



Faculty of Engineering

Urban Planning and Landscape Architecture

Geopolitics Implication on Urban Growth

Case Studies from Palestine

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ملخص

في فلسطين كما في أي مكان آخر، ينبغي استبعاد الاختزال في الدراسات الحضرية، إذ يجب وضع جميع العوامل المؤثرة تحت المجهر، لتجنب ضبابية الصورة المؤدية الى مخرجات سطحية ضيقة الأفق في التنبؤ وبناء المستقبل. تعد نمذجة وإدارة النمو الحضري مشكلة معقدة على مستوى العالم في ظل الظروف العادية من حيث محدودية الأراضي وزيادة عدد السكان. يتضاعف هذا التعقيد في الواقع الفلسطيني في ظل ظروف جيوسياسية لا اعتيادية. في محافظة الخليل، كما هو الحال في جميع محافظات الضفة الغربية، تلعب المحددات الجيوسياسية دوراً حاسماً في التأثير على النمو الحضري للمدن. التقسيمات السياسية للأرض، المعابر والمحطات الإسرائيلية، جدار الفصل العنصري، المستعمرات الإسرائيلية، الطرق الالتفافية ومصادرة الأراضي هي المكونات الجيوسياسية للدراسة.

تهدف هذه الدراسة إلى تسليط الضوء على الظروف الجيوسياسية الاستثنائية التي تؤثر على النمو الحضري في فلسطين على المستوى المحلي عن طريق تحليل العلاقة ما بين: تغيير الحدود، الامتداد الحضري، مورفولوجيا المدن، استعمالات الأراضي، نمط النمو والمحددات والقيود الجيوسياسية.

وقد أجريت دراسة ادبية واسعة ومفصلة للوصول الى فهم عميق لكافة جوانب الدراسة: للجغرافيا السياسية والاستعمار والحدود والنمو الحضري. تمت دراسة العديد من الحالات العالمية دراسة شاملة (برلين وأفريقيا جنوب الصحراء والهند الاستعمارية ومدينة غوما ومدن زارومبلا وأغواس فيرديس) لصياغة صورة واضحة عن تأثير الجغرافيا السياسية على النمو الحضري للمدن في ظروف جيوسياسية مشابهة. بالإضافة الى مراجعة ادبية شاملة حول الممارسات والخطط الإسرائيلية في الضفة الغربية وبعد عام 1967.

يركز البحث بشكل أساسي على تجميعين من محافظة الخليل. مدينة الظاهرية وبلدة ترقوميا. وقد كان من أبرز نتائج الدراسة أن للظروف الجيوسياسية اليد العليا في تحويل تلك التجمعات إلى مناطق حدودية بفعل الامر الواقع وتشكيل ملامح واتجاهات ونمط النمو فيها. وباستخدام نظام المعلومات الجغرافية (GIS) كأداة تحليل رئيسية، تم اظهار التحولات في المواقع، الحدود الطرق والمعابر، المساحة المبنية، استخدامات الاراضي ونمط النمو الحضري.

ABSTRACT

In Palestinian status, as elsewhere, reductionism should be excluded in the urban studies. All the affecting factors should be placed under a microscope, as reducing the factors to examine limits our comprehension and leads to superficial, narrow-minded outputs in forecasting and building the future. Modelling and managing urban growth is a complex problem globally under normal conditions in terms of limited lands and the increasing population. The complexity in the Palestinian case is compounded under extraordinary geopolitical conditions. In Hebron governorate, like all other West Bank governorates, Geopolitical determinants play a crucial role in affecting urban growth of cities. Political subdivisions of land, Israeli crossings and terminals, the separation Wall, Israeli colonies, bypass roads and land confiscation are the geopolitical components of the study.

This study aims to shed light on the exceptional geopolitical conditions implication on urban growth in Palestine at the local level, by analyzing the relationship between borders shifting, urban sprawl, cities morphology, land use/cover, growth pattern and the geopolitical determinants and constrains.

A detailed and extensive literature study was conducted for deep understanding of geopolitics, colonization, borders and urban growth. Several global cases were thoroughly studied (Berlin, Sub-Saharan Africa and colonial India, Goma city and Zarumilla and Aguas Verdes cities) to formulate a clear image about the impact of geopolitics on cities urban growth under similar geopolitical conditions. A comprehensive literature about the Israeli practices and plans in West Bank and after 1967 were reviewed.

The research mainly focuses on two selected communities from Hebron governorate; Aldahreih city and Tarqumiya town, in which geopolitics has the upper hand in transforming them into a "de-facto" borders areas in addition to shaping urban growth characteristics, pattern and directions. And, by using the Geographic Information System (GIS) as the main analysis tool, many geographical layers showed the chronological transformations in borders shifting, terminals and roads, built-up area, land cover and urban growth pattern.

Key Words: Urban growth, Geopolitics, De-facto border cities, Divided cities, West Bank, Geopolitical determinants, Terminals.

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DEDICATION

To my country Palestine.

For those who refuse colonization.

For those who understand what they read.

I dedicate this work

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List of Abbreviations

ARIJ	Applied Research Institute- Jerusalem.
GIS	Geographic Information Systems.
GEMOLG	Geospatial Web of Ministry of Local Governance.
MOP	Ministry of Planning.
NAD	Negotiation Affairs Department.
PCBS	Palestinian Central Bureau of Statistics.
PA	Palestinian Authority.
WB	West Bank.
UN	United Nations.
ICA	Israeli Civil Administration.
DRC	Democratic Republic of Congo's.
LRC	Land Research Center.

B'Tselem	Israeli Information Center for Human Rights.
PASSIA	Palestinian Academic Society for the Study of International Affairs.
OCHA	United Nations Office for the Coordination of Humanitarian Affairs.
WWII	World War Two.
GDR	German Democratic Republic
DRC	Democratic Republic of Congo's

CHAPTER ONE

Introduction

1.1 Background

According to Gray, (2004, p. 32) "Sound geopolitics is neither geographically deterministic, nor is it wedded to the absurd notion that particular features of physical geography have an inherent, unchanging significance. Geopolitics does insist, though, that spatial factors be accorded their due". Geopolitical perspective reasoning is an old approach dates back to ancient Greece (Scholvin, 2016). The term geopolitics revolves around the study the states based on geographical, political, demographic, economic and social conditions. There are many definitions of geopolitics can be summarized as an approach of studying contemporary international affairs based on four main pillars; history, geography, politics and culture. Another distinctive definition linked this concept to the study of the mentalities and realities of the localities (Granieri, 2015).

Maps can be understood as visual rhetoric. Political conflicts has many geographic reflections on the ground. Under conflict, maps are mirroring and representing how power is shaping geography and content of cities. Consequently, visual political rhetoric is inherent in the maps of cities as a tool to invoke authority (Leuenberger, 2016). Historically, maps have been used to impose control and sovereignty over territories. Indeed, mapping is a dual-intentioned tool; either to confirm the identity of the place or to manipulate it. Counter-planning maps have become increasingly prevailing with the recent technologies and "democratization" of mapping techniques and cartographic software's (Schnell, & Leuenberger, 2014). Whereas in the case of divided territories and disputed areas, maps are the reflection of the power and politics in "map wars" due to way of representing facts and lies in deeply political bias (Leuenberger, 2016).

The nature of violent conflicts is often categorized in three forms; political, economic or social. However, Beall, Goodfellow, & Rodgers (2010) has adopted different articulated views that all violent conflicts are politically motivated. According to Bornstein, (2002, p. ix) "State powers have drawn and redrawn the shape and practice of borders in Palestine, carving it into increasingly smaller pieces, but this form of administrative violence has remained a central factor in the conflict".

Zeid, & Thawaba, (2018, p.11) argued that: "Physical planning can be used as a means to serve political ambitions, and power can easily change the landscape accordingly". The urban planning experience in Palestine is unique, The Palestinian people and lands have experienced the passage of several colonial regimes during the last century. Each placing a distinctive mark on land ownership, geopolitical situation and planning policies. The largest share of planning practice was not for the Palestinian peoples, but historically and in sequence were exercised through the Ottomans, the

British, the Jordanian, the Israelis and finally the Palestinian Authority (PA) (Zeid, & Thawaba, 2018; Abdelhamid, 2006).

By highlighting the most important outputs of the British mandate planning process in during the period between (1917–1948) on the regional scale was the preparation of regional outline plans in 1940s, which aimed to control and manage urban/rural development. According to those plans Palestine was divided into six main districts, each district had a physical plan. Israeli occupation still uses these plans in the West Bank; Plan S/15 for the ‘Samaria district’, Plan RJ/5 for ‘Jerusalem district’, and Plan R/6 for the ‘Lydda district’(Zeid, & Thawaba, 2018;Bimkom, 2008). All of these plans were shared the same classification of most of the WB. lands as “agriculture” and that classification was a tool has been used for restricting the expansion of the Palestinian communities. These plans were not prepared to serve Palestinian communities; on the contrary, they were aimed at preventing their development, especially to restrict Palestinian development. The Israeli Civil Administration do not give any consideration to those plans, with regard to the establishment of Israeli colonies in the WB. (Zeid, & Thawaba, 2018).

After the cessation of the 1948 war and at the end of the British Mandate. The Israeli state militarily controlled 77% of Palestine as a result of the division of Palestine (Abdelhamid, 2006). Two separated areas of Palestine were excluded from the new state of Israel which was created on a part of the divided land; Gaza Strip (under Egyptian administration), and the W.B. (under the Kingdom of Jordan), the plans that were established during the Mandate remained in force (Coon, 1992; Qurt, 2006; Abdelhamid, 2006).

As a result of the 1967 war, Israel occupied the West Bank, Gaza Strip and East Jerusalem, in addition to the Golan Heights and Sinai Peninsular. In Madrid peace conference 1991, the first discussions toward negotiation between Israel and Palestinian representatives took place towards resolving the status of the WB. and Gaza (figure 1.1). During the period 1967 to 1994 the Israeli military has tightened control over the W.B. and Gaza and has implemented plans aimed at its colonial policy (Coon, 1992; Palestine Studies, 1992).

In 1994, there was another turn of events upon the Oslo interim agreement. The Palestinian authority was declared. The two parties the Israeli and Palestinians agreed upon the division of the W. B. into three classifications zones A, B and C, with different mandates and sovereignties (figure 1.2). Area A was under exclusive Palestinian control, in area B the Palestinians exercised civilian authority while Israel continued to be in charge of security, and in area C 61% of the west bank area would be under control under exclusive Israeli control (Shlaim, 2009; Bimkom, 2008).

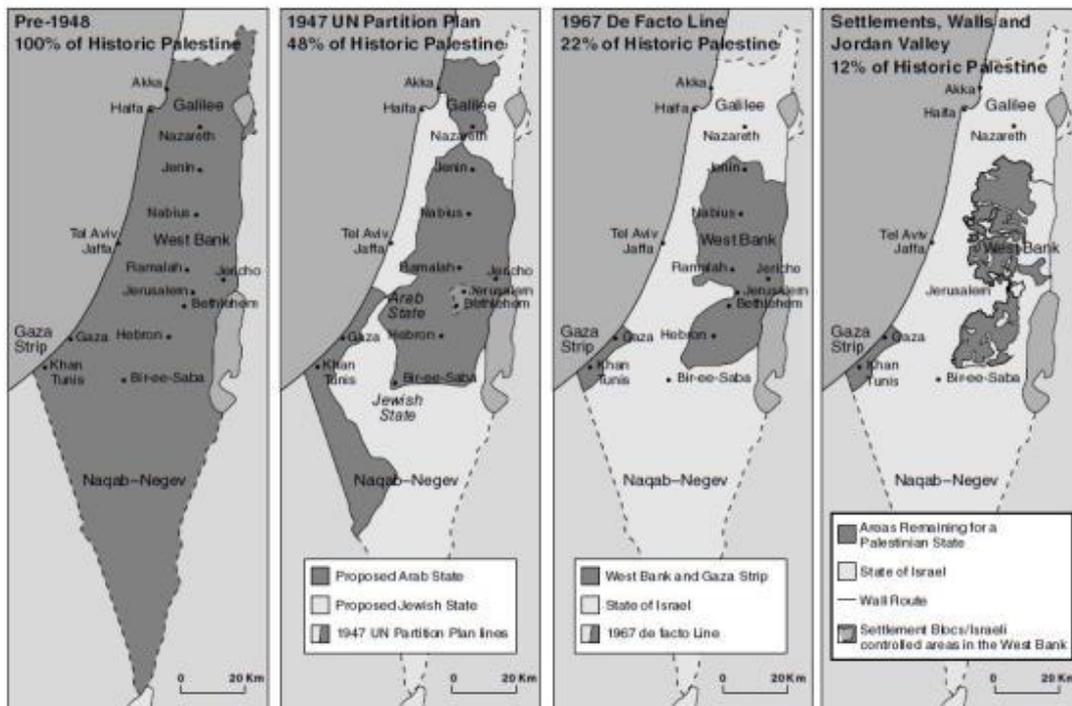


Figure 1.1: shrinking physical territory of Palestine since 1947. (Source: Available at <https://www.nad.ps/en/publication-resources/maps/borders>).

Under the terms and conditions of Oslo agreement, the Palestinians agreed to have control over only a third of the West Bank for an interim phase that should have ended in 1998. Despite the clear alignment of the Oslo Accords, the Israeli government has obstructed the peace process. Moreover, disabled the implementation of the full provisions of the accord (Shlaim, 2009; Bimkom, 2008).

The output of Oslo accords, which has been partially implemented on the ground, can be described as a case of "schism in planning"; two authorities are sharing planning practices on the same ground. Thus the fragmentation of powers on the land hampering comprehensive regional planning for the Palestinian communities in W.B. due to the existence of a unique geographic siege resulting from the encirclement of Area C that surrounds A and B zones in all Palestinian communities. This increased the depth of dispersion and lack of communication between the structural plans of those communities. On the other hand the Israeli Civil Administration (ICA) has prepared infrastructure development plans which are directed mainly for serving the Israeli colonies only (Bimkom, 2008; Zeid, & Thawaba, 2018).

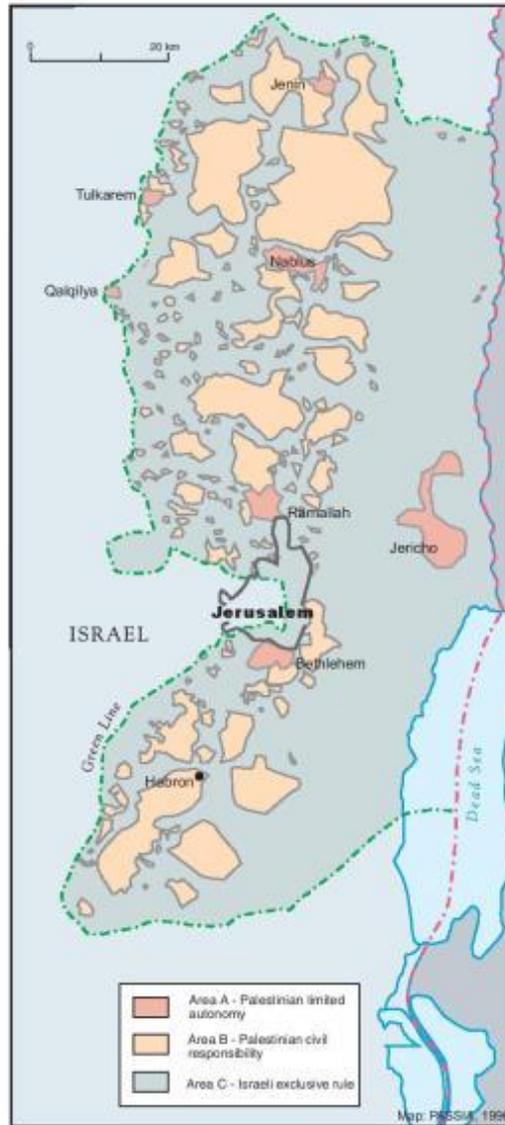


Figure 1.2: geopolitical map of Palestine 1994 (PASSIA, 2016)

Under the current geopolitical conditions Palestinian development within areas C is considered critical and fateful. Areas C is the horizon to accommodate the contiguous future urban growth, and the Palestinian communities seek to preserve their assets and the continuity of their existence, through restoring the control over these areas. Any developmental projects in Area C require the approval of the ICA. Enabling economic sustainability in the Palestinian territories. Is primarily linked to gaining the Palestinians' control on area C zones (ARIJ, 2016).

The Palestinian ministries and municipalities are the main bodies managing and controlling the urban planning activities in Palestine. They have the planning responsibility in Palestinian communities according to their legal powers from a geopolitical perspective according to the Oslo Accords. The researcher will try to analyze the geopolitics implication on urban growth and future development

requirements in Palestine in order to come up with scientific recommendations, which can be relied upon and utilized in the management of urban growth under the many exceptional existing geopolitical conditions, hoping to enrich future development of the Palestinian governorates, cities, towns and villages. On the other hand the research aims at come up with recommendations for managing urban growth that could lead to effective urban planning under the limited resources available in Palestine taking Hebron governorate, as a case study.

1.2 Research Focus and Questions

Sovereignty over spatial space is closely linked to the planners' horizons and visions; as it is on one way or another identifying the geopolitical determinants that are needed as a fundamental planning process inputs. Achieving sustainable urban growth for cities around the world is a global goal (Arbury, 2005). Urban growth management is a set of techniques used due to the problems that resulted from urban sprawl and unplanned development that affected the sustainability of cities around the world (Alnsour, 2016).

Planning for urban growth revolves around the achievement of sustainability, effectiveness, social justice and the provision of a healthy environment for the population. Under ideal conditions, freedom and absolute control over space are the basis of formulating plans to shape the future of the city (Abdelhamid, 2009). Moreover, urban planning aims to guide the development and growth of cities towards the desired better situation. In Palestine no absolute sovereignty for Palestinian over spatial space, the geopolitical situation in Palestine became an iceberg rather than a ruler. The colonial situation from the Ottoman Empire period to the present day has become a permanent circumstance.

In Palestinian reality, the Israeli colonization considered the critical factor affecting urban planning and development. The geopolitical situation is the biggest challenge in the planning process for urban growth. The Israeli practices are one of the most exceptional planning determinants, which creates great challenges for planners in dealing with temporary and blurry spatial inputs. Geopolitics has the upper hand in drawing, modifying and reshaping the urban structure and morphology of Palestinian cities, towns and villages (Weizman, 2007). In many cases, such as: berlin, colonial India, Sub-Saharan Africa geopolitics have been able to radically change the identity of these communities. Moreover, siting the prospects for its future development trends (Leuenberger, 2016; Home, 2013).

Under the current geopolitical determinants urban growth Planning and management is a very complex mission in the W.B.; where lands are classified into different zones with different regulations, and the sovereignty of the Palestinian authority is limited to only 40% of the land. The ambiguity of the spatial space and borders to be planned has become a reality that must be dealt with, in such a way that planning for urban growth must have an exceptional and special perspective.

Political subdivisions of land into area A, B and C according to Oslo peace accords, Israeli crossings and terminals, the separation Wall, colonies, Israeli bypass roads and the continuous land confiscation, are all exceptional determinants of the Israeli colonization and practices that are directly related to any planning processes to manage urban growth in Palestine. As well as affecting planning for sustainable urban growth in Palestine.

Historically, urban expansion has been associated with the development of various economic activities (Hall, & Tewdwr-Jones, 2010). In the Palestinian case, there are several Israeli terminals and crossing points whiten Palestinian lands. These crossings have been creating an exceptional state of urbanization and urban sprawl in nearby Palestinian cities, villages and communities. As a result, of economic activity that have been associated in those areas which impacted the urban structure and morphology of these communities. The existence of these different terminals and crossings created a state of accelerated unplanned urbanization, which should be taken seriously.

Defining the space is a traditional thinking about borders, but the unconventional is that borders has a bright imprint on the urban shape and identity of the space. Physical and virtual borders are multidimensional rhetoric elements in urban space. They affected the city structure and morphology. The dual function of connecting and separating are the essence of borders. One of Geopolitics main aspect is restructuring communities' locations. Creating "de facto border cites or towns" was an inevitable consequences of reshaping borders between Palestine and "Israel".

This research examines with the geopolitics implication on urban growth. It investigates the chronological urban growth and causes and the consequences of the resulted growth patterns and structures. The research focuses on four major questions:

- How have the "Israeli" de facto borders shifting created "de facto border cites or towns" in Hebron governorate?
- How have the "Israeli" geopolitical determinants (Oslo land classifications, terminals, the Wall, colonies, land confiscation and bypass roads) affected the urban growth of the selected communities in Hebron governorate?

- What are the implications of geopolitics on built up area and land use/cover of the selected communities in Hebron governorate?
- What are the implications of geopolitics on, city structure, function and morphology in Hebron governorate?

1.3 Research Objectives

This study is an attempt to formulate a clear image about the implication of the geopolitical conditions on urban growth in Palestine at the local level, by studying selected communities as case studies. By, analyzing the relationship between urban growth, cities urban structure and geopolitical determinants represented in: Political subdivisions of land, Israeli crossings and terminals, the separation Wall, Israeli colonies, bypass roads and land confiscation.

The main objective of the study is to analyze the geopolitics implications on urban growth and future development requirements in Palestine in order to come up with scientific recommendations, which can be used as main pillars in the planning of urban growth under the exceptional existing geopolitical determinants to manage the future development of the Palestinian governorates, cities, towns and villages.

The research will explore urban sprawl from a geopolitical perspective, and highlight the impact of the geopolitical situation on Palestinian communities' urban structure and morphology. This study is an attempt to reveal the extent to which geopolitical circumstance can be the supreme hand responsible for modifying, altering and even creating a new brand identity for the city and shaping its future development features. The study will investigate the relationship between urban growth and geopolitical circumstances in Hebron governorate communities from 1996 to 2018. The research will address a very important phenomenon, the phenomenon of restructuring communities' after the 1967.

Moreover, analyzing the exceptional and accelerated state of unplanned urbanization and urban sprawl that associated with this "de facto border cites or towns", which led to creating an innovative intensive economic character in those communities, as a result of economic activity that concentrated in those areas, consequently studying the resulted urban structure and morphology of the place.

Finally, the study will propose a recommendations for managing urban growth under geopolitical conditions, based on a chronological analysis of the urban growth patterns in the selected study

areas, which can be used to address the current situation in Palestinian communities. Moreover, to address and manage the future challenges associated with current geopolitical determinants on these communities.

1.4 Research Significance

The importance of this research stems from its being the missing link in many studies conducted in this field, because most of the existing studies focused on duplicated aspects of geopolitics (mainly: area C, colonies, and the separation wall). While this study highlighted a very important aspect that should be examined thoroughly and deeply. The focus of the research is about the implication of the Israeli terminals and crossings beside the other geopolitical determinants on urban growth in the Palestinian communities. It also drew a different perspective on the concept of borders and their impact. It has highlighted the change in the locations of Palestinian cities and towns over time, how border communities have been created and grown in response to the geopolitical conditions that were imposed on them. This study, together with other studies previously conducted by researchers, will cover the implication of the various "Israeli" geopolitical determinants in a more comprehensive manner.

The significance of the study stems from its focus on a very important domain of thinking: the analysis of geopolitics implications on urban growth in Palestine in order to come up with valued scientific recommendations, which can be reliable as a baselines for managing the future development of the Palestinian governorates, cities, towns and villages.

This research is valuable for researchers, planners, decision makers, and all communities as it rises the awareness of the obstacles facing the development of the study area and other similar communities. It has great benefit in encouraging and accelerating serious steps of planning institutions and bodies to move towards urgent effective and sustainable urban growth management in those areas. This research will be a catalyst study to encourage conducting other related studies such as studying the same context on the national scale.

1.5 Research Methodology

To meet the aim and objectives of this research case study approach. An analytical approach was used in order to assess the interaction between the selected communities and geopolitical conditions by the spatial analysis and assessment. Data gathered will be of two types; qualitative and quantitative, analysis of data will be carried out using chronological analysis technique. GIS mapping technique will be used as a main tool for analysis. It will also be used to interpret findings.

A detailed and deep literature review was conducted for relevant themes such as: literature about geopolitical concepts, border cities, colonization, urbanization and urban sprawl. Another very important aspect was exploring cases around the world that have been a milestone in the history of urban planning under an exceptional geopolitical reality: Berlin, Sub-Saharan Africa and colonial India. The focus was on understanding the geopolitical situation of these cases, and its implication on urban growth. Moreover, to benefit from their planning experiences under those limitations and constraints. The study also reviewed some of the rare cases that discussed the urban growth of border cities under similar geopolitical conditions, the first is the city of Goma, the capital of North Kivu located on the borders of Democratic Republic of Congo's (DRC) with Rwanda, and the other is Peruvian border cities on the border with Ecuador: Zarumilla and Aguas Verdes. Local Palestinian geopolitical context was reviewed from 1948 until now.

To investigate the implication of geopolitics on urban growth in the W.B., the following approach was adopted in the study:

Description and spatial analysis of the study area, includes two case studies; Aldahreih city and Tarqumiya town as two Palestinian communities in Hebron governorate. The selected sites were identified for a thorough study, as they are particularly powerful symbols which share the fact that they have transformed to become a "de facto border areas" according to the geopolitical conditions. And because both of them shares all the geopolitical determinants that this study will highlight, especially the Israeli terminals and crossings, political subdivisions of land, the separation Wall, Israeli colonies, bypass roads and the continues land confiscation. The data collected for this study area were of two types:

1- **Statistical data**, which included the following:

- Demographic data of the Palestinian population in the study area.
- Land use, which included data about built up areas, agricultural land, commercial and industrial lands in the study area.
- Confiscated land

- Natural characteristics of the study area.

2- Spatial data that reflects the geographical information about physical features of the study area, the data included:

- Aerial photos in different periods (1997-2018).
- Historical Maps and geographical maps.
- Geopolitical Maps and documents from different research centers representing land classifications, borders, terminals and crossings, colonies, bypass roads, and the separation Wall, Palestinian communities, classifications, Israeli colonies, bypass roads, confiscated land and the separation Wall in the study area.
- Regional and local main roads in the study area.
- Terminals, crossings and Checkpoints locations in the study area.

