
B46	PR	PI	N	Mn	R1	1				
C46	PR	PI	N	Mn	R1	1				
D46	PR	PI	N	Mn	R1	1				
E46	PR	PI	N	Mn	R1	1				
F46	PU	PI	N	Mn	RDC		2			
G46	PR	PI	N	Mn	R1	1				
H46	PR	PI	N	Mn	R1	1				