Data Sources

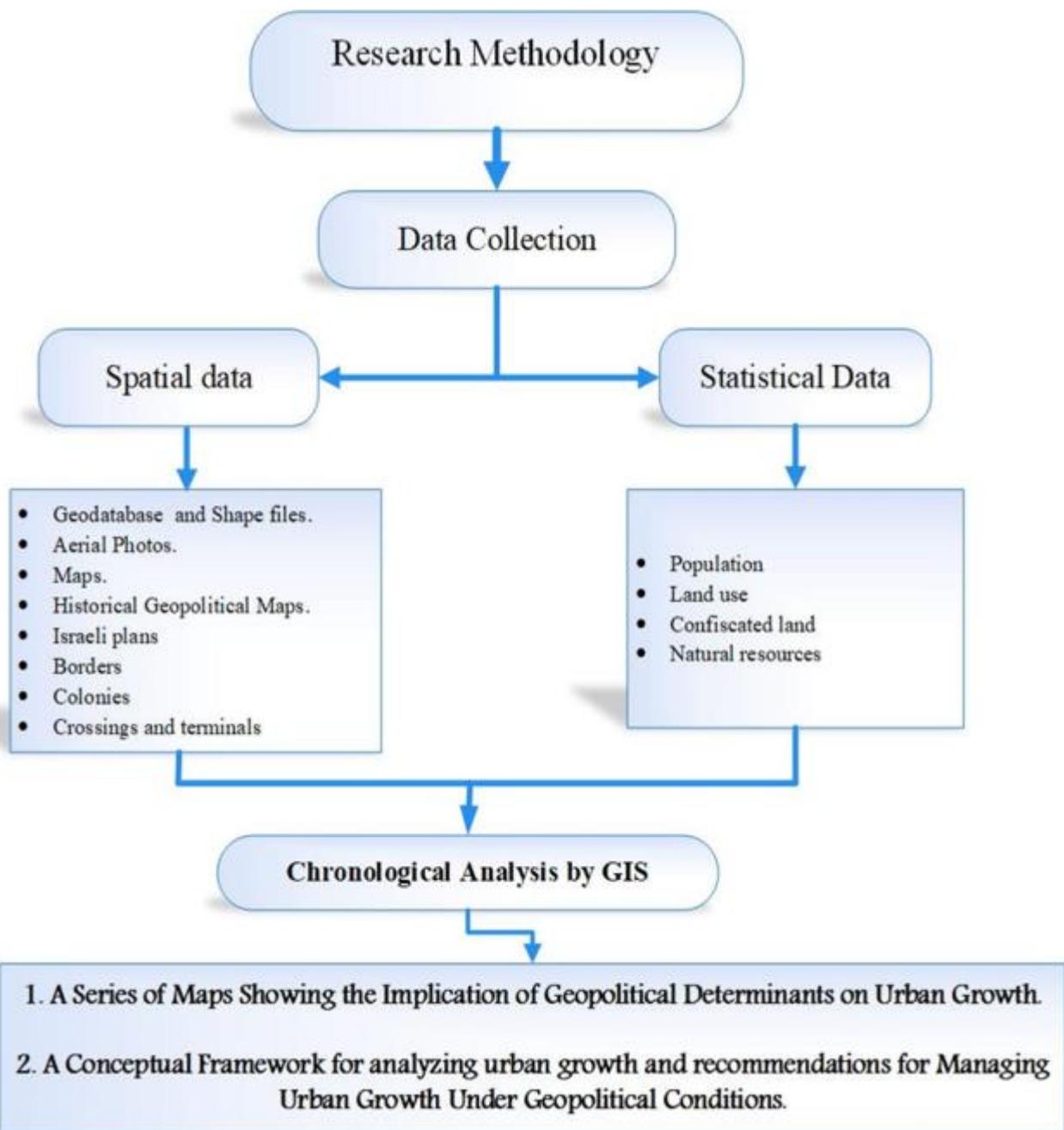
A wide range of sources were used in data collection process. One of the most important destinations to obtain information was site visits and communication with the official authorities responsible for collecting and documenting such information including the Palestinians Bureau of Statistics (PCBS), the Ministry of Local Government (MoLG), the local authorities and Hebron governorate. Another very important source of information was research centers such as the Applied Research Institute-Jerusalem (ARIJ), Land Research Center (LRC), Israeli Information Center for Human Rights (B'Tselem), Palestinian Academic Society for the Study of International Affairs (PASSIA), and the United Nations Office for the Coordination of Humanitarian Affairs (OCHA). In addition to using, the information obtained from publications, articles, reports, books, documents, and websites. In addition to that the researcher's practical experience resulting from working as an engineer in the municipality of Al- dahreih, which has played a vital role in the analysis.

Analysis tools

Geographic Information System (GIS) is a main tool for the spatial data analysis. Aerial photos, Maps and spatial information's were grouped according to different chronological periods. On the other hand, a chronological analysis of the study area was conducted by using (ArcMap 10.3). All related aspects of the analysis were reflected in different Geodatasets and feature classes, by digitizing and Geo-referencing the spatial features and information's of the study area. The main spatial features in the analysis: natural borders, master plans borders, geopolitical borders, terminals and crossings, geopolitical land classifications, internal and regional road networks, colonies, confiscated land, land

classifications, separation Wall, built up area. The researcher explained the resulting maps and showed the implication of geopolitical determinants on the urban growth. Moreover, they presented clear indications about the unplanned urban sprawl and the reshaping urban structure of the cities and towns under these determinants and exceptional conditions. (Figure 1.3) shows the research methodology.

The maps in this study were produced by the researcher through relying on the geo-database collected by governmental institutions, municipalities and other reliable resources. By using the GIS



system, maps of many layers were produced such as: layers for geopolitical determinants and

practices, locations shift of the study area before and after 1967 layers. And layers of urban growth and built up area chronological change between 1997 to 2018. These layers were discussed and analyzed together. The researcher used a descriptive and analytical approach; historical and spatial analysis in this chapter was used to reveal the impact of geopolitics on urban growth of the Palestinian communities, its factors and causes.

Figure 1.3: Research Methodology Chart.

1.6 Limitations and Restrictions

The expected limitations and restrictions in this study revolve around; the difficulty of obtaining some geopolitical accurate data and information about the future economic development projects in the study area. Another type of expected difficulties will be in geo-databases and aerial photos according to the required periods necessary for carrying out chronological analysis of urban growth to explore the geopolitical restrictions implication on city urban growth, and geo-databases of "Israeli" sites, roads, passages and cities within the Green Line.

The lack of updated data such as colonies areas, terminals and crossing areas and future expansion plans, new military orders of land confiscation in the study area. On the other hand, the scarcity of references and publications that addressed the terminals and crossing from urban planning perspective. As well as the scarcity of publications around the border cities with the Green Line.

1.7 Research Structure

The research constitutes of five chapters presenting the study content clearly and in sequence order. The chapters are as follow:

- **Chapter One:** An introduction and mainly a background to introduce the whole study. This chapter represents and introduces the focus and the problems of this thesis, the main problem, objectives, significance, and limitations. The chapter also include the methodology that will be adopted for achieving the objectives and the study limitation and restrictions.

- **Chapter Two:** A literature review including relevant topics. This chapter presents many key related themes; it discussed the relationship between geopolitics and urban growth, in this context cases of cities around the world were invoked including: Berlin and cities in sub-Saharan Africa and colonial India. Another focus themes in this chapter that has also discussed deeply were: borders cities which includes the concept of political borders, furthermore borders cities and urban growth constituted an important part of literature review, under this domain another cases were reviewed in this chapter; Goma city and Zarumilla and Aguas Verdes cities.
- **Chapter Three:** The study site, a comprehensive geopolitical information's, data and maps at the local context were presented, they revolves around the WB and the Israeli plans, policies and practices after 1967. This chapter also included the selected case studies of this thesis; AL-Dahreih city and Tarqumyia town in Hebron governorate that are borders communities.
- **Chapter four:** Analysis, discussion and results, which discuss and analyze the five axis's of the analysis; borders shifting and geopolitical determinants, main roads and terminals, built up areas growth challenges and constraints, land use/cover and geopolitical constraints, Urban growth patterns. The collected data as shown in the methodology. As well as presenting the results of the data analysis.
- **Chapter Five:** Conclusion and Recommendations. This chapter highlighted the main of the outputs and results of the study according to the conducted analysis; it is also present the major recommendations that reached through the study.

CHAPTER TWO:

Literature Review

2.1 Geopolitics and Urban Growth.

"Experiencing oneself the 'dark side of planning' makes clear that planning is not benign and that planning can be a powerful tool for either progressive, pluralistic practices or oppressive ones, as means of regulation and control" (Gugerell & Netsch, 2017, p. 41).

Violence, disaster, and division are the dark sides of cities. While the majority of the world population is urban, this dark side can no longer be ignored. In the 20th century and throughout the Cold War the modern cities have been shaped by political violence, War, and politicized planning (Fregonese, 2012). "War is commonly understood as a phenomenon of one form of spatial organization". Control over urban space has often been the most important goal for the survival of states (Graham, 2008).

Cities, conflicts, and political violence have always formed mutual parties in geopolitics. "The city, the polis, is constitutive of the form of conflict called war" (Virilo, 2002, p. 5). Fregonese, (2012) confirmed that cities absorbs conflicts. Geopolitical competition carries multiple dimensions; militarization, ecological, cultural, ethnic, social and economic changes and transformations. As a result wars strongly imposing themselves as complex, but poorly explored redefining forces of cities. The world cities during the last two decades have experienced a geopolitical reshape. In these areas urbanism based heavily on political and specific anti-urban violence. Expanding or maintaining national territories have been the core of state vs. state wars, which were driven by geopolitical or imperial imperatives (Graham, 2008; Kaldor, 1999; Shaw, 2004). Urban geopolitics portrays the interaction and intersections between the urban space, war, and sovereignty enforcement (Fregonese,2012).

During the past several decades, cities undergone dramatic changes. Geopolitical struggles and violent conflicts over urban spaces and strategic sites tended to intensify the roles of the city in

reflecting political, economic, social and cultural change and domination. As well as shaping the physical landscapes of cities (Brenner and Theodore, 2002). "Power inequalities, exclusion, division, violence and war shape cities as much as planning, development and progress do" (Fregonese,2012 p. 290). Arguably, nations has expended great efforts on cities planning, construction, and growth. On the other hand almost as much efforts have been made for annihilation and killing of cities (Graham, 2004).

Conventionally, sovereignty can be defined as exclusive enforcement of internal order in the state and the protection against external threats. It is seen as the legitimate monopoly of using violence within the state territory. While that sovereignty scene including broader dimensions formed by many actors (Agnew, 2005; Fregonese,2012).

The dark side of urban planning revolves around the deep and direct mutuality between the politics and physical structure of urban space. Urban geopolitics mission is the microscopic examination for the fusion of geopolitical transformations and urban sites (Fregonese,2012).

Shaw (2004), reached a general argument about the understanding and classification of political violence and war. He argued that "urbicide" is one of genocide forms and not separated from it. Urbicide used to explain the systematic aggression and annihilation against the urban fabric (Fregonese,2012). According to Shaw (2004): "genocide" is a specific form of war, and should not be separated from it. Political violence involves buildings, infrastructure, and public spaces destruction as an act deliberately obliterating the original identity of spatial space (Fregonese,2012).

The mass annihilation of cities in urban Japan and Germany during WWII demonstrates as powerfully example of killing cities. Ironically, both extremes were often associated with urban planning ideologies, in the case of Japan urban planning practices geared toward urban growth, but in Germany, the dark side of planning geared toward place destruction or attack.

A new trend of cities has emerged and grown in the nineteenth and twentieth centuries "industrial cities". This type of cities has been globally associated with wars. Political conflicts compiled between the selective destruction and also extensive attacks on urban spaces and populations. In the twenty-first century, the grab and conquest of cities with politically and strategic importance stayed an ultimate goal for the national survival (Shaw, 2004).

Dincecco & Onorato, (2013) stressed that military conflict has led the wheel of urban and economic growth in pre-industrial Europe from 1300 to 1800. The analysis were conducted by using GIS analysis beside econometric methodology. The study analyzed the destructive effects of conflict that

were worse in the countryside, leading to urban sprawl behind urban fortifications. Accordingly a significant, positive relationship between conflicts and historical cities urban growth.

Divided cities accentuate a model case for investigating urban conflict and understanding the impact of geopolitics on urban growth. Division takes several forms, including physical structures like concrete walls, security barrier and fences, or virtual and subtle dividing lines (Fregonese,2012).

Fregonese, speaking in 2012, pointed out that literature on divided cities highlighted the vital role of the political urban planners in conflicts and tends to consider them as a main interlocutors of urban spaces. The former stressed that spatial spaces serve as a micro lenses on the political conflict in the city. Violent geographies of cities is the ground for investigating: warfare, division, threat and security (Gregory and Pred, 2007).

The city and the war have always been directly and closely intertwined and shaped each other. There are evidences of this in urban and military history. Throughout the world, people who live in, migrate or even who had been expelled from cities can be considered witnesses on urban life crises. In Africa, Asia, Europe and Latin America, there are many prominent cases and evidences of the history of city-states and their massive urban fortifications, which confirm the fact that cities has always been real agents and basic targets of wars and conflicts (Graham, 2008; Hewitt, 1983).

Historically colonial town did not randomly emerge. In the period between the beginning of the seventeenth century and 1940s, colonial powers had produced a standard colonial town planning model led by England and Britain (Home, 2013). "Colonialism deployed many forms of urban built environment which have lasted, including the gridiron street plan, the 'fan' design of surveillance, devices for racial segregation, and low density residential patterns" (Home, 2013 , p.130).

This section will discuss the planning process under geopolitical determinants internationally, explore the distinguishing characteristics of different cases and track the change of its urban growth and structure within them. Three prominent cases will be reviewed: ***Berlin, Sub-Saharan Africa and colonial India.***

Berlin the largest German city, the Berlin Crisis and accordingly the construction the Berlin Wall in 1961 was one of the most prominent events; it was one of the hallmarks that symbolized the Cold War (Hansen & TUM, 2015; Leuenberger, 2016). The split of Germany was a major outcome of the Second World War; Germany has been divided into four occupation zones: British, American, Russian, and French. Berlin was excluded from all the zones and put under a separate four-power regime. The city was divided into West (USA, UK, and France) and East (Soviet Union) sectors,

despite that political division; the two parts were not separated on the ground with physical barriers until 1961 (Caner, & Bolen, 2016).

Freedom of movement between the four sectors was initially unrestricted, but by 1960 thousands of East Berliners has enabled to move to the West for work and improving their living conditions. Accordingly, in 1961 the Western sectors of Berlin has been surrounded with barbed wire by a decision of the East German government, and the wire transformed to reinforced concrete wall and was armed by police forces and military of the German Democratic Republic GDR (figure 2.1), cutting the citizens off from the outside world and restricting movement for long decades of division until the fall of the wall in 1989, after German government decision of opening borders, in response to the increasing public pressure and as relations between the two sides started to cool off in 1980s. The fall of Berlin Wall is mainly seen as the termination of the Cold War and the end of eastern European countries existence in the Soviet Union (Schuler,2014; Loeb,2006).

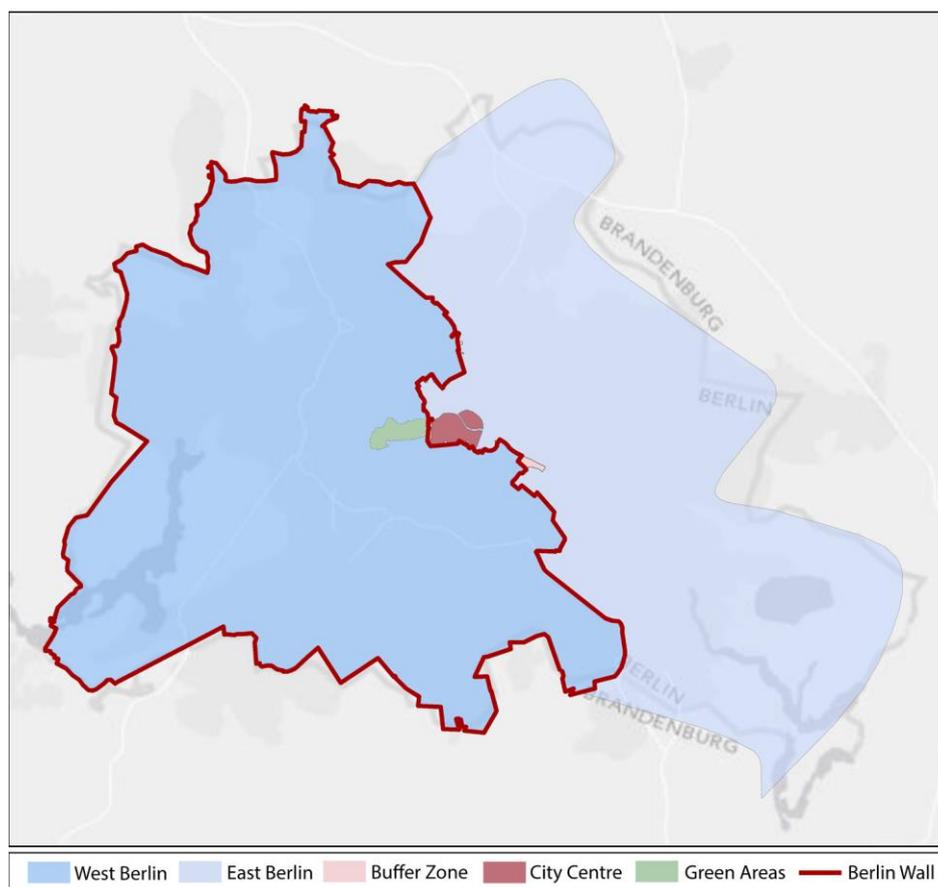


Figure 2.1: Berlin and Berlin Wall during division, 1961-1989. (Source: Caner, & Bolen, 2016).

Berlin wall was a real physical and mystical example of a radical divide and barrier encompassing all political, economic and ideological aspects between two worlds. In the European scale, it was

unusual act of planning (Freidine, 2012; Goebel, 2003). By the wall, the communist East Germany divided from capitalist West Germany for decades. The purpose of establishing that physical barrier was “defensive barricade” by the socialist state to control the infiltration of undesirables, mainly fascists, National Socialists, and smugglers. After the split into two states. This wall was considered an international border between them to protect the newly created East German state (Leuenberger, 2016).

During the Cold War maps produced by East and West Germany used the visual and spatial configurations, they reflect how Berlin became a disputed representational space according to contrasting and diverging geopolitical aims. The case of Berlin wall resembles an ideological separation caused by political crisis, rather than religious, national, or ethnic differences (Caner, & Bolen, 2016). The construction of spatial relations to obscures the urban division and non-continuously territory served as tools to erase, emphasize, and include places for reflecting wider geopolitical visions (Schuler, 2014).

In a quick review to highlight the trends of urban planning in the two halves of divided Berlin during the years of division, the ideological differences between the political regimes in each sector have promoted different planning agendas. Despite the differences, there were three axes of similarity in planning trends especially in the early stages of division until 1950s; reconstruction and clearing the debris of war, then mega housing projects in suburbs of Berlin in both sectors, and in the last phase both sectors focused their efforts on city centers conservation (Caner, & Bolen, 2016).

In the East, the planning model was neutral and based on strategies of avoidance. Plans were prepared centrally at the state level. The plans ignored the West moreover; the future development vision of the city was developed in the light of an ever-lasting division (Ball, autumn et al.2010).

Many planning principles in that period has adopted the Western modernists’ planning ideologies and approaches especially the limitation on urban growth and encouraging skyscrapers construction (Von Beyme, 1990; Caner, & Bolen, 2016). On the other side, the administrative department was responsible for city planning and the land-use plan was the main guideline tool for development. All development plans have been built to take into account reunification. They have been based on maintaining links especially roads, and preventing any constructions that would impede the proposed future infrastructure after reunification and future reunion.

Berlin’s urban growth and development was restricted by geopolitical tensions and conditions (Rao, 2008). During 40 years of division Berlin wall was a physical manifestation of geopolitics. The wall

has affected the shape, character, fabric and spatial elements such as: streets, lot lines, etc. of both halves of the city. After division, the original city center belonged to East Berlin. Which means creating a new city center and relocating the Central Business District for the West side. At the beginnings of division period, the population of West Berlin were almost 2 million, while some 1.5 million in the East side (Haeussermann, & Kapphan, 2004; Greinacher,1996).

The symbolic urban space of the city center in East Berlin has been allocated as a central political and economic development district. The periphery areas of the city were developed to become urban expansion areas for residential land uses neglecting old quarters. The growth pattern based on compact development and high-rise buildings urban growth policy. Accordingly, urban expansion policy in East Berlin during division years has affected the inner city population density, which were decreased from 179 people per hectare in 1950 to become 111 by 1988. The population density in the periphery areas and outer regions has increased from 17 to 20 people per hectare to become nearly the double reaching 43 per hectare (Haeussermann, & Kapphan, 2004).

On the other hand, the case of urban development in West Berlin was extremely different. The city urban structure was deliberately made or kept decentralized as the city structure lacked a real center because of the other side acquisition of the center within its borders. The limited available land area was not conducive to urban growth. In the city master plan after division, there were actually some changes in building structures and street networks. However, in fact the renewal, modernization and redevelopment old city structure wasn't made until the 1980s (Haeussermann, & Kapphan, 2004).

In the first stage of division, the city has received elaborate subsidies from the Federal Republic of Germany to support its economy, particularly the industrial growth. The wall has surrounded the city since 1961, the restrictions imposed by Western Berlin after the siege had severely weakened East Berlin's economy (Rao, 2008). On the other hand, the expected result was no suburbanization phenomenon that have already occurred. The lack of private investment in housing has also contributed in preventing this phenomenon. The limited housing investments were subsidized by the government. The periphery areas of the city were characterized by low-density and distributed urban growth. Small flats or compacts were constructed on open space of periphery areas (Haeussermann, & Kapphan, 2004).

The physical division of the city has a clear imprint on the city function. As the government moved to change the identity of the city after the deterioration of manufacturing movement because of the wall and division. A new identity has been invoked to resist the siege restrictions and to maintain the

city's importance internationally. West Berlin was transformed into a cultural city whose development policies aimed at developing cultural facilities and institutions (Rao, 2008).

Internationally the planning perspectives and tools have evolved over time. Planning under separation was focused mainly on land use management, settlements layouts and design. Njoh, (2009) stressed that town planning policies during the European colonial era in Africa and Asia was the most masterful tool for colonists to impose sovereignty on the spatial space, moreover to control economic development and social aspects. From the former point of view, understanding the objectives and the hidden goals behind colonial spatial policies is the basis for the success of any future planning of those cities that have fallen under colonialism.

In his book "*of planting and planning: the making of British colonial cities*" Home (2013), argued that between the early seventeenth century and nineteenth century a standard grand model of planning colonial settlements had gradually emerged by Britain. He summarized the main components of the model as follows: a policy of deliberate urbanization, allocation of land rights in town, suburban and country lots, geometric wide streets layouts, public squares were core items of the settlements plans, standard-sized plots, physical difference between country and town, and green belt around settlements. Colonial dominance was expressed in land expropriation and land use control. Colonialism deployed many forms of urban structures, which have lasted after the end of colonial rule, including the 'fan' design of surveillance, physical segregation, and low density residential areas.

In *Sub-Saharan Africa*, the different types of colonial rules and colonial legacies exceedingly influenced and shaped the spatial structures of cities. World War I, laid a clear imprint and changed the colonial map in Africa. At the end of the 19th century and early 20th, the colonial governments had developed governance procedures and urban plans before the end of WWI, the influence of those plans and procedures kept setting the tone for the coming decades (Baruah, Henderson, & Peng, 2017 ; Myers, 2003).

British practices during that period in colonial Africa were one of the most striking examples on Foucault's notion of the 'Great Confinement' and the 'great confinement'. The imposing of force encompassing the manipulation of the built environment elements by using physical objects, such as fences around to enclose the Europeans residential areas, military barracks and 'enframe' camps (Home, 2013;Njoh, 2009).

The threats and power in the built environment are used as visual rhetoric to secure compliance. The selection of strategic locations for colonial towns was planned to achieve political and security objectives. Exaggerated scale buildings construction of enormous monuments by colonial powers or their agents in Africa aimed to achieved the goals of ‘domination’ and ‘intimidation’. Segregation in the built environment, specifically racial residential segregation was the most predominately used form of ‘power over’ in planning the spatial space of colonial Africa. Colonial governments tended towards boundaries and pathways construction to achieve separation in addition creating privileged enclaves of access. It was clear that the European colonial town planners were working to spread the idea of "garden cities" throughout Africa (Home, 2013;Njoh, 2009).

The policy of establishing housing units for indigenous people within European colonies should not be taken with good faith. That policy carried gestures that seemed to allow Africans to live there, was in reality a racial segregation policy that has put in place to fight the African migration to the colonies. Strict conditions were put in place for access to and entry into colonies, only those who had jobs in the settlements that they could reach. In addition, many colonial authorities applied ‘pass laws’ to restrict indigenous access to new colonies and urban areas, in some settlements, access and transit were only visible to workers in urban areas (Home, 2013; Njoh, 2009).

Planning was a tool sought to achieve the following colonial goals that can be summarized as follows: Protecting the newly occupied territories, reducing nationalistic resistance to liberate colonial territories, strengthening road networks between colonies and urban centers that linking them to ports and agricultural land, and planning road networks to facilitate rapid movement of armies in war situations (Wright, 1991; Home, 2013). The economic power of the colonial state in Africa was one of the important pillars colonial governments sought to achieve through the control of many economic sources as possible. Land registrations and records was a strategic way of economic and urban space control (Njoh, 2009).

Sub-Saharan Africa is characterized by rapid urbanization and growing urban population. This is accompanied by a very special case of apartheid and racially splintered fragmentation urban landscape legacy. Capitalist colonial system legacy has created very challenging conditions for African cities urban growth and development. South Africa still tainted by the apartheid past, accordingly, urban judgment standards are impossible under the existence of these challenges. The process of dealing with urbanization in South Africa is vague and complex. Rural development is the priority of the colonial government. On the other hand, the government is neutral at the national planning level and adopting national urban policy. Apartheid segregation patterns are responsible for

amplifying the challenges of the inequitable and inefficient layout of the country's cities, in the context of the continued reproduction of spatial patterns of apartheid as evidenced by the rapid expansion in peripheral zones urban settlements (Rogerson, Kotze, & Rogerson, 2014; Turok, 2016).

British colonial indirect regime and a dual mandate had affected the Sub-Saharan Africa cities urban interactions the spatial structure. The British colonies in Africa were characterized by decentralized development within cities, low population density, scattered land use development, urban sprawl and leapfrog development at the outspread margin, in the absence of a comprehensive and integrated spatial development plan (Baruah, Henderson, & Peng, 2017).

The study of Baruah, Henderson, & Peng (2017), investigated the impact of colonial rule on urban growth of 318 cities of British and French colonies in Sub-Saharan Africa. A statistical analysis of population growth and built cover data in the selected cities was conducted in the periods between 1990, 2000, and 2014. The main findings of the study can be summarized: British cities were characterized by high urban sprawl, low-density growth. Unlike the Francophone cities that were characterized by compact urban growth patterns, intensive infrastructure development in city centers and more grid-like city structures.

Another unique case is *Colonial India*. It should be noted that in pre-colonial urban formation it was common to fortify urban areas with walls to separate them from the countryside. During the sixteenth and seventeenth centuries, the Mughals had founded many urban centers showed the greatness of their empire; the cities were fortified with walls and gates, and within them they built the various aspects of urban life, such as gardens, schools, palaces and temples. With the fall of Mughal rule over India in the eighteenth century, a radical change took place. The Mughal urban centers began to decline to be replaced by new urban centers (Shaw, 2009).

After the British colonial domination of a number of Indian coastal cities in the mid-eighteenth century, a new phase of change has begun in the history of India. Gradually forces of mercantilism, international trade, and capitalism defined the nature of the British colonies in India. From the British colonial government perspective, different degrees of segregation and integration was a main goal. Great attention was paid to commercial infrastructure planning of colonial cities. Records and documenting was one of the best control tools over the region. Wherefore great focus was on producing a huge number of commercial records, municipal taxes records and maps, conducting surveys and publishing official reports. In general, during the British mandate planning and development was concerned with their colonies especially on Bombay, they established civil lines,

the administrative headquarters, cantonment, and industrial and port zones (Spodek, 2018 & Shaw, 2009).

After the Revolt of 1857, the nature of the colonial city in India have been changed to achieve securing by segregating and enslaving the native peoples. Ethnic cleansing was carried out in agricultural areas surrounding the Indian colonies. The so-called “Civil Lines” had been developed, within which the colonists were living in safe enclaves. The colonies were planned, designed and built in an encouraging way of life and all infrastructure services were available. Quite the opposite of the densely populated Indian communities that are infested with chaos and disease (Spodek, 2018 & Shaw, 2009).

To manage the chaotic growth of Bombay’s, the first town planning legislation in India was enacted "Bombay Town Planning Act of 1915". That system provided guidance for zoning, acquisition of land for public purposes, building regulations, and local improvements funds collection. Between 1915 and 1924, the famous planner Patrick Geddes put his distinctive influential ideas, but his ideas was not immediately implemented (Spodek, 2018).

After the complex period that led to the decolonization of India and the declaration of Independence in 1947. It took years to redefine the identity of the country. Between 1947 and 1965, the country witnessed a remarkable period of institution-building and restructure. In addition, the development of centralized public policies approach that promote urban growth in the country with some chaos and confusion in the first period after independence. After the maturity of political thought and planning in the last years of that period, the view was adopted that the postcolonial state should not be treated as an independent entity. Because it holds a huge colonial legacy, encompassing both “the spiritual” and “inner” domains that would not been easily overcome. The country has undergone a period of involuntary colonial modernization, in which many administrative, judicial and military institutions continue to follow the former colonial approach (Shaw, 2009).

Briefly, by the 20th century, old planning scenarios have changed in India, by the professional town planners and the growing nationalist interest in municipal politics. However, the colonial legacy has not ended radically in many Indian cities. The marks of the geopolitical partition remained in place despite attempts to reshape those cities (Spodek, 2018).

In colonial India, the investigation of urban structure of Delhi city over time represents an ideal case for studying colonial urban growth. The British colonial policy of deliberate urbanization based on its grand planning model had been reflected on Indian colonies (Home, 2013). There have been five

successive stages of urban growth linked to the geopolitical situation in the country provided a detailed urban transformation case (figure 2.2). Old Delhi the indigenous city that date back to the seventeenth century were surrounded by walls. The spatial shape of a 'pre-industrial' city was dominating; narrow streets, traditional crafts and small-scale industry along one main road, and there was no distinction between residential and work zones. In the nineteenth century, civil lines have been developed and colonial urban settlement was established by constructing old cantonment in the north of the old city (King, 2012; van Roosmalen, 2011).

The urban development of Delhi between 1911 and the end of colonial rule started with the establishment of New Delhi colony, which had been developed and extensively enlarged to become a very low residential density. It was planned based on 'garden city' ideas in British colonial planning culture and norms and segregation policy. Spectacular visual aesthetic scenes were part of the colony urban layout. Functional specialization of land use classifications between work and residential areas had taken place according to the plans of the industrializing colonial power (figure2.3) (King, 2012; Legg, 2008).

Colonial government directed the city towards industrialization and metropolitan development. There was a radical difference in the planning of the roads, where the streets were planned to be broad and continuous designed for a motorized use rather than a pedestrian mass in addition to highways construction in the successive periods. A major area in the south-west of the city was allocated for permanent or cantonment military camp (King, 2012; Legg, 2008).



Figure 2.2: Delhi, 1970. Physical-spatial areas; 1- Indigenous walled city, 2- Former colonial urban settlement of New Delhi Extent of developed or built up land in 1942 (dotted line), 2a- Civil Lines, 3- Cantonment or military camp, 4- Area of post-Independence expansion, 5 Urban fringe. (Source: King, 2012).

Between 1911 and 1921, the city population was expanding rapidly due to the rising numbers of government employees in addition to the absorption of about 200,000 refugees after Partition. Delhi became the largest spatial unit and has experienced tremendous population growth since 1947. During this period, large housing, infrastructure and public facilities projects were constructed in the city. The rapid and growing urban growth has led to intermingling of urban and rural areas. In 1971, the city population had reached over 3,500,000. The urban landscape and the spatial space of the city contained two contrasting and totally different urban products: the first was original Indian spatial form in the old indigenous city, and the other was colonial British form in New Delhi with its cantonment (King, 2012; Legg, 2008).

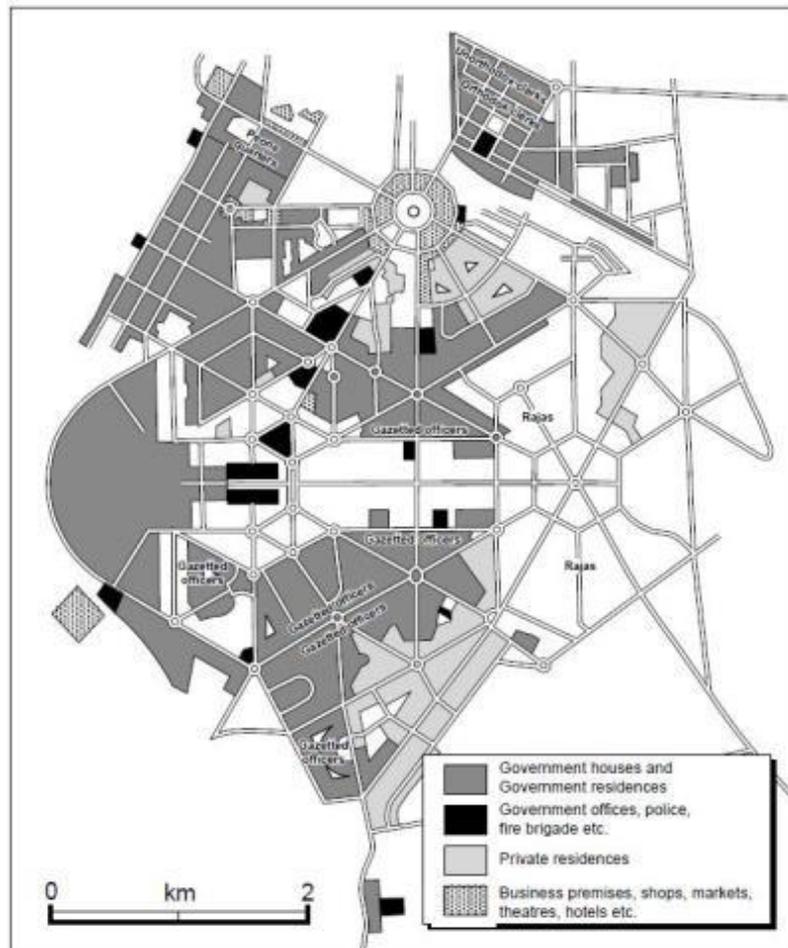


Figure 2.3: Actual layout of New Delhi land use classifications as in 1938. (Source: Legg, 2008).

In **Berlin**, **Sub-Saharan Africa** and **Colonial India** urban planning was used deliberately as a tool of geopolitical division and sovereignty. In a colonial context, the dynamics of urban growth in divided cities had reflected the effects of a combination of political, military, economic, demographic, and spatial determinants. The growth shapes and patterns were fashioned under the dominance of colonial town planning policies, practices and plans. These cities were loaded with a confusing legacy that can't be dealt with freely and impartially. During division, these cities were subjected to different planning scenario as a result of division.

Literature of geopolitically divided cites indicated that there was mutual relation between geopolitical division and cities urban growth. Through the study of the previous cases, different spatial planning approaches have been applied in each case and resulted in different urban growth consequences, there was a common trend in reshaping urban growth patterns, city structure and function in these cases.

The urban growth of the colonial cities cannot be understood apart from their fundamental role in establishing, confirming, systemizing, authorizing and maintaining colonial rule. Indeed cities urban growth must be seen as more than an artistic or spatial matter, as cities embodies and signify the succession of political events and their economic and social consequences on the spatial space.

Another aspect that comes through the study of geopolitically divided cities is that many forms of urban layouts including: the garden cities plans, land use, gridiron street patterns, devices for spatial segregation, urban sprawl, and low-density growth patterns, were prominent patterns through which the mandate governments put their imprint on the spatial space of those cities in order to serve their colonial aspirations and ambitions. Perhaps the most serious legacy of colonial regimes was revolved around creating an imbalance urban growth between indigenous and colonists.

2.2 Borders and Border Cities.

Historically, borders are means of protection and security that man has created since ancient times (Kokalanova, 2013). According to Hage (2003, p.65): "Everything and everywhere is perceived as a border from which a potentially threatening other can leap". The Roman Empire, has built fortified cities as centers for defensive purposes against hordes. For more than a thousand years afterwards in medieval Europe, the cities were fortified spaces. Modern cities were grown, developed and surpassed its original fortifications (Graham, 2008).

Borders are generally imposed by force and land grab in the course of wars and occupation. Contested borders is precisely a live issue between the concerned parties, the original status of the borders before demarcating cannot be forgotten. Border conflicts regions vary widely in terms of history, political, geography, symbolism and permeability. The demarcated borders is denied by one side, meanwhile it legitimized by the other as the Berlin border conflict case (Anderson & O'dowd 1999).

“bordered power containers” was the geopolitical description that given to modern nation European cities in the sixteenth and seventeenth centuries. Such cities have emerged as a result of political violence motives. The functions of these cities were colonial acquisition, control, violence, repression (Graham, 2008). The resulted geopolitical situations from wars and conflicts have imposed more security and military efforts and practices. Borders security become the basic principle among all states activates (Kaldor, 1999). Graham (2008), pointed out that all boundaries in frontier

lands are temporary and permanent shifting. Political coalitions, flux friendships and enmities are the real border makers in the power struggle.

Boundaries have been a key component of the modern geographical literature. Indeed borders have a stronger political use and indication than boundaries; they have emerged in modern times to express the territorialized powers balance (Szary, 2015). Borders are means of demarcating physical space, securing political entities, discriminating social groups (Di Cosmo & Wyatt, 2005). Political borders are completely different from physiographic boundaries such as rivers. Generally, political boundaries usually ignore the biophysical patterns and functions (Varady & Morehouse, 2003). There are two types of borders: the natural boundaries separating nations and communities on the basis of existing natural separations, and the abnormal borders resulting from wars or colonial invasion and the latter type are linked to the continuity of the conflict on those borders (Abu Sitta, 2010).

Physical and virtual borders are multidimensional and dialectical elements in urban space. They crystallize the city structure, function and morphology. Border cities are acting as urban gateways between two or more connected countries (Chen & Stone, 2017). According to Falah & Newman, (1995) borders are the spatial encapsulation. The essence of borders is the dual function of connecting and separation. Borders are associated with three main concepts exclusion, marginalization and integration. The demarcation of borders globally or locally is usually resulted from the existence of dual political conflicts or interests in an area (Kokalanova, 2013).

Separating the “self” from the “other” is the purpose of creating borders. The major functions of a border is acting as a barrier that protect the insiders from the outsiders. Boundaries locations may change through time by expansion and decline (Newman, 2003). Undoubtedly, borders are not only national sovereignty limitation, but they are responsible for developing its adjacent urban space by reshaping its economic, social, environmental and cultural diminutions (Newman, 2003: Guardia, & Bensus, 2017). Borders are the maker of national as well as urban identities as they are functional territorial lines. Territorial restructuring and border demarcation are associated with power and conflicts (Newman, 2003). According to Lynch (1992), the city cannot be considered a fixed object, it is the dynamic product of many builders over time who are reshaping its urban structure for reasons of their own. Although borders are, changing and shifting but they do not completely disappear altogether (Falah & Newman, 1995). In borders context there will always be cases where powerful state seize and hold the lands of a weaker neighbor (Prescott, 2014).

In his famous book the *Image of the city*, Lynch (1992), has defined and explained the key elements of urban space: paths, edges, nodes, districts and landmarks. Lynch has defined the edges in urban space as borders and linear paths. He stressed that the edges are crucial elements in shaping the urban structure of the city and they are associated with its identity and function. He put forward a very important concept when he argued that morphologically the borders performing a task of guiding development orientation of the city and defining its function as it is the reference lines for what it divides and what it connects. Beside the morphological diminution of borders in the urban landscape, on the other hand, they have their spatial, political and economic rhetoric that have its unique imprint in the formation of physical space (Kokalanova, 2013). Varady & Morehouse (2003), analyzed the disparity and complexity of political borders impact on cities. They argued that border cities face four major problems; first, “borders separate problems and solutions.”, second, “borders create perverse economic opportunities.”, third, “borders aggravate perceived inequalities.”, finally “borders obstruct grassroots problem-solving.”

The notion of the political borders has traditionally been correlated with the adjacent areas "borderland" around boundaries lines, borderlands are the closest geographic proximity to the national border and its spatial development is affected by its location relative to the boundary (Prescott, 2014). In "borderland" the existence of border is directly affect the sphere of activities in that spatial space, in the case of open borders with few restrictions on movement from one side to the other (Newman, 2003). Perrier (2013), argued that borderlands have their own dynamics (physical, economic, political, social, and cultural) that resulted from political decisions, formal and illegal markets. In border zones development plans, there are three central economic relative advantages that stimulated according to their position at border crossings: developed logistics networks, diverse economic structures and regulatory avoidance. Usually these unique potentials of border towns is unexploited (Hansen, 1977).

Prescott (2014), argued that throughout history the countries of the world have not been created simultaneously; there was always the former and the later. Accordingly, international borders have not been stable, but have continued to change over time as many countries in Europe North, Asia, and South America. In Africa their some exceptions for some countries such as Mozambique and Somalia, which have maintained their borders after independence without any change. The borders and territory were associated with the struggle history of the nations. Borders evolution maps and their changes of each country, lists the political, military and diplomatic history of those countries and highlighting the events that have contributed to the formulation and restructuring of borders.

Historically natural borders such as rivers and lakes were behind the formation of the boundaries of cities as in many European border cities. Nevertheless, there is a different situation under geopolitical conditions in which some cities have become border cities because of the demarcation of borders between countries. In some cases, borders setting and their related economic dynamics in border crossings have led to the creation of new settlements (Nugent, 2012). In border cities economic activities has produced urban distortions phenomenon resulted from commercial landscape that associated with the border. Polish-German border towns were predominant examples of this state of urban distortions after the division of these settlements in 1945 after WWII (Kurnicki & Sternberg, 2016).

The boundaries of urban space arise from various and different decisions: geopolitical, administrative, social, urban planning. Borders have dialectical character, meanwhile they separate territories and nations; they are dividing local urban space in border-lands, regions and border cities. International borderlines in Singapore or Hong Kong, and divided cities such as US-Mexican border cities, Jerusalem, pre-1990 Berlin are apparent in these enclaves. Removing the borders and overcoming them was the focus of earlier border studies especially in Europe. Contradictions abound at borders, subsequently borders functions become more obvious, they protect, allocate power, ensure control, foster identities, and facilitate administration. However, those functions are core points of conflicts and conflicting interests between different actors and sides of the border (Breitung, 2011).

According to Anderson & O'dowd, (1999); Borders both shape and are shaped by its content and what permissible to cross or is prohibited from crossing. Borders cities radically varies in sizes and shapes, some virtually empty others highly populated, they also differ in the strength of economic activities. The former argued that Border cities and regions are featured by dynamics political and economic power, they are unique areas during and post conflict periods.

Historically and geographically, the geopolitical and economic significance of border cities and towns varies greatly (Wilson & Donnan, 2016). Border regions display many differences and dimensions due to the border historical, geopolitical, symbolism and permeability characteristics. As well, urban growth in border regions comes in many shapes and sizes in terms of population density, economic activities abundance and political status (Anderson & O'dowd, 1999).

Jan Buursink (2001, p.588), presented a crucial definition for border cities: "A border city is, in our opinion, a place that is more or less dependent on the border for its existence. That is to say, it's not just a city located close to the border, but it also came into existence because of the border". Based

on this deep vision of borders cities, the superficial definition of border towns according to the geographical location only cannot be relied on, as it views those regions from a narrow geographical perspective when it describe these zones as cities on both sides of the international borders (Nugent, 2012).

Wilson & Donnan (2016), pointed out that borders towns and cities often take an important role in regional commerce. They argued that the increasing population density and urban expansion in the cities and towns surrounding the US – Mexico border and borders cities in Africa was affected by economic development, the existence of legal and illegal crossings and the flow of migrants to these attractive zones.

The study of urbanization and urban growth in border areas has remained marginal in academia for a long time. Urbanization of border cities is not a straightforward research question. Although many border areas are considered low level of urbanization and development. However, there are exceptional cities whose borderlands have gained status, function, and new urban structure shape. Despite the paucity of studies on the planning of border towns. However, there are some notable cases discussed in the literature (Sohn, & Lara-Valencia, 2013). The following is a review of some cases that highlight urban growth in border cities.

Guardia & Bensus (2017), studied the urban expansion and borders conurbation in two Peruvian border cities on the border with Ecuador: **Zarumilla and Aguas Verdes**. The study analyzed the socioeconomic and territorial transformations that has experienced by this border zone (figure 2.4) which has changed from being a military tensions border zone throughout the 20th century between Peru and Ecuador, to become an open border zone in the 1990s, after signing the peace treaty between both countries, and ending the armed conflict between both countries. The writers discussed the reasons of attractiveness, the dynamics mobility, and the urban characteristics in the border zone. The most prominent findings of this study were can be summarized in; the first, border zones permitted the commercial development and the increasing of commercial activities has been a catalyst for the creation of Aguas Verdes district. Second, border cities has attractive properties and this lead to accelerated urbanization and urban sprawl moreover illegal markets (Guardia, & Bensus, 2017).

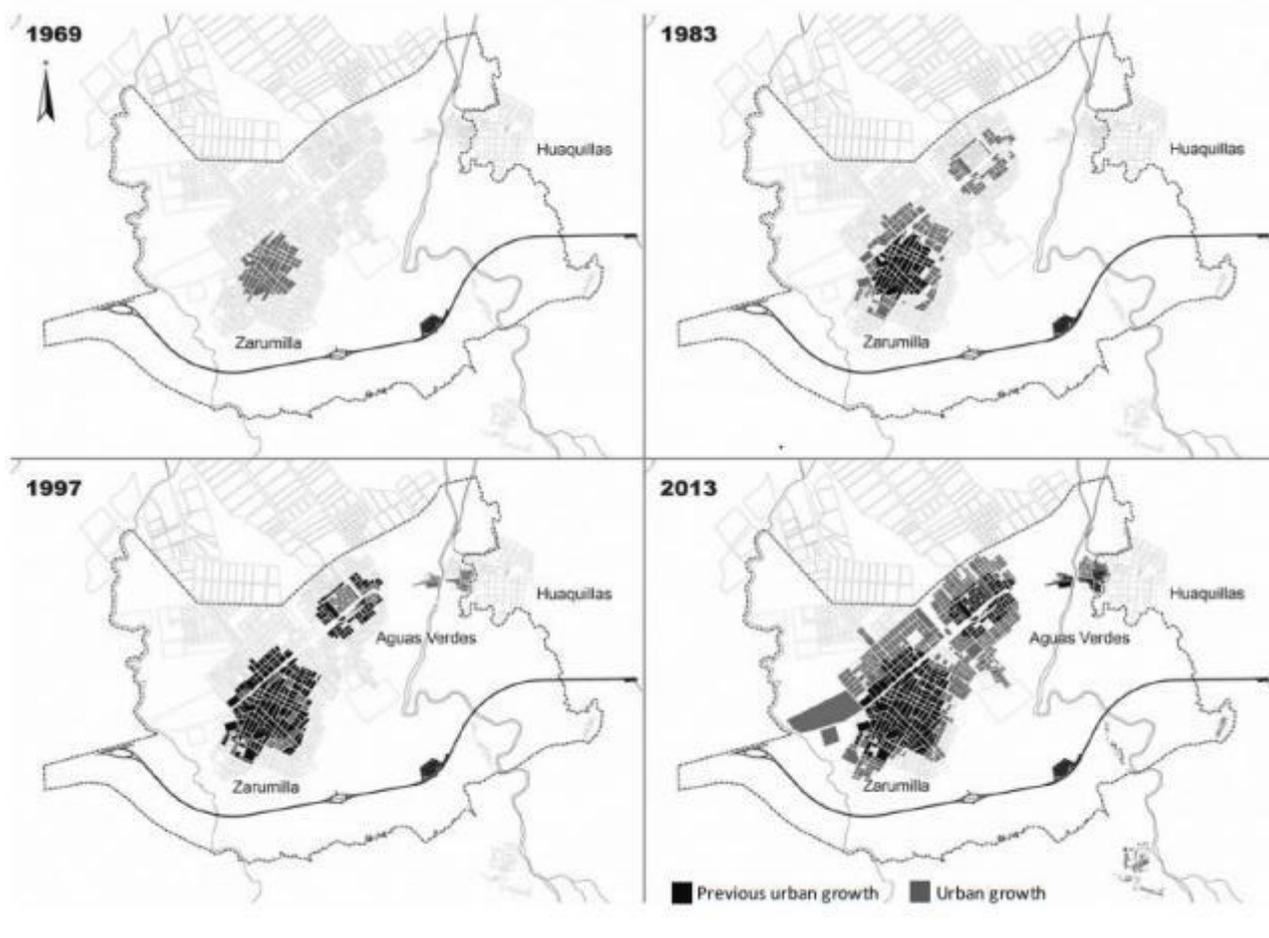


Figure 2.4 : urban growth of Zarumilla and Aguas Verdes, 1969-2013 (Guardia, & Bensus, 2017).

The city of **Goma**, the capital of North Kivu located on the borders of Democratic Republic of Congo's (DRC) with Rwanda, is one of the clear cases of border cities that acts as sites of circulation and openness, which has experienced a remarkable transformation due to state decline, violent conflict and massive displacement. Goma is one of the main five economic regions in Congo (World Bank, 2018). North Kivu region was neither peaceful nor static district even before the arrival of European explorers in the nineteenth century. At the beginning of the twentieth century, the colonial Belgians government reshaped the borders by regrouping small districts into new 'sectors' (Stearns, 2012).

Historically the city was an important trading center to eastern Africa, nevertheless the city's economic importance dates back to the Belgian colony in Africa (1918-1950), during that period Belgian colonizers continued to reach the city and this was the turning point of Goma from a modest ordinary city into an important colonial urban center. In 1928 the colonial government policy of

colonial urbanization gradually had transformed the city to become a sedentary economic center, moreover a crossing and transit station (Vlassenroot & Buscher ,2009 ;Buscher, 2011).

The politico-economic shifting has strongly affected and redefined the urban image of the city. Since the early 1990s, the city has entered a radical change phase from a small, moribund town of marginal economic and political importance into a regional military and economic center. The resulting geopolitical conditions have facilitated the connection of the city to extensive and prosperous trans-border trade networks. The urban realities of the city was interpreted as expressions of a growing autonomous urban space. The location of Goma as a border city has a crucial implication on the formation of urban identity of the city. A rich city with natural resources and important location as cross-border economic city has motivated its spatial development, urban expansion and raise its importance at the regional level (Vlassenroot & Buscher, 2009).

Physical borders are not extraneous or new phenomena in our world. It dates back to ancient empires and was intended to protect against invasion. By studying deeply many borders literatures, it is clear that there is a major difference between borders and boundaries in terms of discourse, rhetoric and the motivations for composition. Borders has political roots while boundaries often symbolize natural separations.

The core of this section was about understanding political borders and their fundamental implications on cities urban growth, structure, function and morphology. In many cases, during colonial periods borders demarcation under geopolitical conditions had imposed according to the vision and interests of the colonial powers. There was a close link between borders and political conflicts and domination. Through the study of borders literature, it is clear that permanent shifting is one of the main characteristics of borders.

Certainly, borders shift during wars and struggles was responsible for restructuring and reshaping cities. Moreover, in many cases it has led to the conversion of cities with normal locations to cities with border posts. Border cities are unique areas during and post conflict periods.

Economic and political dynamics are two vital sides in border cities. The border towns have great economic attractiveness due to their location as border gates. Which makes high predisposition for urban development and growth in these cities as presented in the two cases of: Goma city and Zarumilla and Aguas Verdes cities. Commercial landscape was described as an urban distortions phenomenon that associated with division in border cities especially in Polish-German border towns.

Most of the studies focused on; the border conflicts and divisions, the essence of demarcation of the borders and the economic activities in those cities.

CHAPTER THREE

Study Area: geopolitics, borders and border cities in the West Bank.

3.1 Historical Background.

Palestine is one of the few cases in the world whose borders have been a protracted conflict. The borders in Palestine goes back to the period after the WWI, which is still going on until now. This state of borders is unique and unmatched, as it combines the dynamics of the border change with military control, racism and continuing war. Foreign colonial hands has planned these borders, making it a cause for permanent conflict (Abu Sitta, 2010). Historical Palestine is the land that lies between the Mediterranean Sea and Jordan River (Figure 1.1) with global coordination of (31° North, 35° East), with a total area of 27,000 Km² (Coon, 1992).

Palestinian lands and people has experienced many mandatory regimes during the past century. As an inevitable result this has been reflected in the spatial space of Palestinian cities and communities. Within the time frame of the study, which focuses on the era of Israeli occupation the most prominent stations in the "Israeli"-Palestinian conflict were reviewed. The main Israeli policies and practices for the control over the spatial space were highlighted (Abdelhamid, 2009).

In the Palestinian and "Israeli" case, borders has been studied as empirical manifestation of state power. The attention was directed to Palestine, Jerusalem city according to the "Israeli" was the core of their state. In contrast, Palestinians perception of borders consists of the whole territories of Palestine, including all occupied lands by Israel. "The Palestinian National Charter of July 1968 defines this territory as constituting Palestine, with the boundaries it had during the British Mandate, as an indivisible territorial unit" (Falah, & Newman, 1995 , p.92).

After the end of the British mandate on Palestine, which continued from the year 1917 until 1948 . The UN partition resolution in 1947 was a milestone in borders demarcation at later stages of the Israeli-Palestinian conflict. The result was the decline of the Palestinian territories in the so-called WB and Gaza Strip, and most of the territory was occupied by Israel. After the war in 1948 Palestine underwent Israeli occupation. Since then, borders demarcation process has undergone continuous changes and ever shifting (Figure 3.1). The Armistice Line in 1949 was the base of shaping the borders (Falah, & Newman, 1995; Antari, 2015).

In his famous book *Hollow Land Israel's Architecture of Occupation* Weizman (2007, p.7), stressed that: "The elastic nature of the frontier does not imply that Israeli trailers, homes, roads or indeed the concrete wall are in themselves soft or yielding but that the continuous spatial reorganization of the political borders they mark out responds to and reflects political and military conflicts". Since the war in 1967 the Israeli colonial policies, plans, and limitations all has worked as one integrated system to facilitate the re-shaping and re-formation of the WB borders and expanding the occupied territories (Antari, 2015). This was part of the meticulous colonial strategy to create de-facto realities on ground (Falah, & Newman, 1995; Antari, 2015). In subsequent years, Israel has annexed hundreds of thousands of dunums and established numerous colonies in the WB and Gaza Strip (Samman, 2013). Figure 3.1 summarize borders shifting through the different consecutive historical periods according to the geopolitical situation. After the first war in 1948, the actual period of colony when the "Israeli" state was established, and Palestine became divided by the Green Line (Weizman, 2004). During this period, Palestine has been subjected to various colonial stages under the Israeli rule. Starting from the 1967 war post-colonial stage has not yet been achieved in Palestine (Samman, 2013).

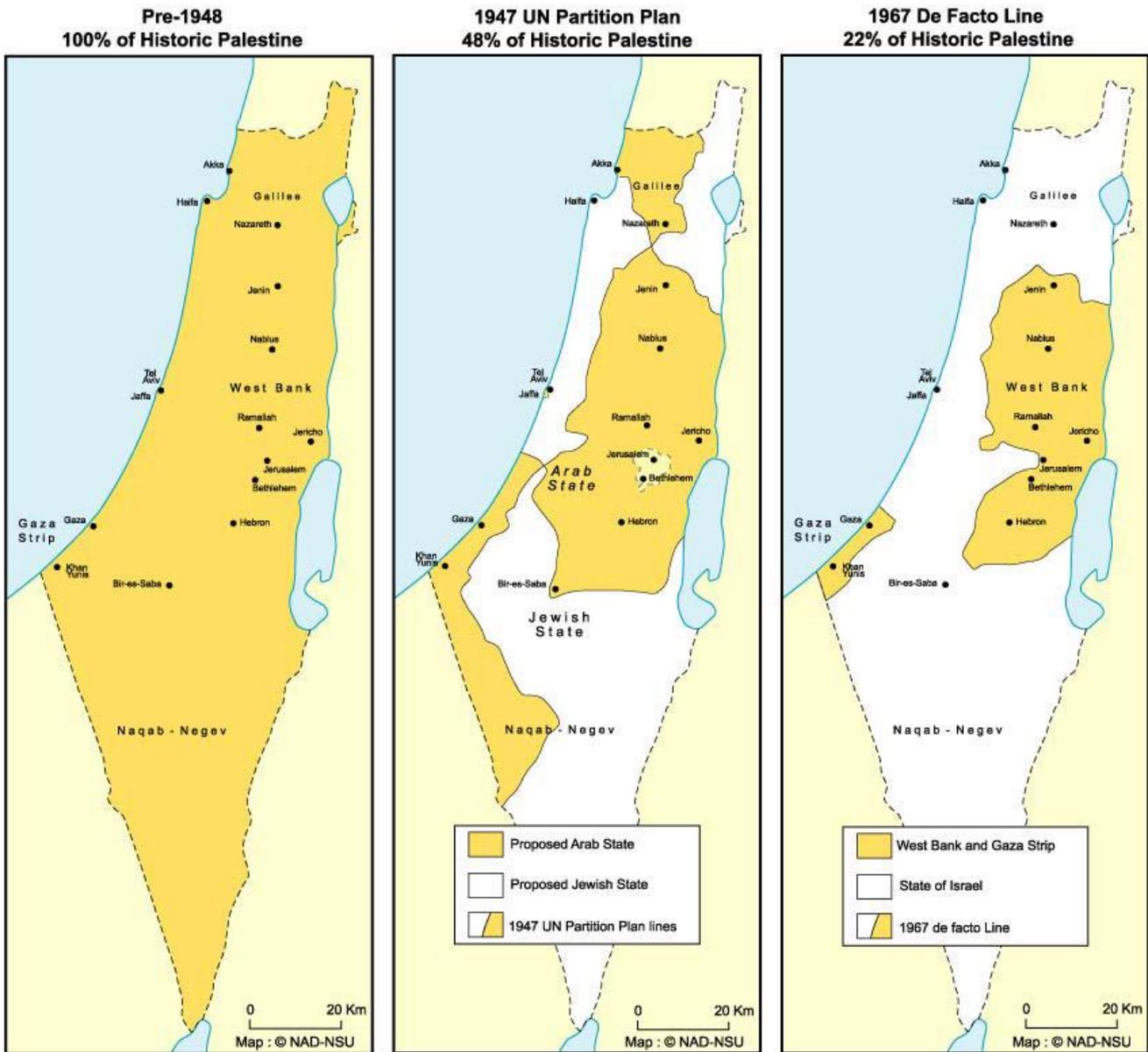


Figure 3.1: Reshaping Palestine borders (Source: NAD, 2008).

The Israeli spatial planning and regulations conceived space with a set of interventions that aims at achieving the maximum land acquisition as it is the tangible variable that affects primarily the reorganization of urban space. The Israeli government devoted enormous efforts since 1967. Obtaining fast connectivity between Israeli colonies and "Israeli areas" in the 1948 land, on the other hand ensuring and achieving a fragmented Palestinian territory under their colonial were also main objective of all Israeli plans is no doubt (Samman, 2013).

The Israeli development plans and planning legislations that were a continuation of British Mandate plans and legislations have had great direct impact on the Palestinian urban growth in the WB since 1967; they were used selectively as a tools to serve the occupying power and to facilitate its

development. Regional plans sought to prevent Arab urban growth outside the established areas of urban development, nevertheless creating prospects for unlimited colonial expansion and development in the WB., on the other hand, planning legislations has provided legal framework and means of controlling the type and location of urban growth (Coon, 1990).

According to Samman (2013), the Israeli colonial policy of territorial strangulation and fragmentation of the Palestinian communities has affected radically the urban space, the urban structure and the landscape of the space, by imposing obstacles that prohibiting the continuity and openness of the urban landscape. After the 1967 war, building colonies on strategic locations was part of a strategy that aimed to creating facts on the spatial space. The Israeli bypass roads were planned and superimposed on the Palestinian roads to act as a control lines, moreover dividing Palestinian landscape and controlling the dynamics of urban space. All these rigorous practices towards the conceived space was a part of a comprehensive Israeli policy of controlling the Palestinian urban growth (Samman, 2013).

During the 1980s, the Palestinian population was rapidly increased and accordingly urban growth were accelerated, Palestinian communities sprawled beyond the “blue lines” (the Armistice Demarcation Line between Lebanon and the "Israel" in Golan Heights. The resulted pattern of growth was a large continuous built up areas along the main traffic arteries, especially pronounced along Route 60, which is the most important Palestinian traffic route that passing through all major Palestinian cities. From the Palestinian perspective urbanity is a counter weapon in the face of the "Israeli" colonial urbanity (Weizman, 2004).

In 1982, Sharon Plan were published. The plan is a Master plan for Israeli colonies in the WB through the year 2010 (figure 3.2). It highlighted the strategic locations of more than a hundred colonies, in addition to setting the paths for a new arteries traffic network connecting the colonies with the "Israeli cities". The Israeli colonies and outposts in the W.B are protected by a complex set of fortifications means: barbed wire, checkpoints, ditches and dykes (Weizman, 2004).

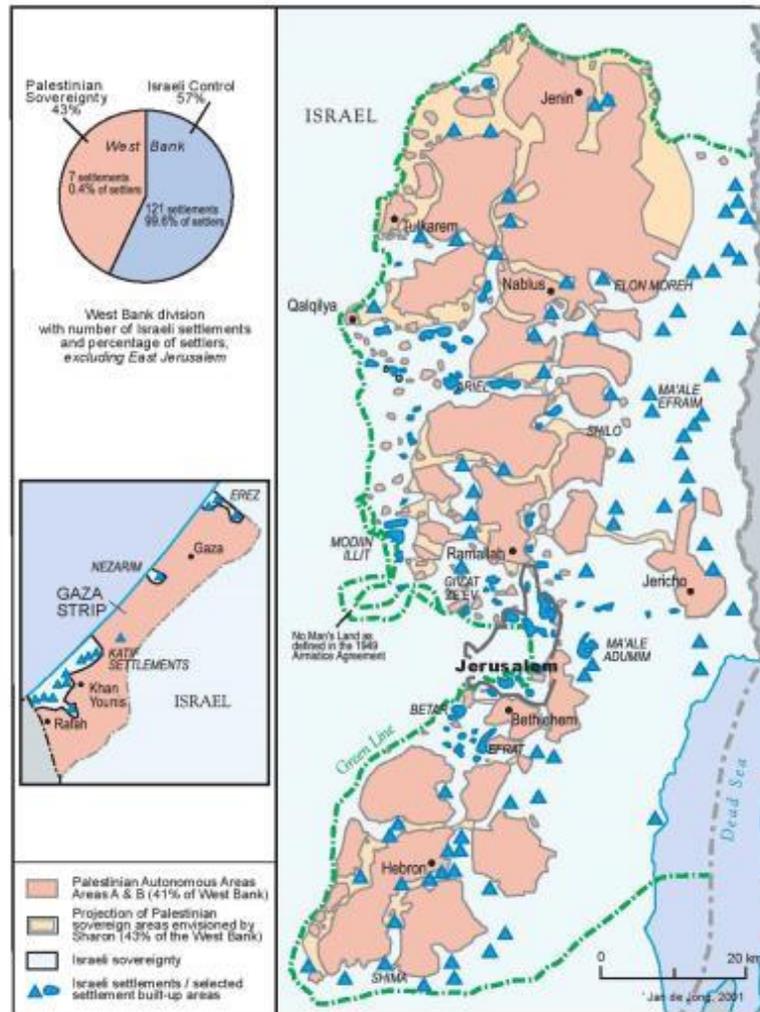


Figure 3.2: Sharon Plan, 1982 (Source: passia website,2019).

The year 1994 witnessed a major and historic change in the Israeli-Palestinian conflict after the signing of Oslo interim agreement. The Palestinian authority was declared. The agreement was the embodiment of fragmentation and division of the WB as it classified it into three different categories A, B, and C with different mandates and sovereignties (Figure 3.3). Area A was under exclusive Palestinian control, in area B the Palestinians exercised civilian authority while Israel continued to be in charge of security, and in area C 61% of the west bank area would be under control under exclusive Israeli control . Most of area C were designated for colonies, Israeli military uses and bypass. Under the terms and conditions of this agreement, the Palestinians agreed to have control over only a third of the WB for an interim phase that ended in 1998. Despite the clear alignment of the Oslo Accords, the "Israeli" government has obstructed the peace process. Moreover, disabled the

implementation of the full provisions of the accord (Zeid,& Thawaba, 2018; Shlaim, 2009; Bimkom, 2008).

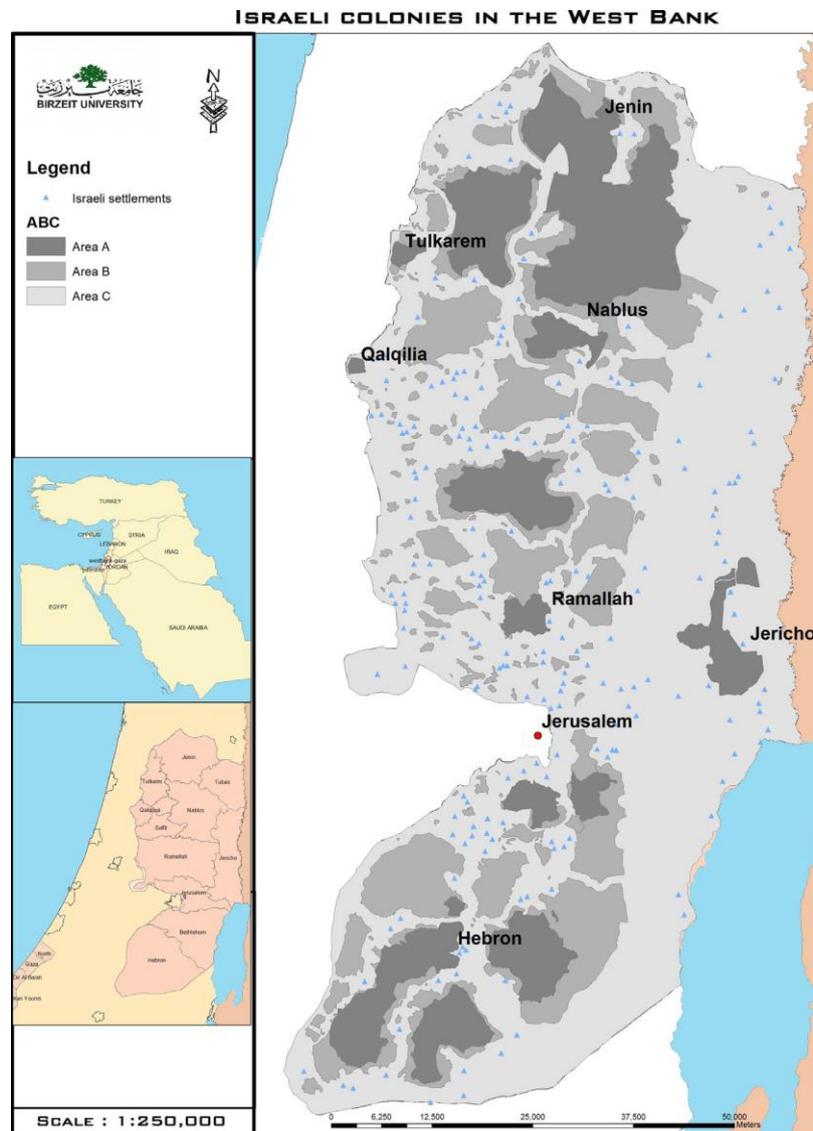


Figure 3.3: Oslo agreement map 1994 (source: Thawaba, 2018)

In 1994 the Palestinian Ministry of Local Government (MOLG) was established as a legal institute that responsible of following up, monitoring and supporting the planning process for Palestinian communities within areas A and B. Under the conditions of Oslo agreement, this institute has no powers in areas C, as a result the villages within this Zone were left without any developmental plans (Abdelhamid, 2009).

Thawaba (2011), argued that the fragmented structure of the Palestinian communities' is a preplanned goal of the Israeli occupation. Concrete walls, settlements, crossing points, check points and area C are powerful symbol series of physical and imaginary barriers were a tool used to stifle

the development of Palestinian communities and to prevent contiguity. Planning to change the facts on the ground by Israeli force policies and separation walls aim at blur any possibility to build a viable Palestinian state on the Palestinian land. The case of Jerusalem can be considered as one of the most illustrative examples of this situation (Thawaba, 2011).. The main outcomes of the Israeli policies in reshaping the urban structure of the city through expropriation of land, disconnecting communities and trying to change the natural settings of the place (Thawaba, 2011).

"Israel's conception of security has always included a complex territorial, institutional and architectural apparatus, conceived in order to control the circulation of Palestinians through 'Israeli' space"(Weizman, 2007, p. 142). During the second Intifada in 2000, the "Israeli" government strengthened Oslo division lines and supported them by further mechanisms of control and means of segregation, which were manifested later mainly in; the military checkpoints and the Wall. These Israeli military practices of separation aimed to turn the WB into separate archipelagos under the "Israeli" control (Weizman, 2007).

Weizman (2007), confirmed that the idea of constructing a separation barrier between the "Israeli" colonies and communities and the WB had first been proposed officially for the first time in 1999. According to Samman (2013), the construction of a physical barrier was a core axis in the "Israeli" the multi-dimensional division and separation plan; it was also a recent policy for land-grab. The construction of the separation wall date back years before the actual start of construction. In 2002 the Israeli government embarked in the construction of the wall, which was planned with a total length of approximately 708 kilometers that formed a big prison of the Palestinian communities controlled by the Israeli government (figure 3.4) (Samman ,2013).

The structure of the wall include; concrete slabs, electronic fences and wires, surveillance cameras, terminals, checkpoints, radars and mine fields, accompanied by military patrols. The Wall has 83 gates, there are 8 communities surrounded by the Wall from four sides and another 28 Palestinian communities surrounded by the Wall from three sides. Road-barriers, earth walls, road-gates, and earth-mounds, roadblocks and trenches are also elements of the "Israeli" division and control plans that is affect the spatial composition of the Palestinian communities and their socio-economic development. Weizman (2007), argued that several dozen of Palestinian communities were trapped by the "Israeli" fantasy of segregation (specifically through the wall) in separated enclaves (Samman ,2013).

The division of the WB into eight zones of siege have minimized the movement options in the presence of the closure, barriers and checkpoints (figure 3.4). The separation and division have deepens in the Palestinian urban space further and further and transformed into small enclaves with no prospects of development, growth or expansion (Samman, 2013).

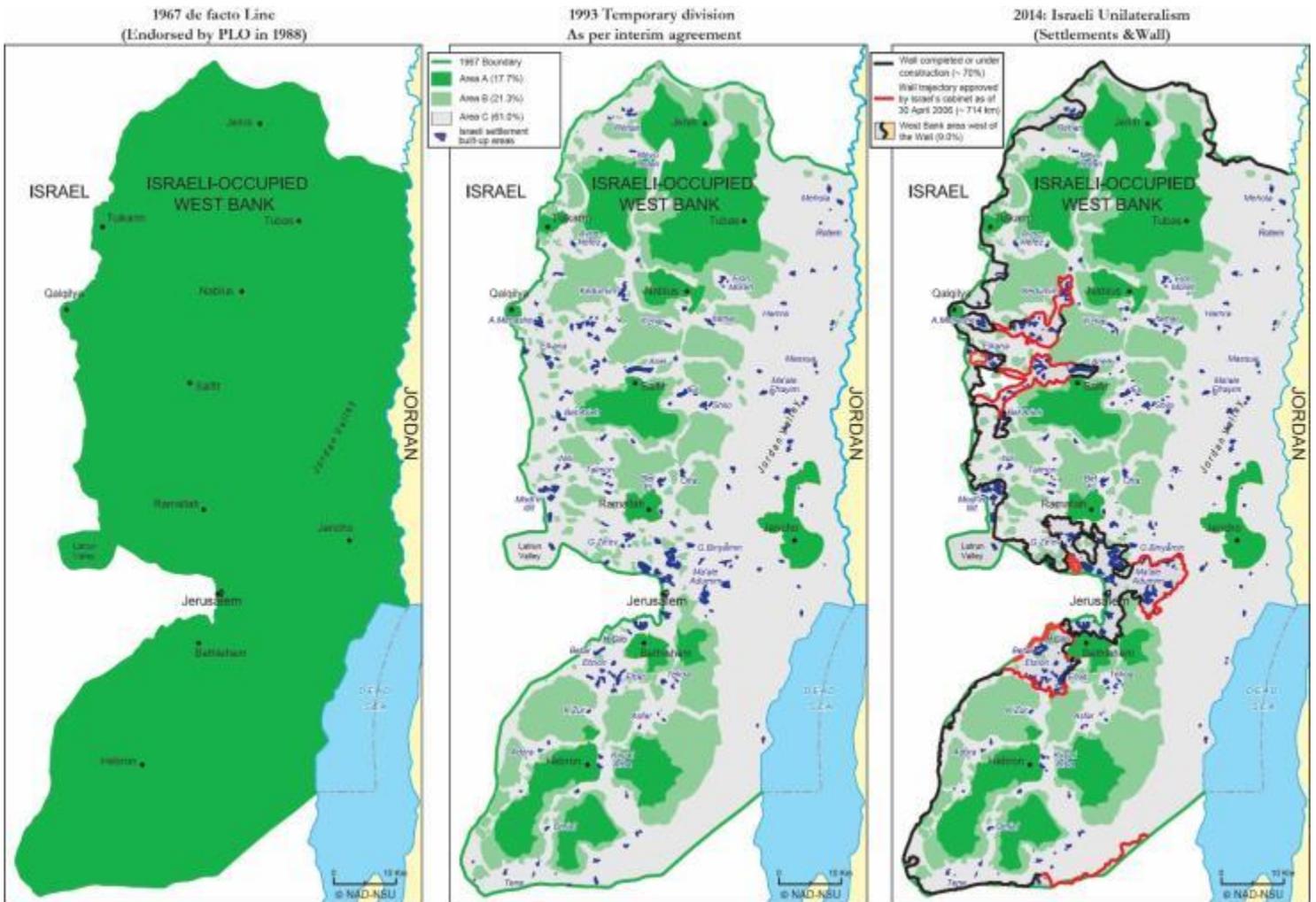


Figure 3.4: West bank border shifting (Source: Available at (<https://www.nad.ps/en/publication-resources/maps>)).

The total area of the W.B. excluding east Jerusalem 5579 km². Within this area, there are 734 Palestinian community, 2,618,191 Palestinians living there. While 486,000 "Israeli" settlers living in 181 settlement in the W.B (ARIJ, 2016). One of the most prominent indicators of the restrictions on the urban growth of Palestinian cities, towns and communities is the population density within the master plans boundaries of these localities in the various political classification zones A, B, C (ARIJ, 2016).

Weizman, presented in (2007), a very deep description of the "Israeli" checkpoints, he presented them as "the split sovereign and the one-way mirror". The crossings issue occupied a special article of the Oslo peace agreement, which indicates its importance for the Israelis in controlling the Palestinian space and its population. The agreement provided a particular explanation of crossings, and identified it as the border connections between the 'outside' world on one hand, and on the other the connections between the limited areas to be handed over to the Palestinians (Weizman, 2007).

There were two different concepts of the border terminals from the point of view of Israeli and Palestinian negotiators; from the point of view of the Palestinians, they were seen as significant symbols of an emergent independent self-government. From the point of view of Israeli military negotiators, terminals were a new security concept through which invisible and direct control will be imposed on the emerging state in the WB and Gaza (Weizman, 2007).

It should be noted that the Israeli plans for confiscating more Palestinian lands were the motivation factor of continues borders shifting and re-shape, the Israeli government employed urban planning, regulations and laws to serve its military vision and crystallizing it on the ground. Controlling the urban growth of Palestinian cities and communities and limiting their expansion by isolating them in closed enclaves is one of the most prominent plans of the "Israeli" government. During the colonial rule on Palestine, many forms of physical borders were used by the "Israeli" government as a tools of control; the separation wall, crossings and terminals are special practices that adopted to strangulate the urban expansion and economic growth of Palestinian communities in addition to achieving security and control over these communities.

3.2 Study Context

Hebron governorate is located in the southern part of West Bank (Figure 3.4), and is about 36 km to the south of Jerusalem (LRC, 2006). According to 2017 statistics, its overall population is around 729,193 people (PCBS, 2018). From the north, the governorate is bordered by Bethlehem governorate and surrounded by the Green Line from all directions. It is ranked first among the West Bank governorates in terms of population and area (ARIJ, 2009). Although approximately 51% of its original area was confiscated in 1948 during Nakba, the current area of the governorate is about 937 km², while its original area before the Nakba was 2076 km². The built up area of the governorate is about 24% of its total area (Hebron governorate, 2019).

In the governorate, there are six distinguished major land categories: Palestinian built up areas, natural reserves, Israeli colonies, forests and cultivated areas, Israeli closed military areas (ARIJ, 2009). The total number of Palestinian communities in the Governorate is 118 (Hebron governorate, 2019), in 1994 there was only four municipalities in the governorate (ARIJ, 2009), and in 2017 the number of communities in the governorate that were run by municipalities was 20 (baladiyat website, 2018). 33 communities are run by village councils and 5 are run by joint service councils. There are two refugee camps in the governorate: Al Fawwar and Al 'Arrub refugee camps. The governorate topography and altitude is characterized by great variation, one of the main reasons for this diversity in topography and sharp slopes, the mountain Belt on the western side of the Jordan Rift Valley that extends within its territory, with elevation varies between 140 above sea level at the Eastern Slopes districts, to 1,014 m above sea level at Halhul city, which is the highest point in the West Bank (ARIJ, 2009).

Oslo land divisions did not include Hebron district until 1997. After that, the governorate was subjected to Oslo divisions (Areas A,B, and C) except for Hebron's city center. The results of the agreement on the ground in Hebron governorate were four uneven fragmentations; area "A" that formed about 24% of the total area, area B with 22%. The bulk of the governorate were identified as "C" area with 48%, since then these areas have been under absolute Israeli control (figure 3.9). In addition to 6% as a natural reserve area (Tufekgy, 2007; Andoni, 1997; poica.org website, 2018).

After signing Hebron Protocol agreement between the Palestinian Authority and Israel in 1997, Hebron city center was divided into two different parts defined as (H1& H2). Under the terms of the agreement, H2 area that encompass large parts of the old city remained under Israeli authority administration, while H1 covered approximately 80 % of the city and included the rest of the old city

area and the new city district was under the Palestinian control (figure 3.5). In H2 zone, Israel authority imposed many physical restrictions as a tool of control over the place, it is surrounded with military barriers, checkpoints, roadblocks, all to prevent Palestinians from using these roads freely (UN, 2016).

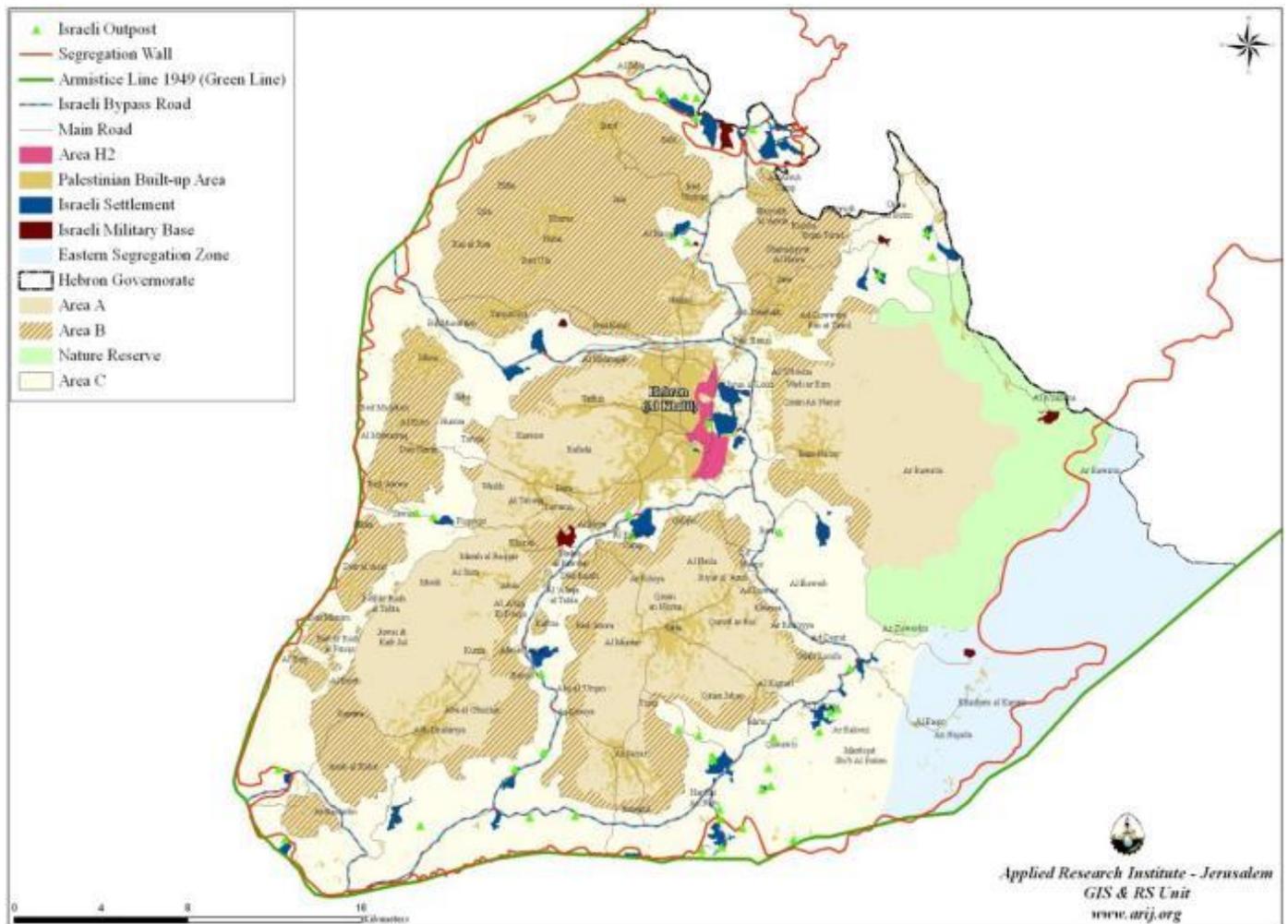


Figure 3.5: political divisions in Hebron governorate (ARIJ, 2018).

Land confiscation and settlements construction was active in the Hebron governorate after 1967 until now. A policy of separation and expansion of settlements in Hebron governorate has been implemented. Most of settlements have been established during early eighties (LRC, 2006). The number of Israeli settlements in Hebron governorate reached 31, in addition to 34 settlement outposts (Ewaiwi & Qawasmi, 2018; ARIJ,2009) . The first settlement (Kfar Etzion) was built on the land of Beit Ummar, north of Hebron governorate, which separated the governorate from Jerusalem and Bethlehem governorates. The governorate is surrounded by settlements and settlement outposts from all sides in order to limit the urban growth and development of the Palestinian cities, villages and

communities in the governorate, as well as to isolate cities and communities from one another, to form a large prison surrounding the governorate lands. The focus of settlement activity was firstly on Hebron city, Dahariya, Dura and Yatta, secondly on Tarqumiya and Beit Ummar. A very large settlement named "Kiryat Arba settlement" is the closest to daily contact with the indigenous population in the city of Hebron. All these settlements were built on strategic locations on the mountaintops and highlands for security reasons (Ewaiwi & Qawasmi, 2018). Israeli settlements in the governorate are located on three parallel lines, as well as the settlement belt in the southern regions (LRC, 2006). The number of settlers occupying Hebron governorate in 2017 is about 18353 (PCBS, 2017).

The total length of the Israeli Segregation Wall in Hebron Governorate is 160 km. construction started in 2004 at the southern parts of the governorate to penetrate the historic lands of Aldahreih city. The wall surrounds the governorate from Gush Etzion settlement to Hazalin Bedouin near Yatta city in the eastern slopes of the Hebron Governorate, and reaching the borders of the West Bank with the Negev desert. The Segregation wall path has destroyed nearly 16 km² of the governorate lands. while 105 km² of the governorate lands has been isolated behind the wall (ARIJ, 2009; Aldahreih municipality, 2018).

Hebron Governorate has been divided into six separate entities by the Israeli by-pass roads. The length of bypass roads network in the governorate around 150 km. The bypass roads has cost the Palestinians in the Governorate 50 km² additional loss of lands, as a result of a forbidden area resulting from 150 meters on each side of the road as a security buffer zone (ARIJ, 2009). In 2016, the number of permanent and temporary military closures includes: checkpoints, physical barriers, gates and military towers in the governorate reached 295 (LRC, 2017).

There are two main border crossings and terminals in the governorate. The first located at northwest of the governorate called Tarqumiya terminal. This terminal is a commercial and civil terminal. It is the first connection point between Hebron governorate and "Israel", it is also the link between the WB and Gaza strip. The other crossing is located at the south of the governorate on Aldahreih city lands called Aldahreih crossing or "Mitar Terminal". The crossing a civilian and commercial crossing. It connects the WB with Beer Alsabaa and Al-Naqab desert (LRC, 2017; Poica.org website, 2018; Btselem.org website, 2018).

In this study, two selected border communities from Hebron governorate were chosen to examine the urban growth in borders communities under extraordinary geopolitical determinants: Al- dahreih city and Tarqumiya town (figure 3.6).

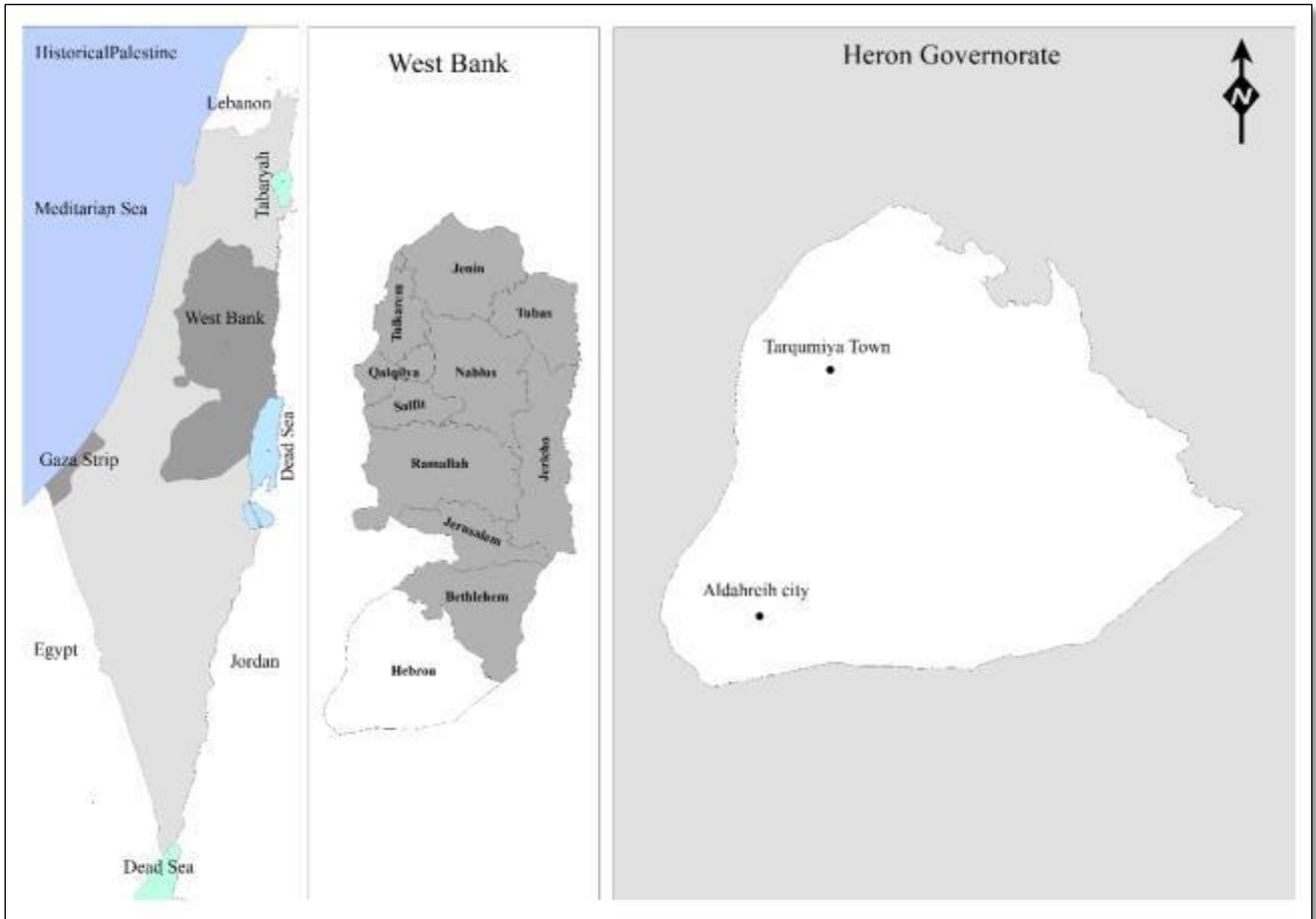


Figure 3.6: study site (Source edited by the author based on Al-Dahreih municipality and GEOMOLG database, 2018).

Al-Dhahreih city

Aldahreih (Doher) is a Canaanite word means "post", where it was a link between Egypt and the Petra. The city derives its name from the Islamic leader AL-Daher Baibars. It was one of the Canaanite cities dating back to 5500 BC (Dabbagh, 1991). The percentage of heritage buildings in the city is 2.5% of the total old architectural heritage in Palestine (Al-Dahreih Municipality, 2018). The city is located in the far south of the West Bank, 22 kilometers south of Hebron city (figure 3.6). It is the southern gate to the W.B. . The city is bordered by the city of Samu'a on the eastern side, Dura city to the north and west, and by Al-Naqab desert on the south (figure 3.7). Historically, the Canaanite Arab city "Jushan" was located on the present site of the city (Al-Dahreih Municipality, 2018).

In 1963, the first village council had been established in the city. After that, the city was occupied in 1967 as the entire territory of the West Bank by the Israeli occupation (Al-Dahreih Municipality, 2017). The village council was transformed into a municipality in 1996. The first elected municipal council in the city was in 2004 (Al-Dahreih Municipality, 2017).

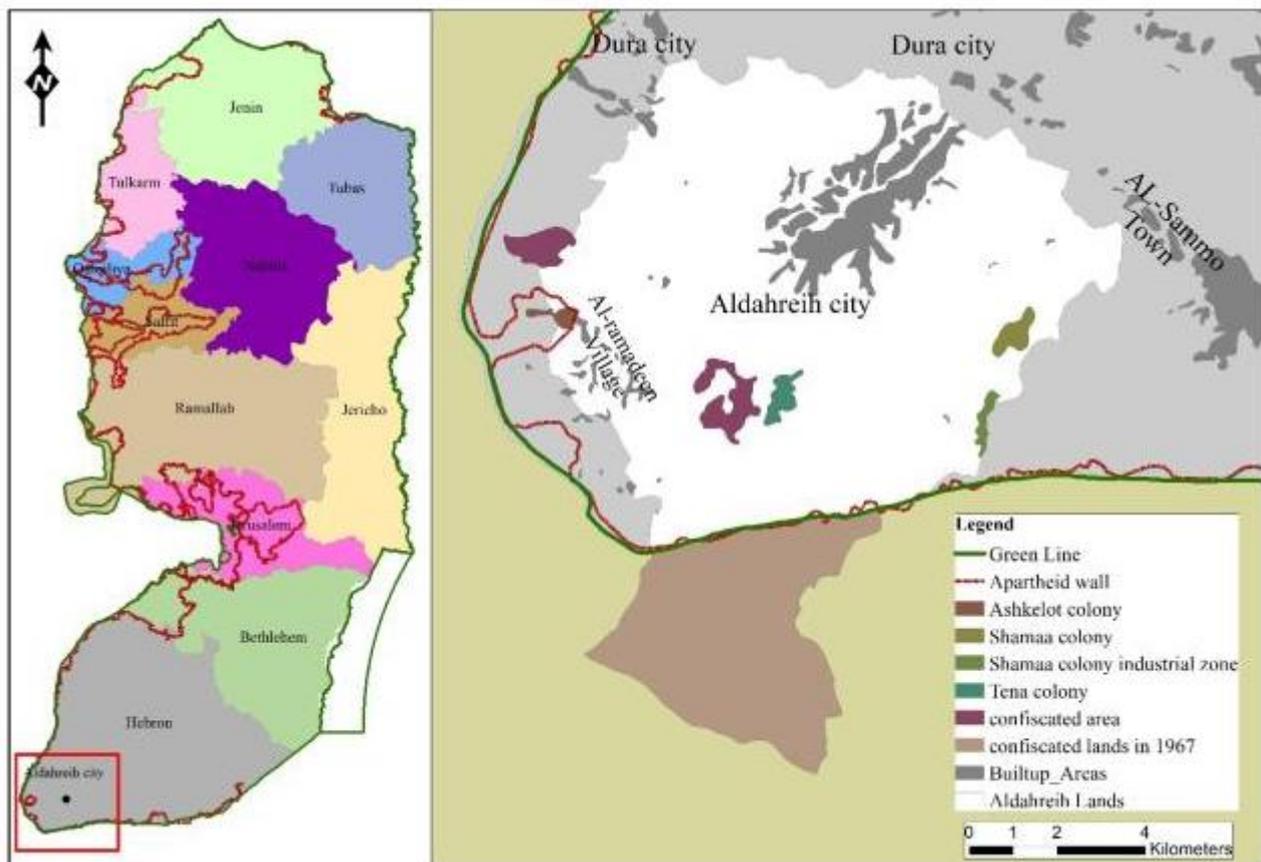


Figure 3.7: Aldahreih City Site (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

According to PCBS, (2018) the city population is 37886. Figure 3.8 shows the city population between the years (1922-2018). The total historical area of the city was 167000 dunums. While the total actual area of the city is 121000 dunums after 1967 borders and the confiscated lands area 46000 dunums in 1967 . While the total area of the city according to its first and only master plan, which was prepared in 2003 by the Ministry of local government reaches 15098 dunums (Al-dahreih municipality, 2018; Dabagh, 1972).

According to Oslo agreement, most of the city's land is classified as (C) which constitute about 50% of the city area, and (A) with 25% and 25% of the city lands are classified as (B). About 1800 dunum of the city's land area was confiscated for the construction of "Israeli colonies"; the most important of

these were the colonies of "Ashkelot, Shama'a and Tena", which were entirely built on the city's lands (figure 3.9) (Al-dahreih municipality, 2018).

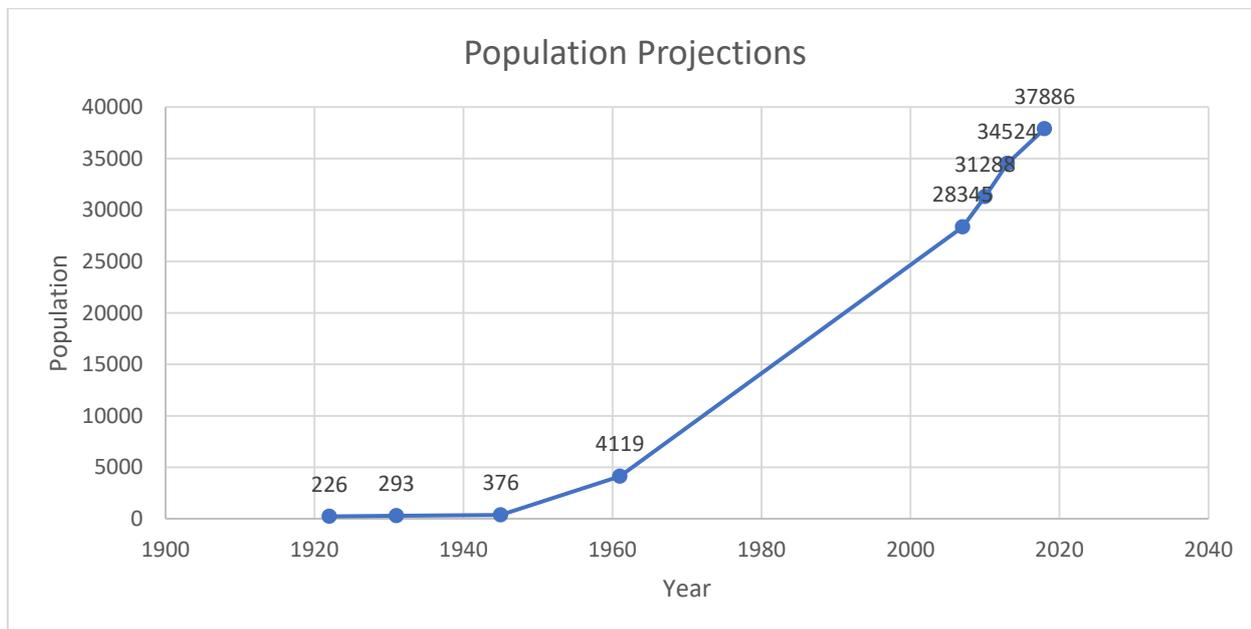


Figure 3.8: Al-dahreih city population growth between 1922-2018. (Source: Dabagh, 1972; al-dahreih municipality, 2018; PCBS Website, 2019).

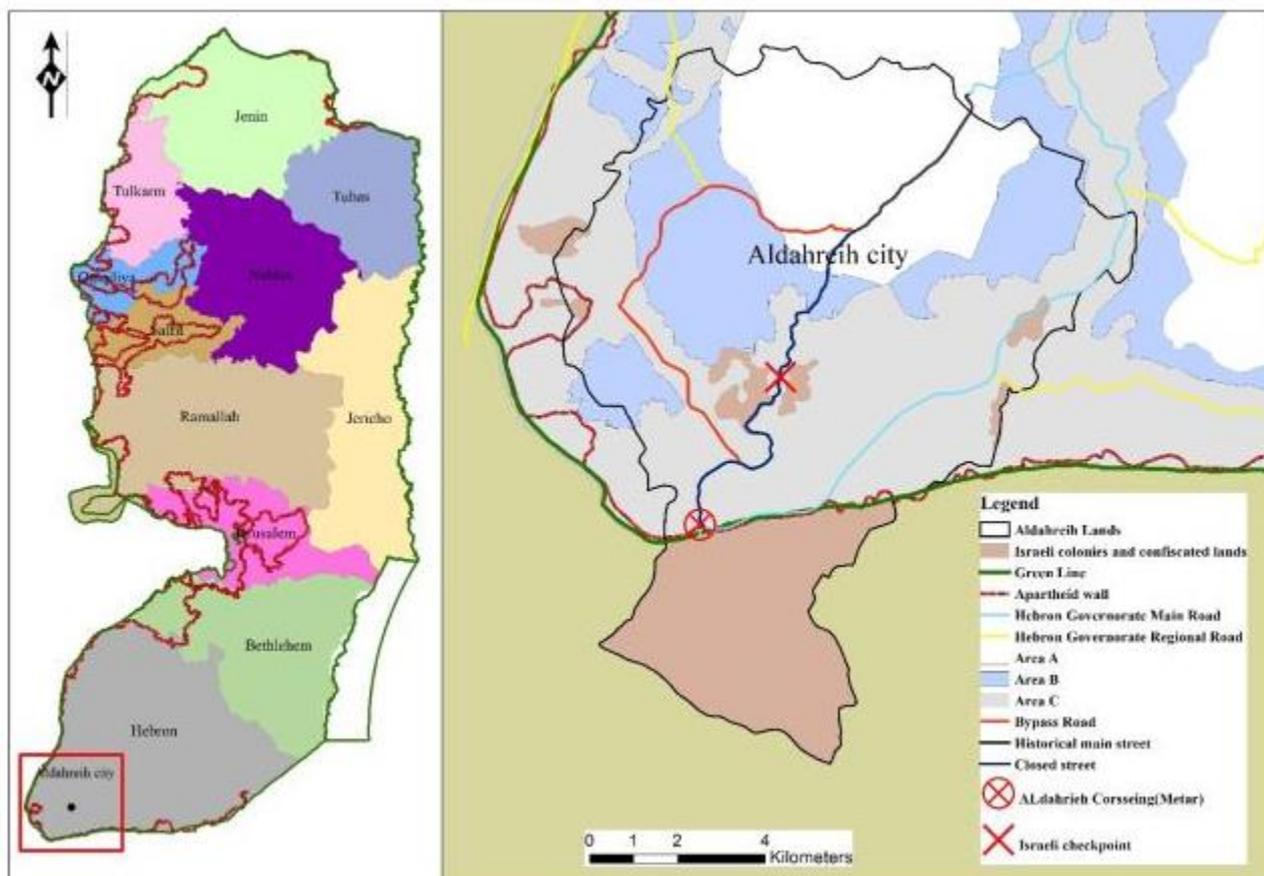


Figure 3.9: Aldahreih city geopolitical map (Source: edited by the author based on Al-dahrieh municipality database, 2018).

Al-Dhahreih is the third largest community in Hebron governorate and the gate towards the Naqab (figure 3.10). Its strategic location made it as a commercial center serving more than 100,000 residents of the Naqab in addition to the Local shoppers from the city. As well as, it is a crossing point for Palestinian working inside the "Israeli areas" inside the Green Line (Al-dahreih municipality, 2018). The labor sector in "Israel" is a major source of income and occupies about 52% of the income sources for the city's population, followed by governmental jobs 17%, agriculture 15%, trade 11%, and the industrial sector accounts for only 5% of income. The total residential area in the city is about 30,000 dunums (30 square kilometers). A significant development has taken place in services and infrastructure in the city since 2004, where a number of developmental projects were implemented in various sectors such as education, health, culture, entertainment (Al-dahreih municipality, 2018).

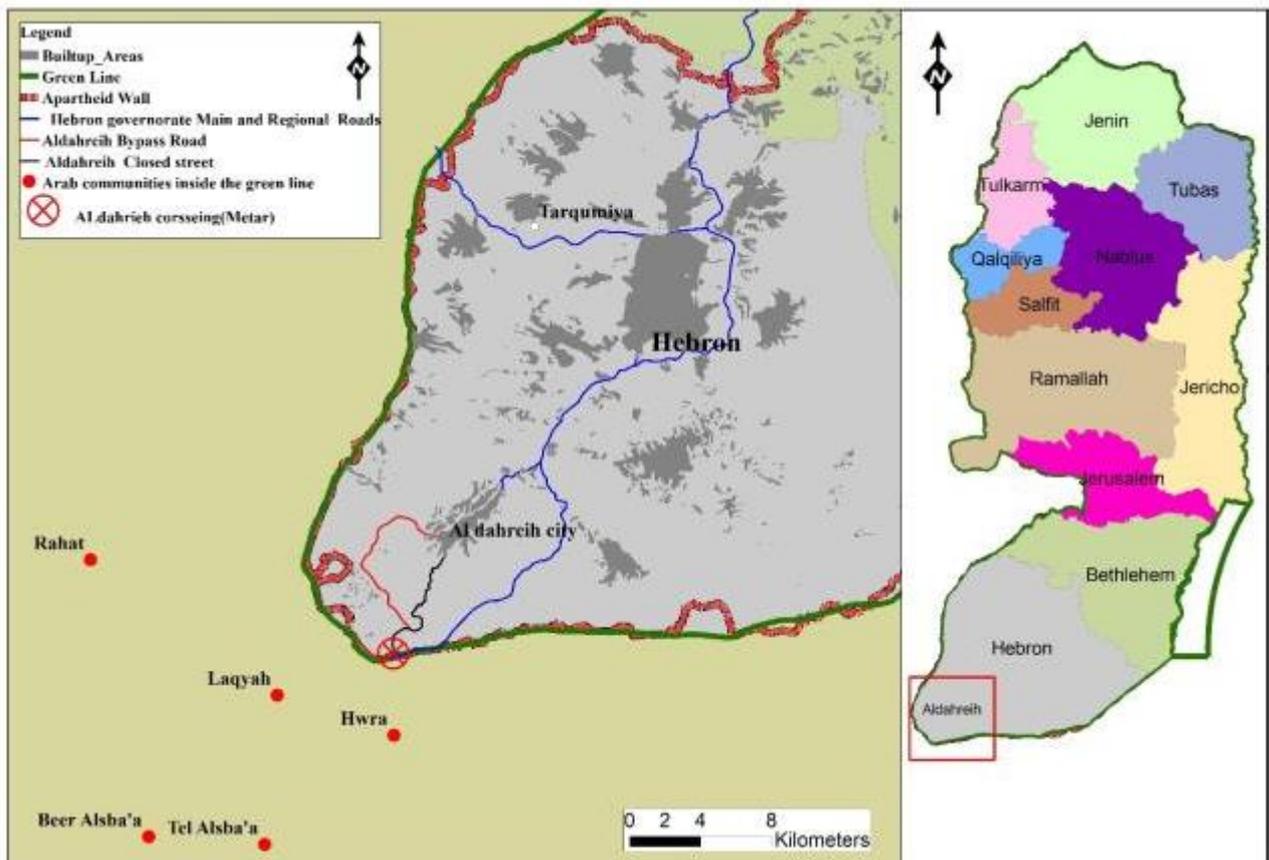


Figure 3.10: Arab communities inside the green line near Aldahreih city (Source: edited by the author based on Al-dahrieh municipality database, 2018).

1959 land taxation record is the only land registration document in Aldahreih city, according to this record the city lands were classified into six blocks. To solve the big problems in property documents and building permits that resulted from the lack of updated lands records in the city, the municipality initiated a project to update taxation records for all lands within its master plan boundaries (administrative borders) in 2004. The new updated taxation blocks in the city is 64 block within the boundaries of the master plan only with a total area 15100 dunums, while the 1959 land taxation record classified the total city area into six blocks only covering 120000 dunums of the city area .The completion of updating land taxation records lasted for four years (Al-dahreih municipality, 2018).

At the beginning of 2018, the first official governmental land registration (Tabo) order in Aldahreih city was issued according to the Land and water Settlement Law No.40 at the year 1952 and its amendments. Exceptionally, based on the municipality vision, the governmental registration order has not include all the entire territory of the city unlike what is common in other Palestinian cities (Al-dahreih municipality, 2018).

Tarqumiya Town is located at northwest of Hebron governorate, it is 9 km from the center of Hebron city (Figure 3.6). The town is considered a border town with the Green Line. The town was built on the ruins of a Canaanite village called "Neftah". In the Roman period, the village was known as "Tricomias". There are many important archeological and historical sites in the town. The town is bordered by Beit Ula town from the north, Idhna town from the south, Hebron city, Taffuh and Beit Kahil towns from the east, and Beit Jibrin and Khirbet Jamrorah inside the Green from the west (Figure 3.11). The town center lies on a hill 490 meters above sea level (ARIJ, 2009; Tarqumiya municipality, 2018).

The total area of the town is about 21020 dunums, the bulk of the land are agricultural lands and forests. The Israeli occupation authorities confiscated large areas of the town territories; the total confiscated area was about 2000 dunums. Many Israeli settlements and outposts were built on the eastern highlands of the town and they were after some of the Canaanite villages. "Adora," and "Telim" are the largest settlements located within the town territories, which were established in the early 1980s. Another parts of the town lands have been confiscated to construct Tarqumiya Terminal , in addition to the areas that have been confiscated in order to construct the bypass road in the southern region of the town (ARIJ, 2009: Tarqumiya municipality, 2018).

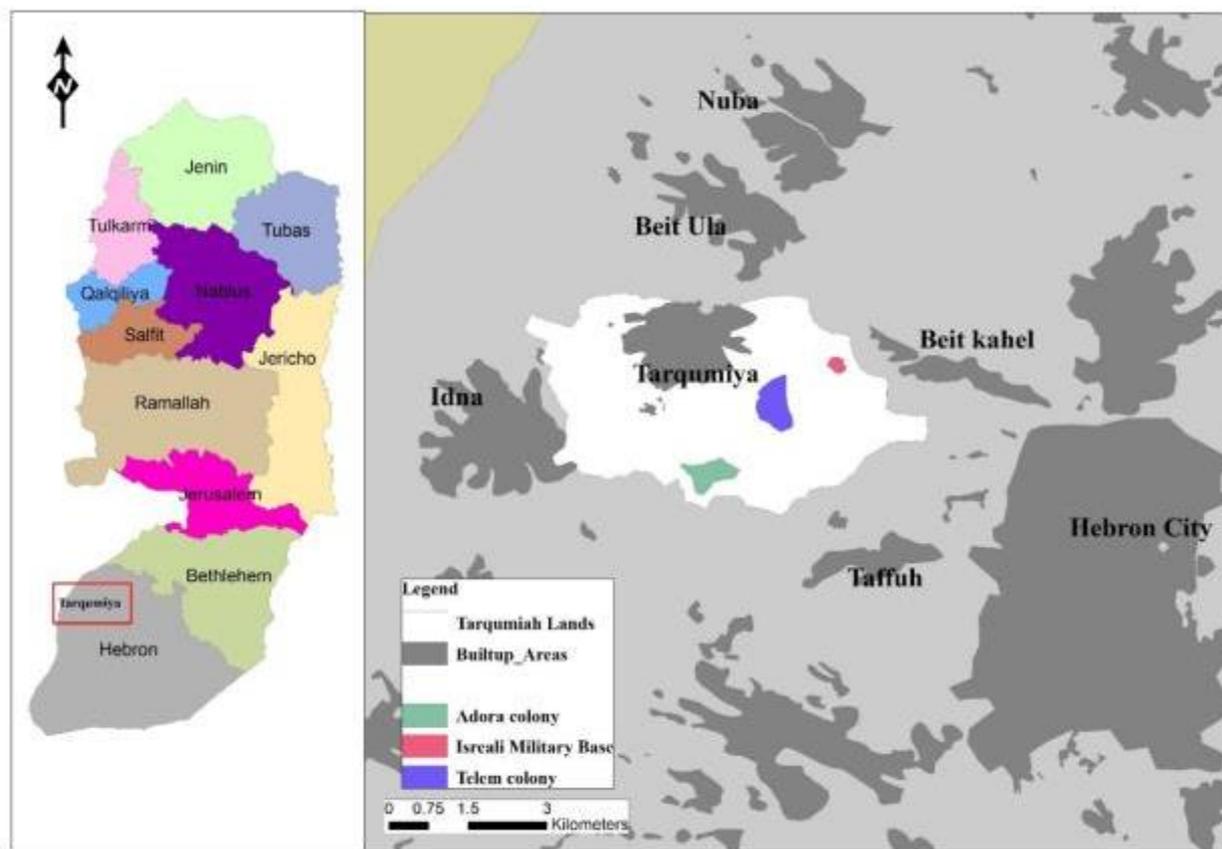


Figure 3.11: Study Area Tarqumiya town (Source edited by the author based on GEOMOLG database, 2018).

The city population is 20177. Figure 3.12 shows the city population between the years (1922-2018) (PCBS, 2018; Tarqumiya municipality, 2018). According to the Oslo Accords the town lands are classified (as B and C), where the percentage of area B is (37%), while area C percentage is (63%) and constitute the largest area of the town (figure 3.13) (Tarqumiya municipality, 2018; poica.org.website,2018). From 1973 to 1997, a village council governed Tarqumiya, in 1998 the village council upgraded to municipality. The total area of the city land within its first and only master plan, which was prepared in 1998 by the Ministry of local government about 4065 dunums (Tarqumiya municipality, 2018).

Tarqumiya terminal is located near the towns of Tarqumiya and Idna; it is about 20 kilometers west of Hebron city. The terminal area is about 500 dunums located on agricultural confiscated lands of Khirbat Jamrorah. Which are a mixed land ownership area, owned by the of Beit Kahl, Tafuh and Tarqumiya towns. It was established as a gateway to a 44-kilometer security corridor linking the W.B. and the Gaza Strip. To transport goods, workers and traders between the West Bank and Israel.

As well as the Gaza Strip to the Erez checkpoint to the north of the town of Beit Hanoun in the Gaza Strip (Jaradat& Fatafta,2017; Alwatanvoice website,2007).

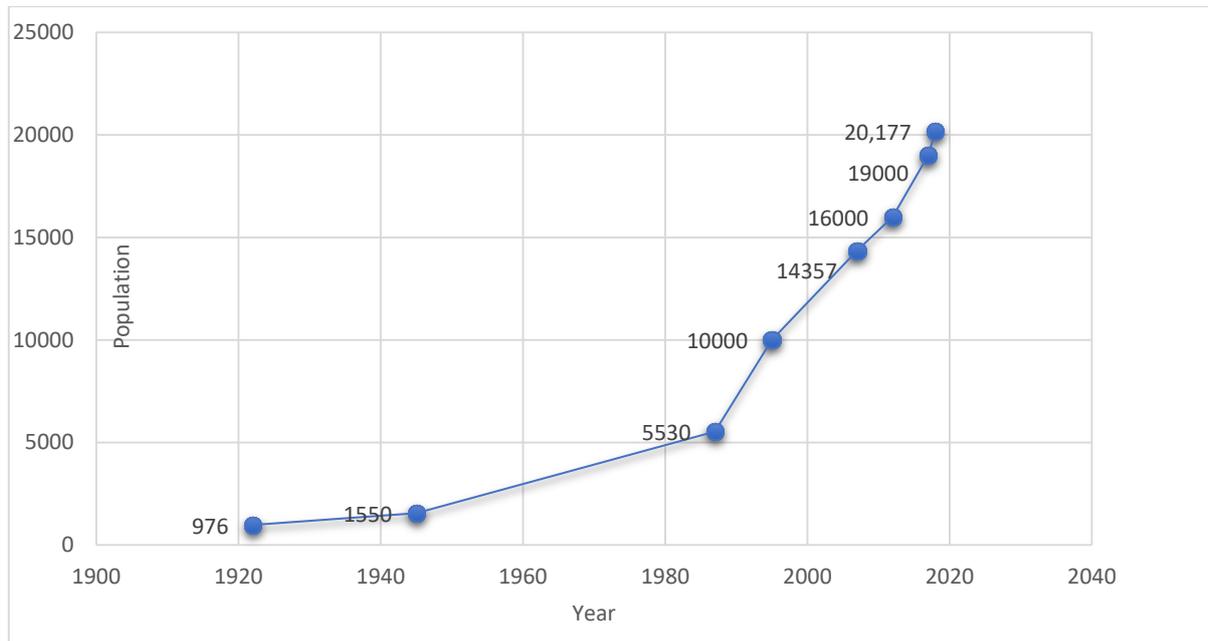


Figure 3.12: Tarqumiya town population growth between 1922-2018. (Source Tarqumiya municipality, 2018).

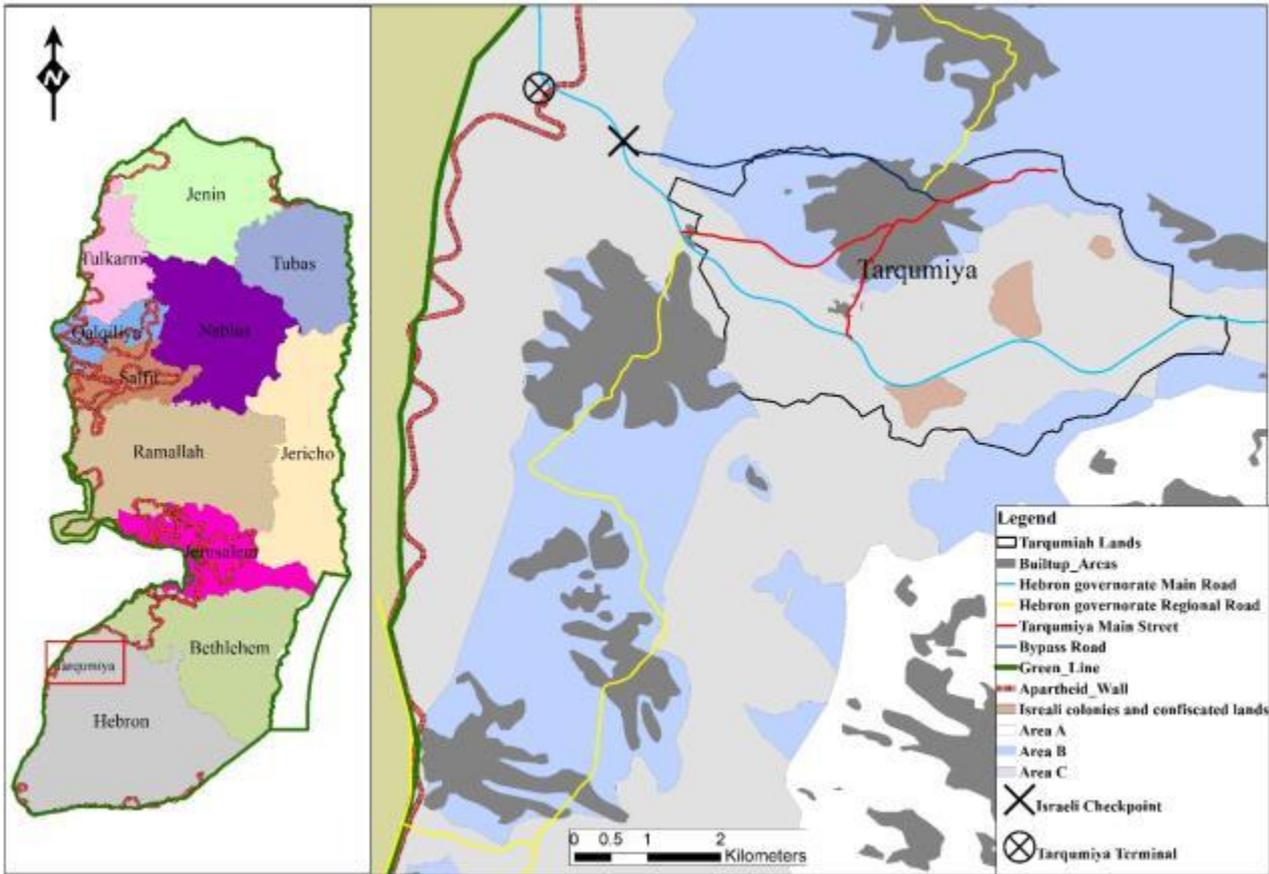


Figure 3.13: Tarqumiya Town geopolitical map (Source: edited by the author based on Geomolg database, 2018).

CHAPTER FOUR

Analysis, Discussion and Results.

4.1 Introduction

In this chapter, an analysis of the study area assigned in the previous chapter will be conducted. Urban growth was studied from a geopolitical perspective. The chronological analysis (1996 to 2018) of urban growth under the exceptional geopolitical status for the two selected Palestinian towns was conducted. The study was based on dividing the chronological analysis into three main periods: the first pre Oslo interim agreement (pre-1994), the second after Oslo interim agreement, the construction of the separation wall , the "Israeli" closure policy after the second Intifada (from 1994-2008), and the last highlighted the terminals and crossings , bypass roads (from 2008 to 2018). It is worth noting that all other geopolitical determinants were analyzed during each of the three periods such as: settlements, confiscated lands....etc.

This research presents the relationship between urban growth, communities' morphology and geopolitical determinants, political subdivisions of land, borders, the separation Wall, Israeli colonies, bypass roads and confiscated lands. The study also highlights the impact of the geopolitical situation on Palestinian communities' urban structure and morphology.

The analysis will address a very important phenomenon that has not been analyzed previously, the phenomenon of restructuring Palestinian communities' after the 1967 as a result of borders shifting. Moreover, analyzing the exceptional accelerated state of urban sprawl that associated with the resulted "de facto border towns" under geopolitical determinants and its impact on the urban structure and morphology. The results are displayed in the form of maps clarifying the changes in urban growth patterns and urban structure that resulted due to the geopolitical conditions and practices since 1996.

Initially the analysis was based on (1997, 2007, 2018) aerial photos, but during the analysis of Al-dahreih city, it was found by the researcher that there was a defect and inaccuracy in the 2008 Aerial photo that available in GEOMOLG database; through the practical experience of the researcher as an engineer in the Al-dahreih Municipality since 2009 till now. The researcher relied on using 2007 aerial photo to overcome the inaccuracy problem in the 2008 aerial photo as it being within the study time frame.

4.2 Data Analysis

4.2.1 Borders shifting and geopolitical determinants

Palestine underwent and is still going through a set of geopolitical determinants as a result of the "Israeli" colonial plans, policies, and practices (as previously mentioned) that led together to reshaping its borders. This section explains the changes on the selected communities' locations due to the changes on Palestine borders through the different consecutive historical periods.

As shown in (figure 4.1) the two communities; Al-dahreih city and Tarqumiya town did not occupy border locations pre-1948, they were communities that did not have high privileges in terms of location with regard to the historical borders of Palestine.

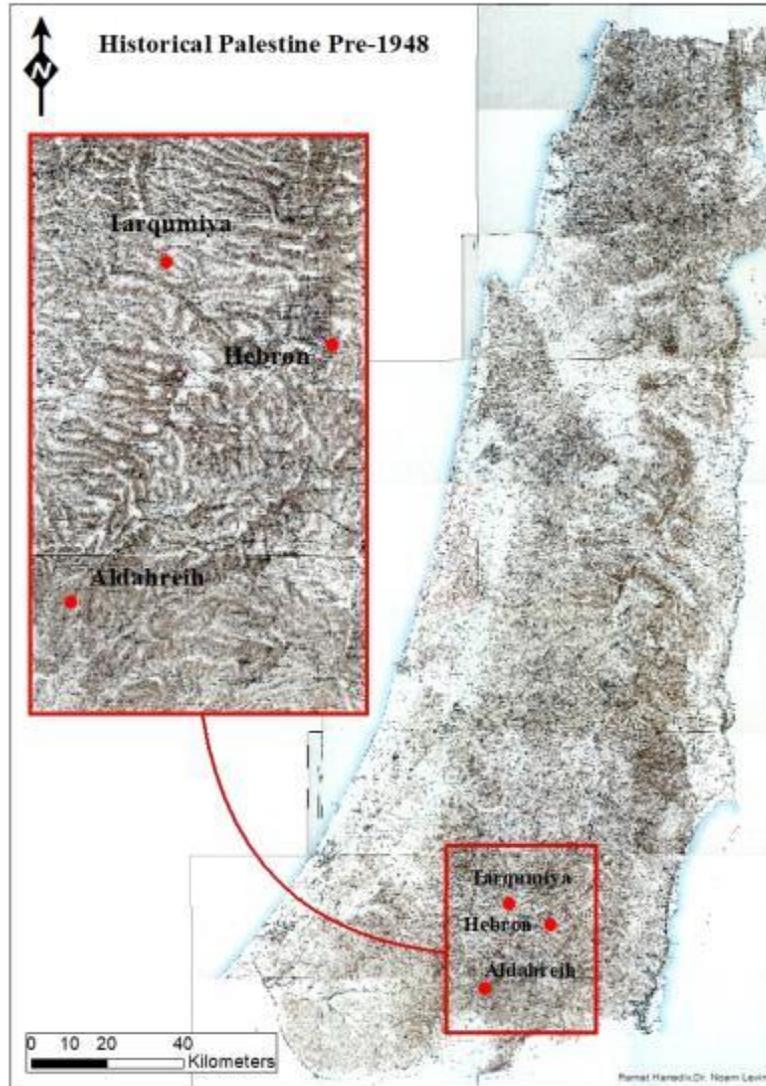


Figure 4.1 : Aldahreih city and Tarqumiya town original locations pre -1948 borders (Source edited by the author based on <https://www.arcgis.com> database,2013).

Figure 4.2, shows the radical change of the selected communities' locations. Al-dahreih city and Tarqumiya town locations have been restructured after 1967 as a result of re-shaping and re-formation of the WB borders, they have become de-facto border communities with regard to the armistice line.

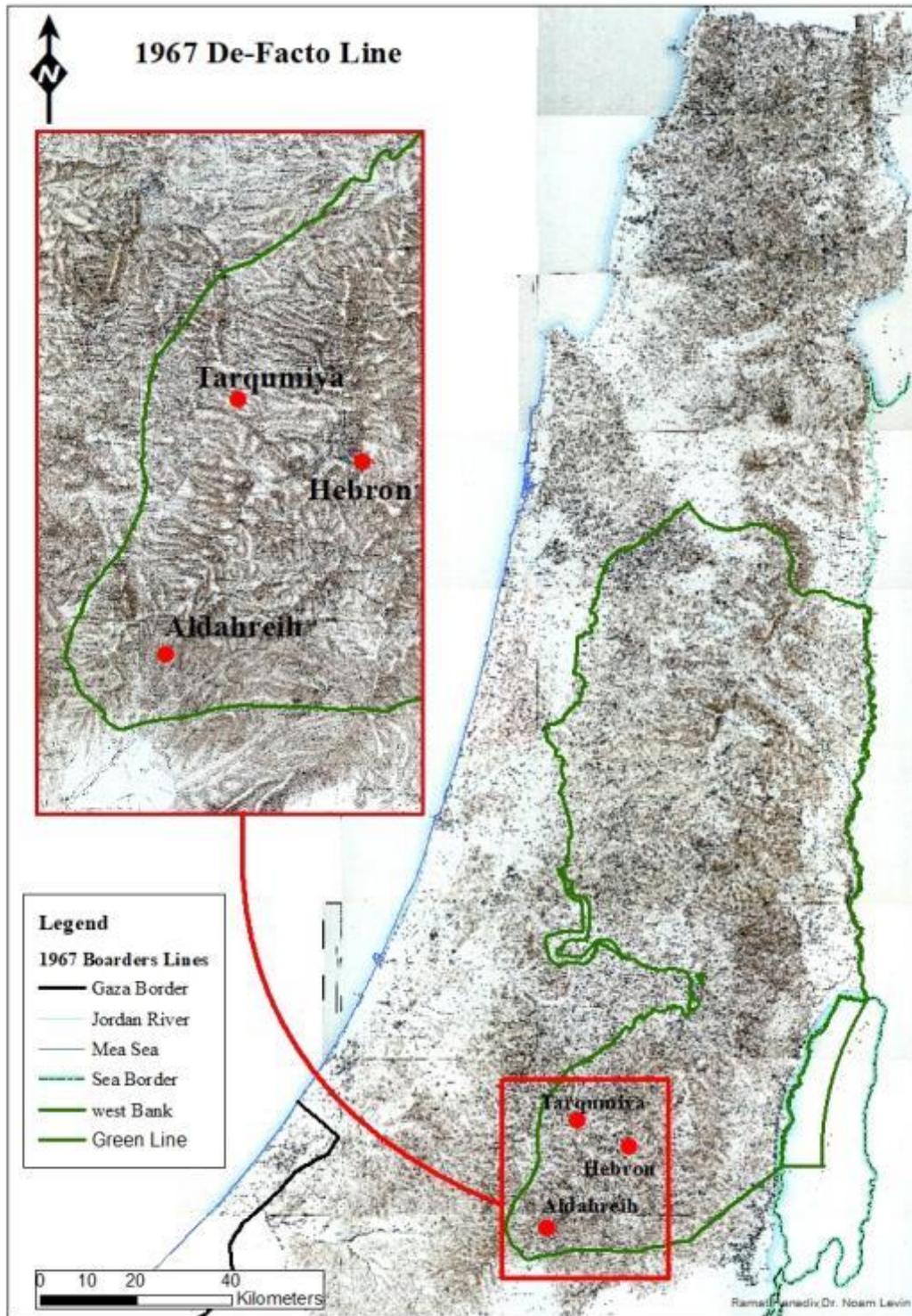


Figure 4.2 : Aldahreih city and Tarqumiya town locations post- 1967 borders (Source edited by the author based on <https://www.arcgis.com> database,2013 & GEOMOLG database, 2018).

The geopolitical determinants and borders shifting that had been imposed by the "Israeli" military government on Palestine did not end with the 1967 status. In the year 1994, Palestine witnessed a new major change. Oslo land classifications (A,B and C) had been promoted and deepened the de-

facto border locations for both towns; as a result of classifying of large areas of both communities lands (as is the case in all the WB. lands) or the surrounding communities as area "C", creating new set of restrictions on Palestinian control of land according to its political classification (figure 4.3).

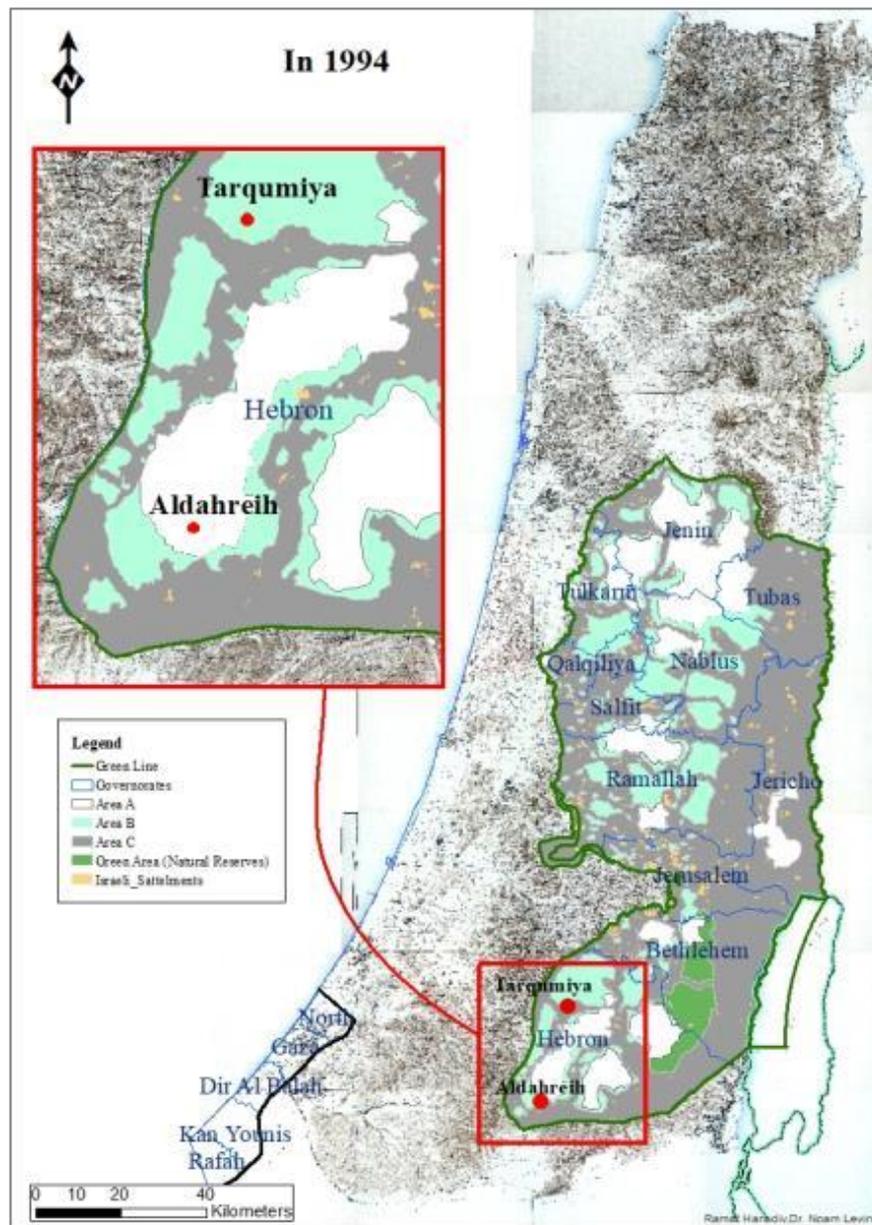


Figure 4.3 : Aldahreih city and Tarqumiya town locations 1994 (Source edited by the author based on <https://www.arcgis.com> database,2013 & GEOMOLG database, 2018).

Thus, area "C" became an actual siege strangulating both towns and played the role of dividing borders in terms of: control, authority and powers, as areas "C" subjected to the absolute "Israeli" authority. The two communities are not allowed to expand within these lands, and so the actual borders of Palestinian control, planning and urban expansion are only available within the borders of areas with A and B political classification (figure 4.3).

In subsequent years, the "Israeli" colonial policy of territorial strangulation and fragmentation of the Palestinian communities have been escalated and deepened (figure 4.4). The separation wall, checkpoints, terminals and crossing, were new geopolitical determinates that affected the locations of both communities in a substantive and direct manner.

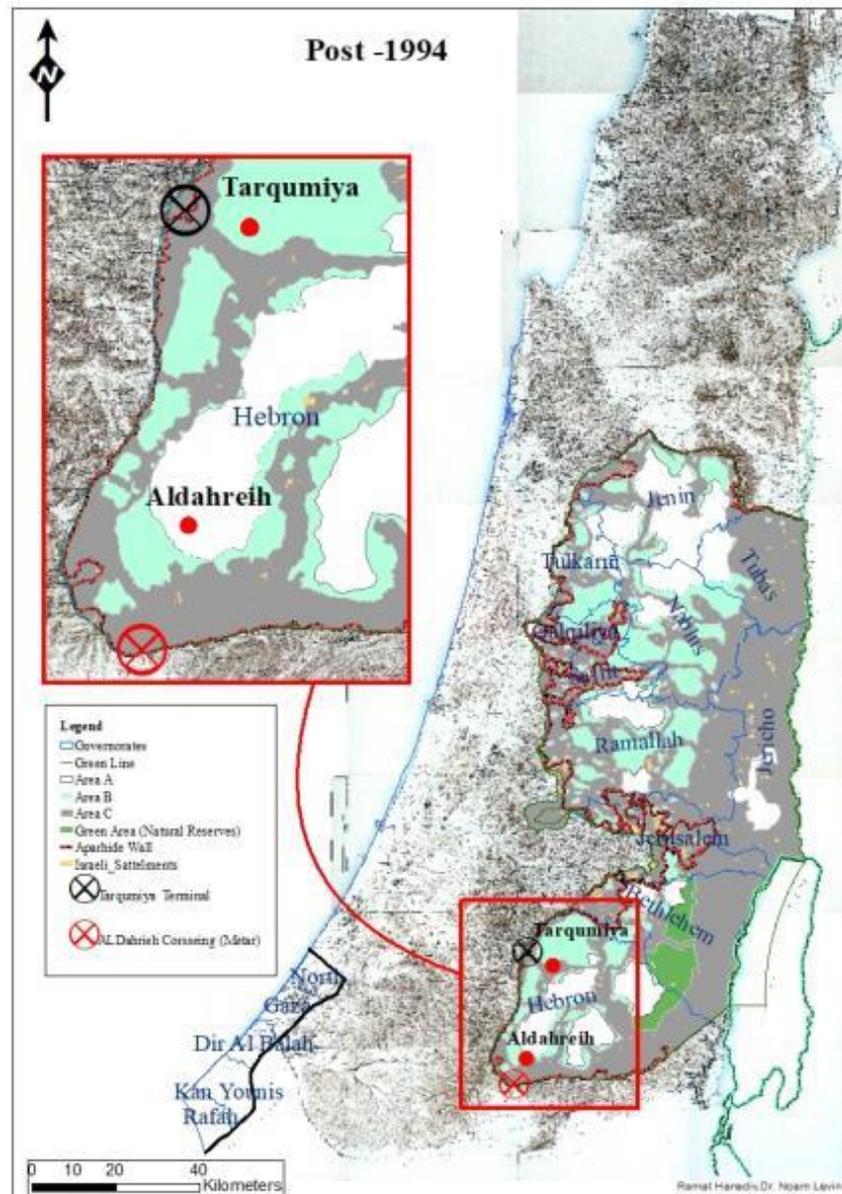


Figure 4.4 : Aldahreih city and Tarqumeiya town locations post- 1994 (Source edited by the author based on <https://www.arcgis.com> database,2013 & GEOMOLG database, 2018).

With all those successive geopolitical determinants Al-Dhahreih city become the main gate towards the Naqab due its strategic location as a crossing point between the W.B and the "Israeli areas" inside the Green Line through Aldahreih crossing (Metar crossing). On the other hand, the effect of the extraordinary geopolitical conditions was not inferior on the other community Tarqumeiya town, the

town turned into an area of a high strategic importance, as it became a major gateway between the WB, "Israeli areas" inside the Green Line and Gaza Strip through the Tarqumiya crossing (figure 4.4). The following axis's of analysis highlighted the impact of the different geopolitical determinants on urban growth the two communities, especially the presence of crossings in each of them, will be highlighted.

4.2.2 Main Roads and Terminals.

Al-dahreih City Roads and Terminals

Al-dahreih Main Street is the main arterial street in the city (figure 4.5) with a total length about 17 km, which is an extension of Route 60 in the West Bank (Al-Dahreih Municipality, 2018). This street was the original route that leads to Arab and Bedouin communities inside the Green Line in Beer-Alsabaa, Al-Naqab and also to Gaza Strip. It was also the main spine of urban fabric of the city. The active commercial activities in the city are the main driving force for urban sprawl (Al-Dahreih Municipality, 2018).

With the outbreak of second Palestinian uprising (Al-Aqsa Intifada) in 2000, a permanent Israeli checkpoint has been established in the southern entrance of the city along the main street to control movement towards the occupied territories. The original checkpoint (Wadi al khaleel checkpoint) was closed many times during and after the Intifada.

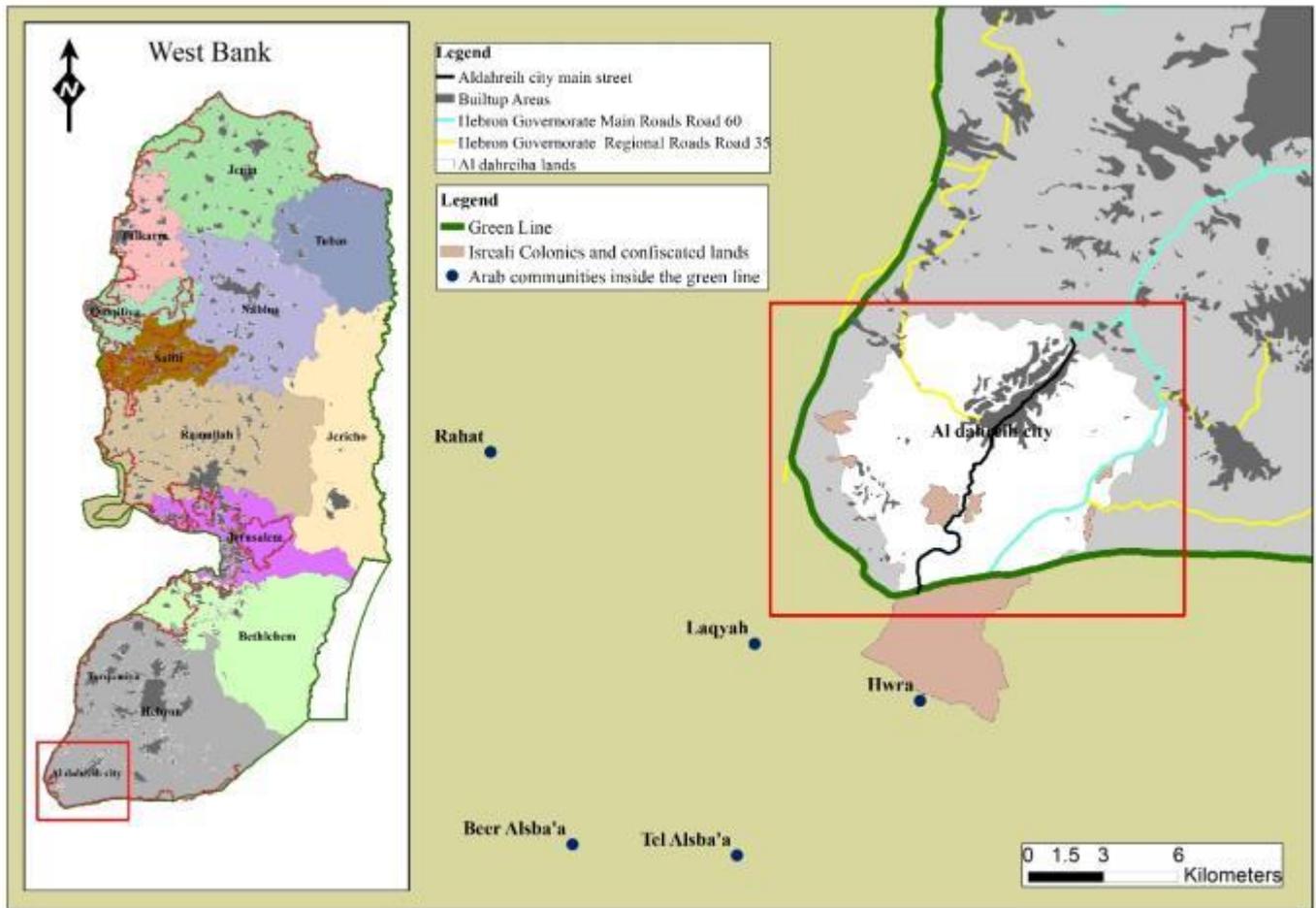


Figure 4.5 : Al-dahreih city main street before the year 2000 (Al-Aqsa Intifada) (Source edited by the author based on Al-Dahreih municipality and GEOMOLG database, 2018).

In 2004, the bypass road leading to the old checkpoint and also the old checkpoint point were completely closed (which has been closed since then until today). That road has not been reopened until now (figure 4.7). This street was bustling with trade and industry along its path. Consequently, with the closure of the checkpoint and the disruption of shoppers and workers movement, the economic and industrial activities in this part of the main street of the city have been gradually declined, around 250 shop of the existing shops along the street path had been closed (SHCC, 2017).

In 2006, a military order has been issued regarding the construction of a border terminal on the city lands, 5 km from the checkpoint, in the far south of the city away from the "Israeli" settlements that had been built on the confiscated land. The access to the crossing has become through completely different route, because of the closure of the historical route toward the south (figure 4.8).

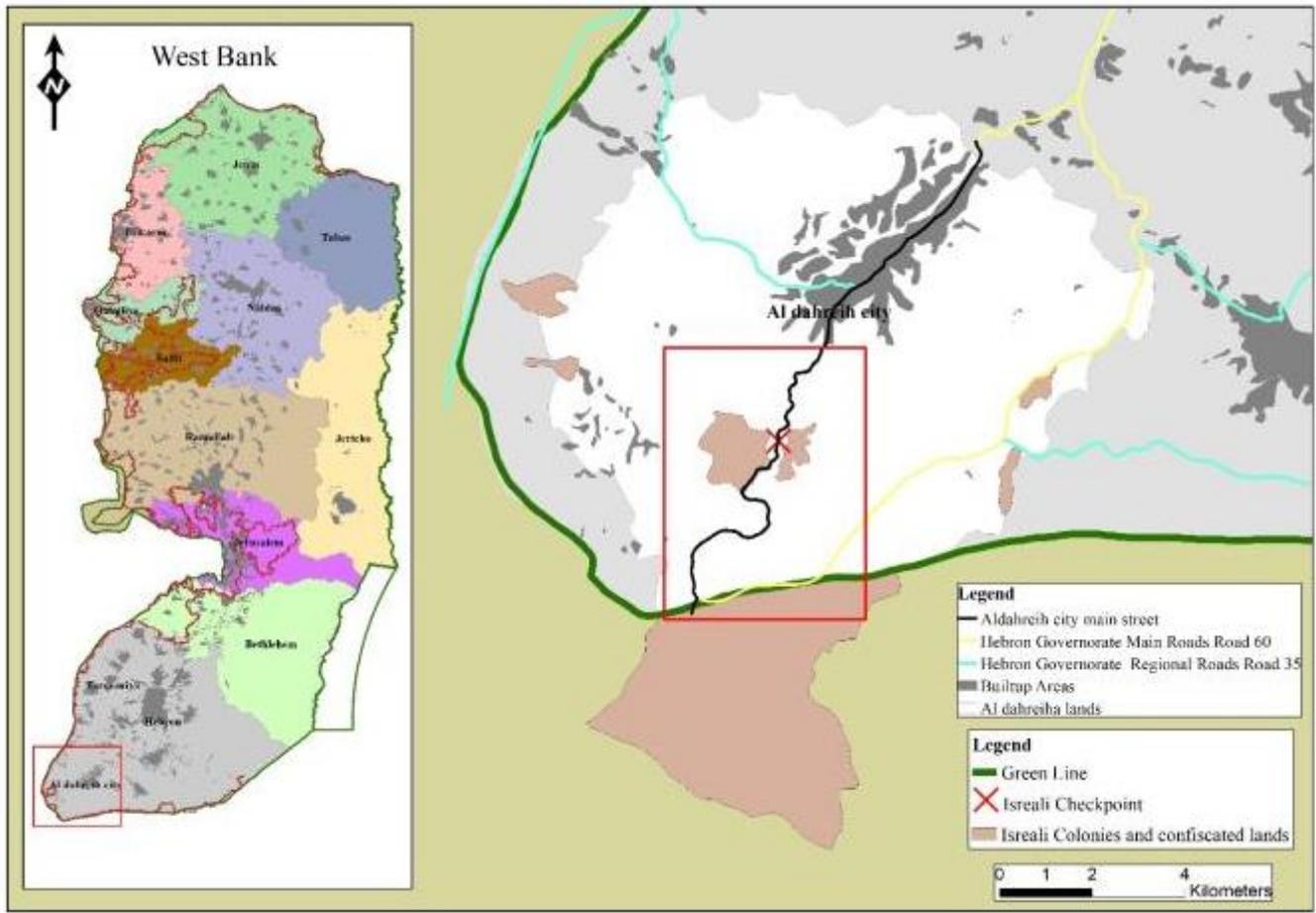


Figure 4.6 : Al-dahreih city main street and check point in the year 2000 (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

The opening of the crossing point through the new bypass road led to a deviation of the original main street path. The southern part of the street turned south-west to end and meets the checkpoint and the crossing (figure 4.8). As an inevitable result of the transformation of the arterial transport line in the city by the new alternative route, the activities of daily life and the movement of Arab workers (from various areas of Hebron and the West Bank) inside the green line and Bedouin shoppers from Beer Alsabaa and Alnaqab moved to this street. According to PCBS,(2018) The total number of factories and commercial companies in the town is about 1247, While the number of these facilities along the alternative street is about 640, in other words about 50 % of the economic activities concentrated along 3km section of the alternative street route towards the terminal (Al-Dahreih Municipality, 2018).

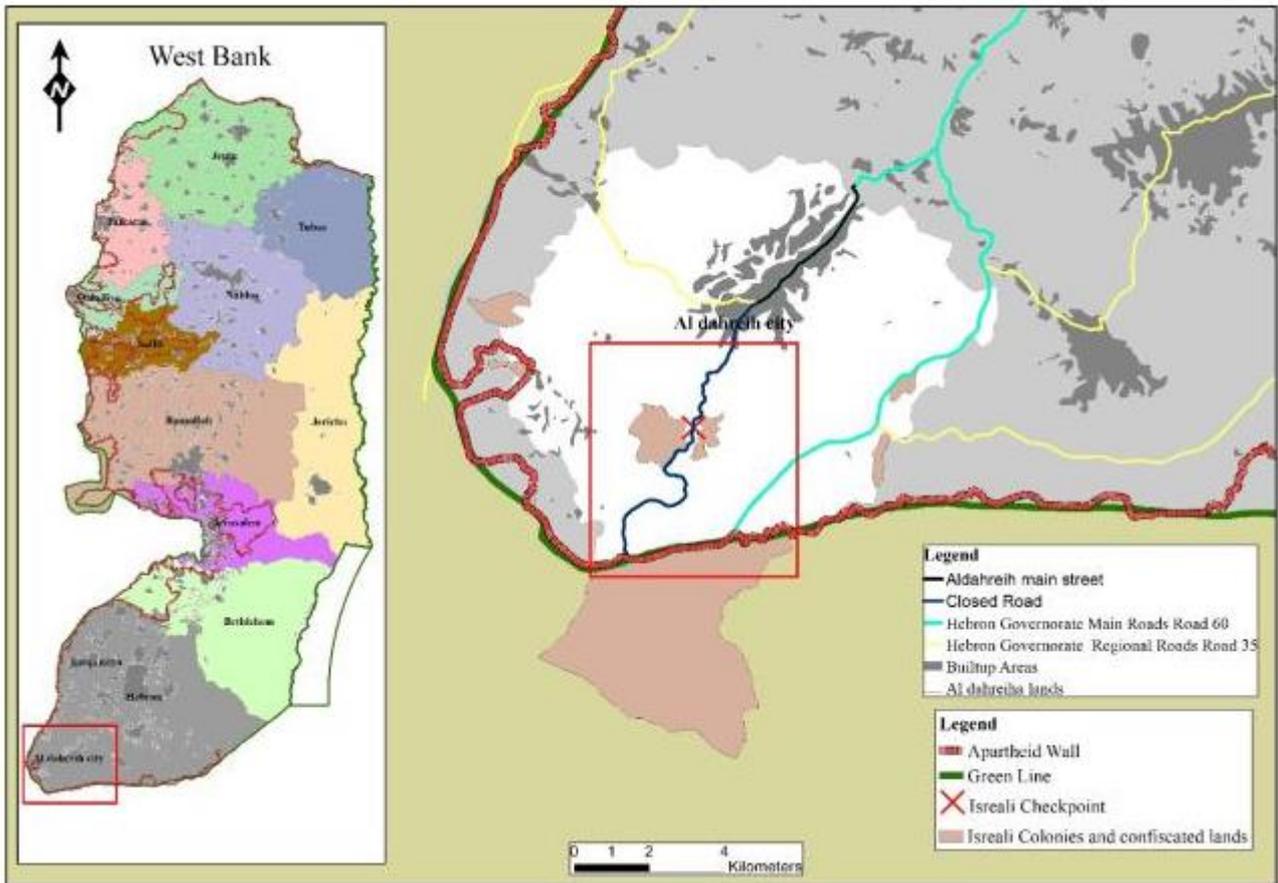


Figure 4.7 : Al-dahreih city main street and check point after the year 2004 (Source edited by the author based on Al-Dahreih municipality and GEOMOLG database, 2018).

The expansion and development of the crossing zone led to further confiscation of the city's land around it. The most recent confiscation order was issued in 2017, which included the confiscation of 48 dunums of the city's land to expand the crossing zone (figure 4.9). The total area of the crossing is about 200 dunums (poica,2014 ;LRCJ:2017; Al-Dahreih Municipality, 2018).

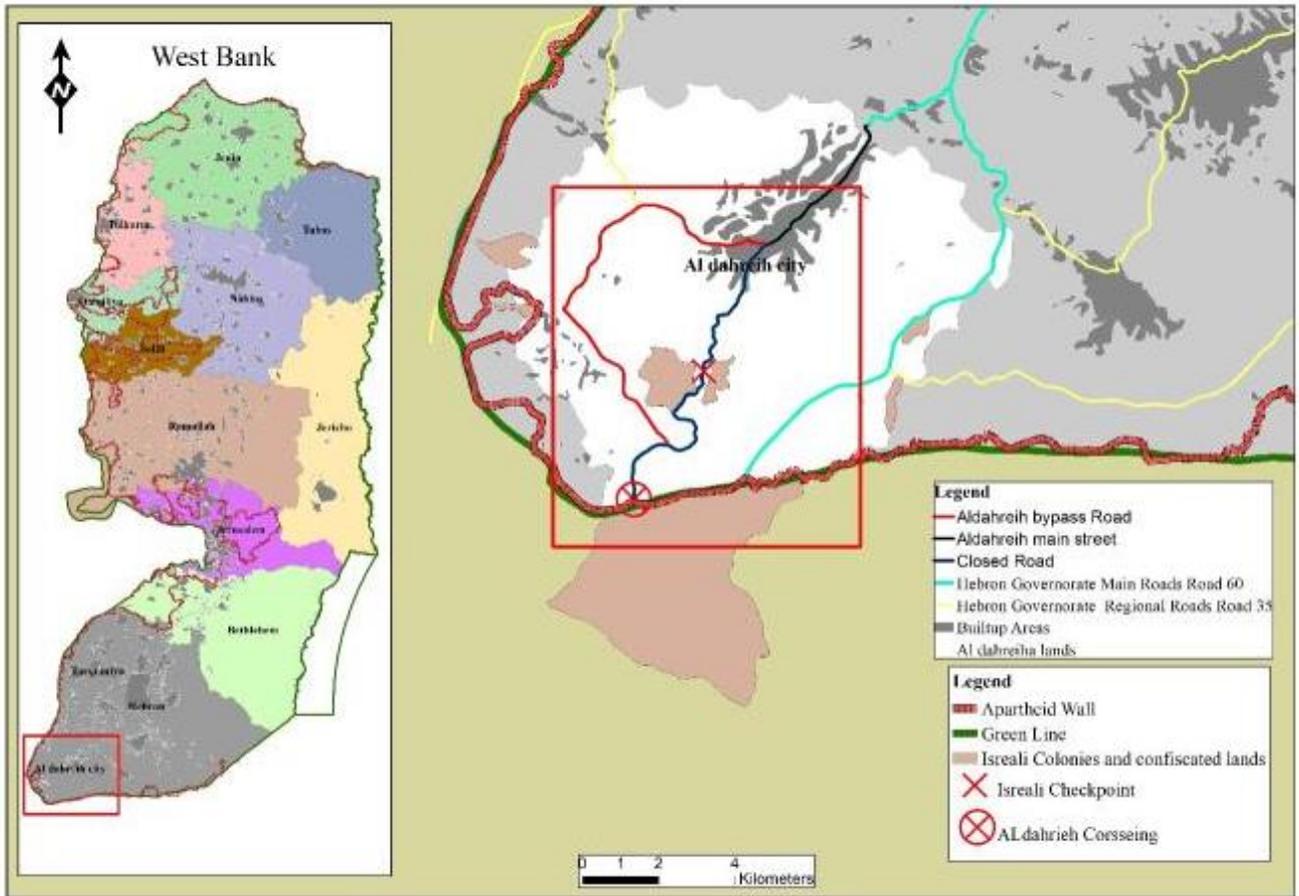


Figure 4.8: Al-dahreih city main streets and terminal after the year 2006 (Source edited by the author based on Al-Dahreih municipality and GEOMOLG database, 2018).

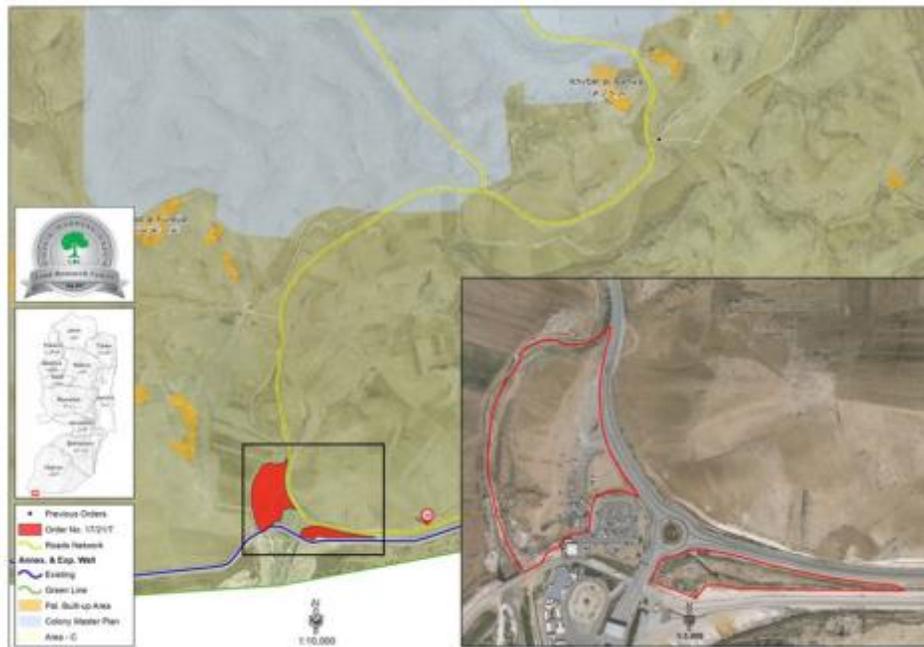


Figure 4.9: Al-dahreih city confiscated lands in 2017 around Al-Dhahiriya terminal (Source LRCJ, 2017).

Tarqumiya Town Roads and Terminals

Tarqumiya town main Street is the main arterial street in the town with a total length about 7 km. About 2km of the street path correspond with route 35 path, and it also intersects with Route 60 path. (GEOMOLG database, 2018). This street was the historical route from the town that leads to the Green Line and Gaza Strip and the main spine of the town expansion (figure 4.10) (Tarqumiya municipality, 2018).

In 1992 the Israeli military authorities created Tarqumiya checkpoint in the context of the closure policy that imposed on the movement between the WB and the borders of 1948 lands and Gaza strip also (figure 4.11). With the outbreak of second Palestinian Intifada (Al-Aqsa Intifada) in 2000, a military order was issued to turn this checkpoint into an official commercial terminal; the terminal had been operated as a checkpoint in 2002(figure 4.12).

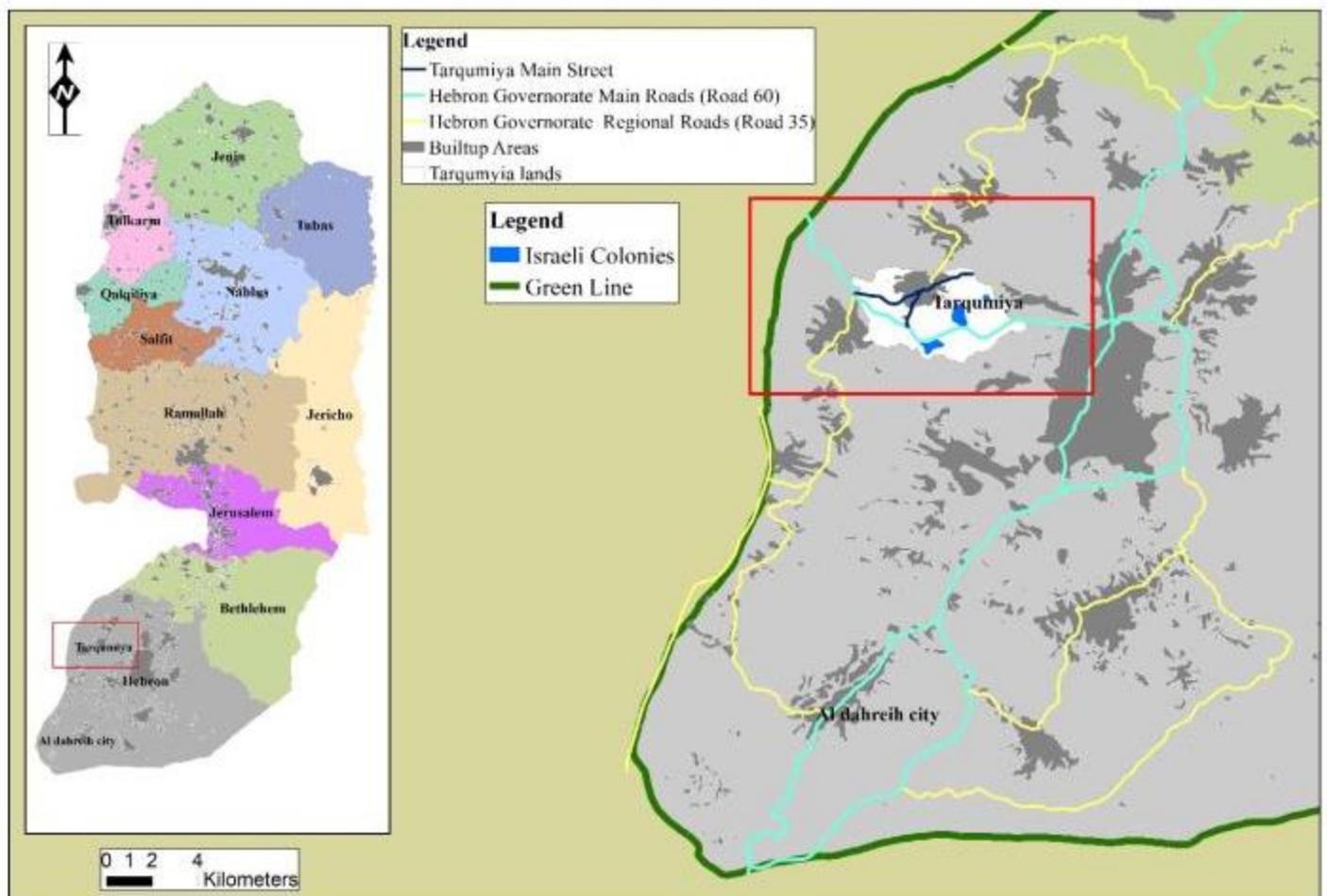


Figure 4.10 : Tarqumiya town main street before the year 1992 (Source edited by the author based on GEOMOLG database, 2018).

Tarqumiya terminal is located a kilometer east of the 1967 green line, about 150 meters west of Tarqumiya checkpoint. At the end of 2007 the Israeli government officially opened the terminal, it serves Hebron governorate in addition to the southern cities of the West Bank. It classified as commercial terminal between West Bank and Israel, as well as the passage of Palestinian workers to Israeli labor market (paltrade.org, 2018) .

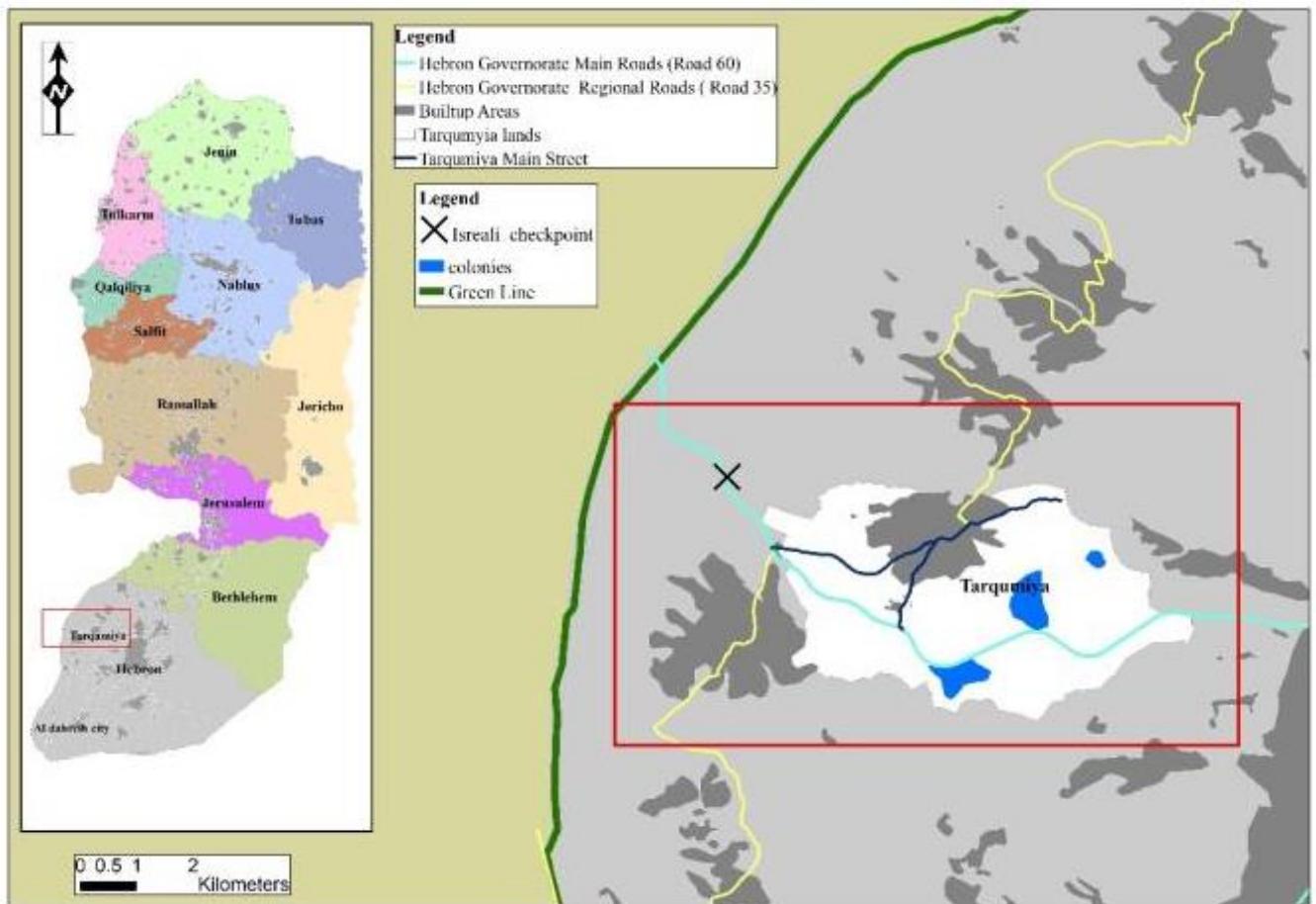


Figure 4.11 : Tarqumiya town main street and checkpoint in 1992 (Source edited by the author based on GEOMOLG database, 2018).

A new bypass road has been activated as a result of establishing Tarqumiya terminal and the associated commercial and industrial activities (figure 4.13). Accordingly, this street is considered as the main spine of the industrial and commercial expansion of the town. According to PCBS,(2018) the total number of factories and commercial companies in the town is about 493. The number of factories along the route of this street has reached 17 different factories and is constantly increasing.

Most of these facilities are unlicensed and illegal because they were constructed in a zone with high agricultural value classification (Tarqumiya municipality, 2018).

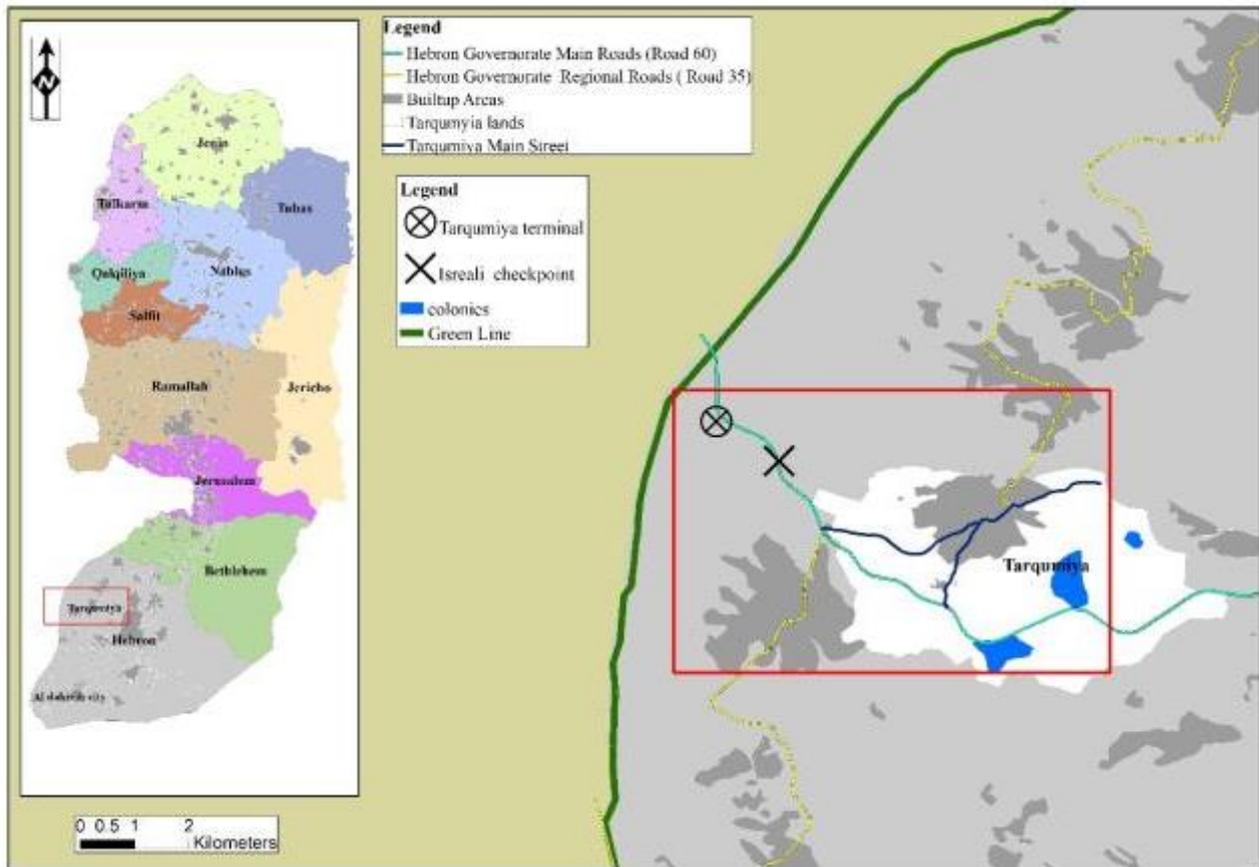


Figure 4.12 : Tarqumiya town main street and Terminal after 2000 (Al-Aqsa Intifada) (Source edited by the author based on GEOMOLG database, 2018).

It is worth mentioning that there is a proposal for constructing Tarqumiya Industrial and Logistics Zone project. The proposed project is the largest industrial zone in Palestine. The project will be developed and operated in cooperation between the General Authority for Free Cities and Industrial Zones and the Palestine Investment Fund, in accordance with Council of Ministers Resolution No. (08/17/160 / MW / RO). The area of the project is 1500 dunums and is located on the land adjacent to the Tarqumiya terminal within area C. The proposed zone would be in close proximity with more than thirteen community in the governorate (piefza.ps website, 2018).

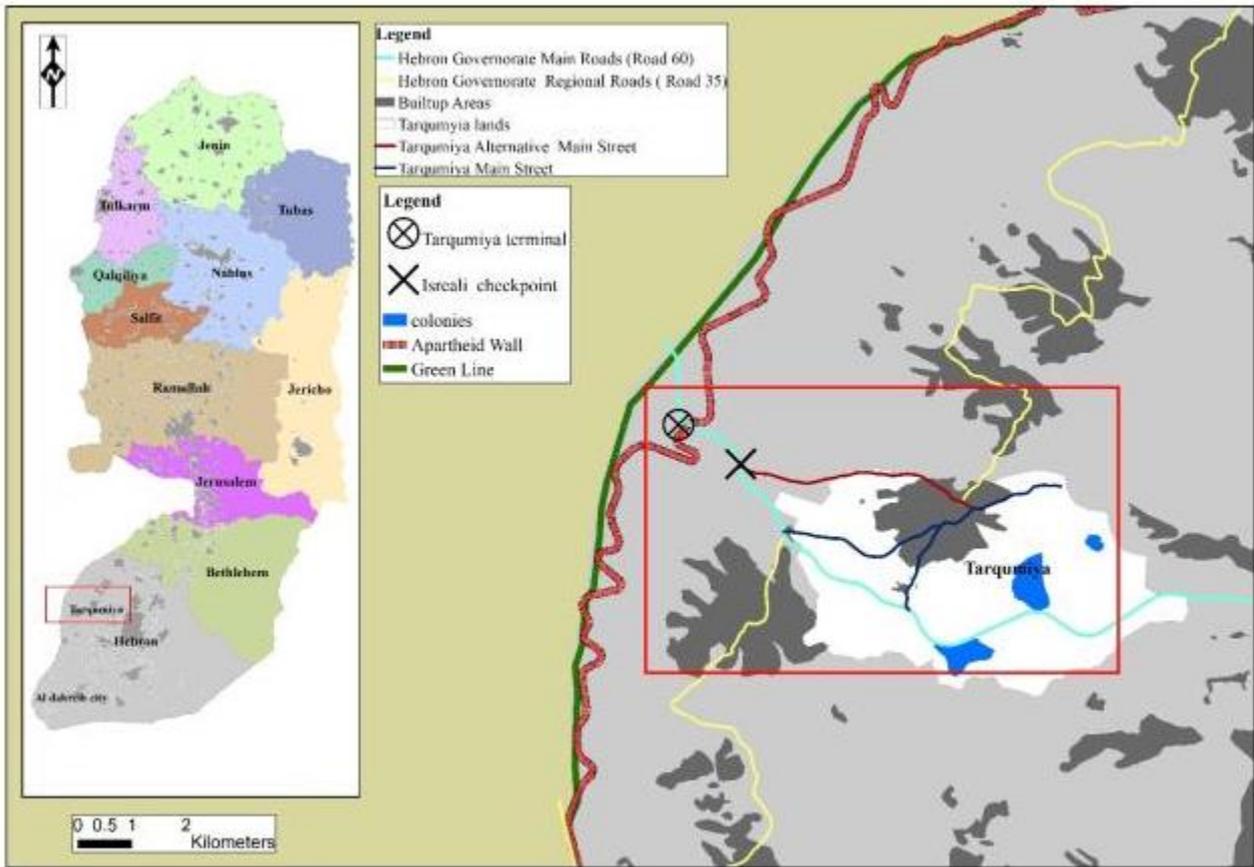


Figure 4.13 : Tarqumiya town main streets and terminal after the year 2006 (Source edited by the author based on GEOMOLG database, 2018).

4.2.3 Built up areas growth challenges and constraints.

Aldahreih city By tracking the urban growth movement in the city since 1997 until 2018, a state of flexible urban growth has begun to appear strongly after the year 2004 as an interaction between the city urban growth and the changing geopolitical determinants (checkpoints and crossing mainly). this section based on a chronological analysis of the builtup areas in the city at the years 1997, 2008 and 2018 .

Figure 4.14 illustrates the built up areas and geopolitical determinants in the city at the year **1997**. It is clear that urban development before 1997 was limited and linked to the old main street route that was leading to Arab and Bedouin communities inside the Green Line in Beer-Alsabaa, Al-Naqab and also to Gaza Strip (figure 4.5) . The city's commercial and economic activities were along the historical main street path of the city. At that time, the total built up area were 8225 dunums. 97% of

the the built-up area of the city was within the area "A" zone, small percentage of leapfrogging falling mainly within areas "B" which formed about 2.4% of the built-up areas , with negligible leapfrogging within areas "C" that formed about 0.6% of the total builtup area (Table 4.1& 4.2).

According to (PCBS,2019) and by calculating the built-up area of the town then; the population density in the built-up areas during that period, the population density in the built-up areas of the city reached about 2730 person/ km2 (Table 4.2).

Year	Built up areas (dunum)	Green line (Km)	Colonies area (dunum)	Confiscated area (dunum)	Closed roads (Km)	Check- points (No.)	Separation wall (Km)	Crossings (No.)	Crossing Area (dunum)
1997	8225	14	840	1000	---	---	---	---	---
2008	16070	14	1300	1750	1.7	1	16.4	---	45
2018	25865	14	1700	2270	1.7	1	16.4	1	65

Table 4.1 : Al-dahreih city chronological analysis of built-up area and geopolitical determinants transformations (1997-2018) (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

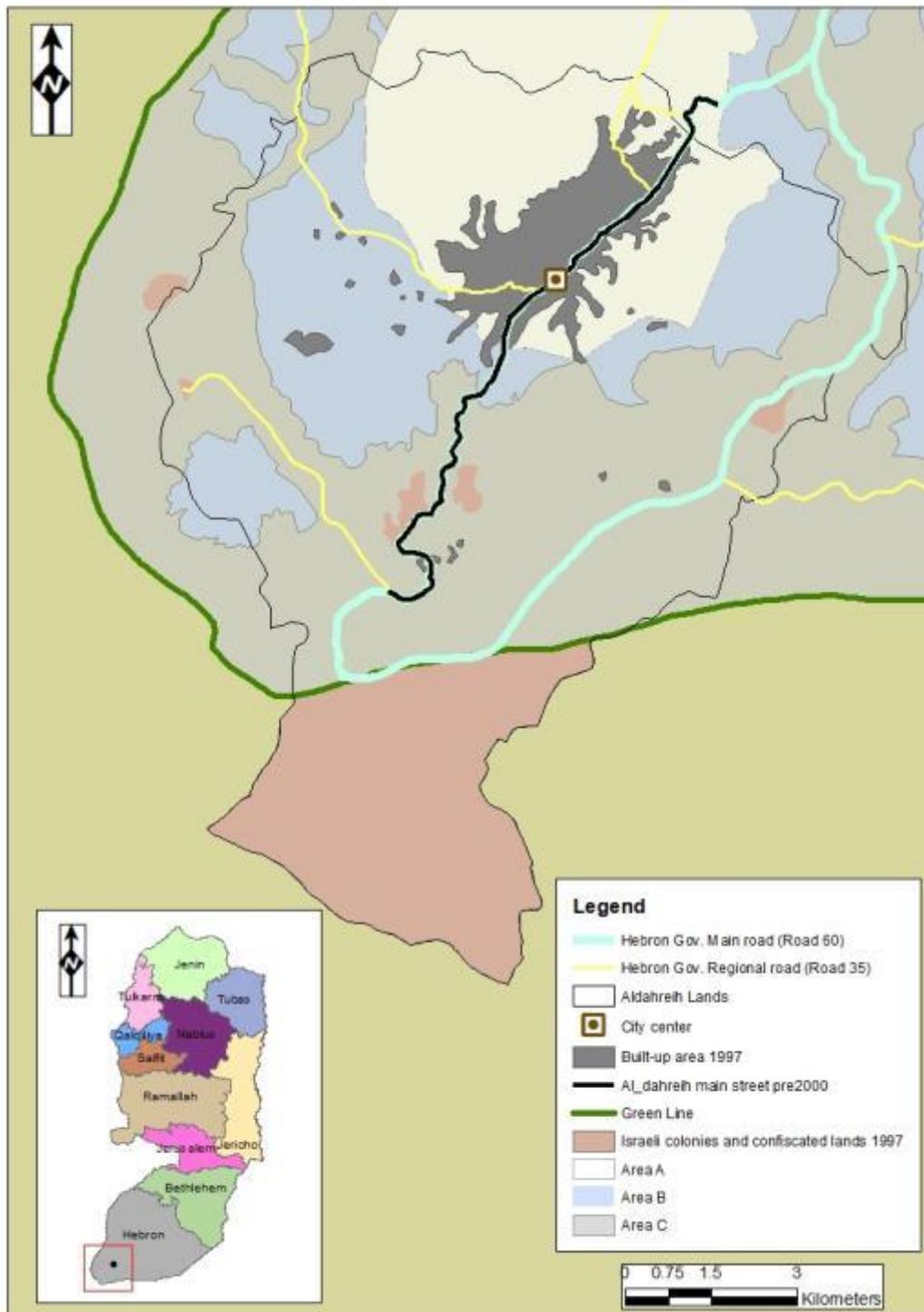


Figure 4. 14: Al-dahreih city built up area and geopolitical determinants 1997 (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

Year	Net population density in the built-up area (person/km2)	Builtup area in Area A (dunum)	Built up area in Area B (dunum)	Built up area in Area C (dunum)	Builtup area within Master plan	Unbuilt area within Area A zone (dunum)	Unbuilt area within Area B zone (dunum)	Unbuilt area within Area C zone (dunum)
1997	2730	8000	200	25	There was NO master plan.	22250	30050	58635
2008	1764	10200	5510	360	4900	20050	24740	57090
2018	1466	18200	7295	365	The master plan area is fully builtup	12050	22955	56165

Table 4.2: Al-dahreih city chronological analysis of population density, built-up area and Oslo land classifications (1997-2018) (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

And by analyzing the growth of the city's built-up areas in the interval between (1997 - 2008) under the geopolitical determinants in the city at that period. The analysis show that the built-up areas doubled in that period (Figure 4.15 & Table 4.1). The urban development of the city was linked to the new alternative main street route that resulted from the Israeli closure policy after the year 2000 when the checkpoint had closed in addition to the closure of a section of the historical main street of the city leading to Arab and Bedouin communities to the south. The built up area changed in direction to follow the new route to the crossing that leading to the south. The city's commercial and economic activities had coincided with the change in the main street route and began to creep towards the new alternative main street route of the city; in an attempt to restore its economic and commercial importance, and its status as a market for shoppers in 2004 after re-allowing accessibility to the West Bank through Al-dahreih city, through the newly created crossing. Consequently residential areas also was affected by these changes and crept after the commercial urban expansion areas. During this period, one of the internal connecting roads in the city was paved in the eastern part. The road links (Khirbet Shweika) which is one of the remote outskirts in the city with the city center. This area has been inhabited by the city's farmers since ancient times and most of its inhabitants are still farmers and livestock keepers (Figure 4.15).

At the year **2008**, 63% of the total built-up area were located in area "A" zone, 34% in area "B", in addition to 3% leapfrogging in area "C" (Table 4.2). The population density in the built-up areas that year decreased by 35% and reached about 1764 person/ km²; this is evident by comparing the doubled built areas between 1997 and 2008 compared to the population growth rate during that period that reached about 2.6 % (Table 4.2).

Figure 4.16 & Table 4.1 show the built-up area during (**2008-2018**) , by considering **1997** as the reference point in the analysis that the built-up area had tripled over (1997-2018). Between 2008 and 2018, the relationship and correlation between urban growth and the new alternative main street route became deeper. The built-up area became more connected to the street route that was leading the crossing point which is the southern gate of the city (figure 4.8). The city's commercial and economic activities had continued to creep towards the southern areas of the city along the new bypass main street route to get closer and closer to the crossing. The city regained its commercial and economic status quickly to return to the first shopping center for the shoppers.

During that period, Khirbet Shweika the outskirts of Khirbet Shweikeh witnessed rapid urban growth with the new paved street that has facilitated access to the city center. This encouraged housing in that quiet area, and Resulted in turned it from a remote agricultural area to a residential suburb in the eastern district of the city (figure 4.16).

Between (**2008-2018**), 70 % of the total built-up area of the city was lay within the area "A" zone, and 28% falling mainly within areas "B", in addition to 2% within areas "C" . According to PCBS, (2019) and by calculating the built-up area of the town then; the population density in the built-up areas in 2018 decreased by 46% and reached about 1466 person/ km² (the year 1997 is the reference year); by comparing the increase of built-up areas to three times between 1997 and 2018 and the city population during that period reached about 3.36 % (Table 4.2).

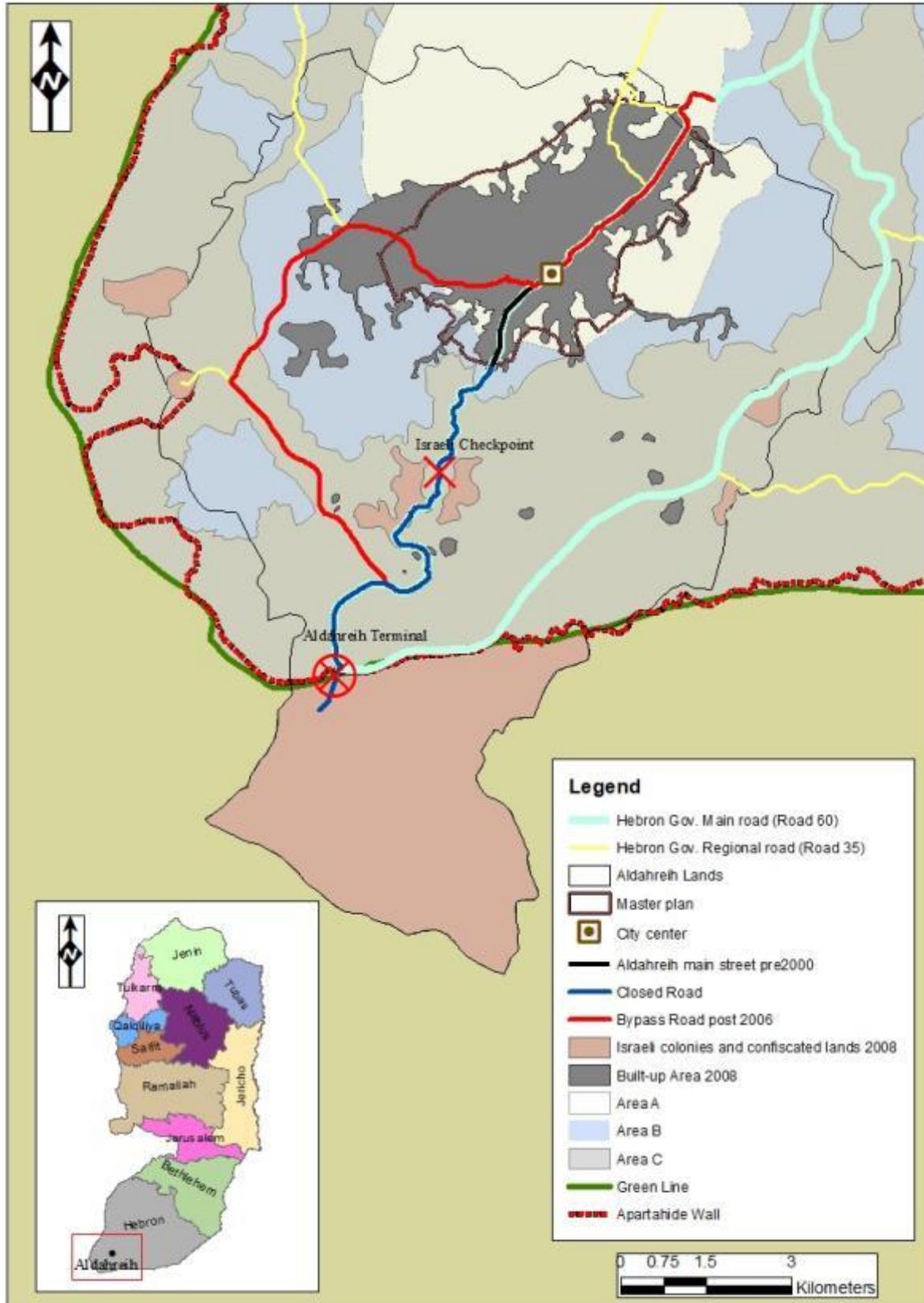


Figure 4.15: Al-dahreih city built up area and geopolitical determinants 2008 (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

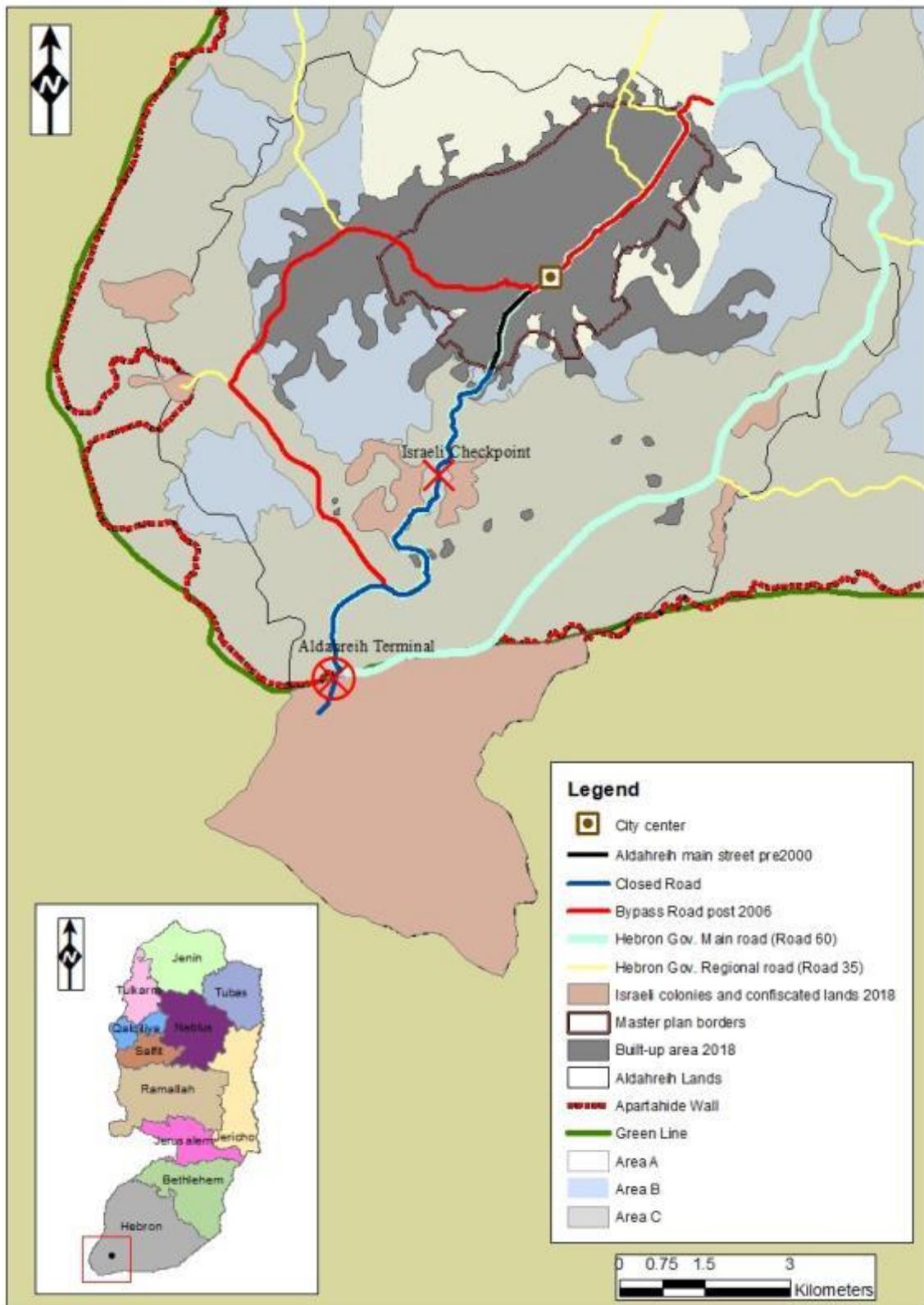


Figure 4.16: Al-dahreih city built up area and geopolitical determinants 2018 (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

Table 4.1, figure 4.17 and figure 4.18; present a summary of the most important aspects of changes and transformations of the built-up areas growth under the impact of the "Temporary permanent geopolitical constraints". The analysis show that the city built-up areas had been almost tripled during (1997-2018). The checkpoint had turned into a border crossing; the imaginary boundary (green line) had turned into a concrete wall (the separation wall). The open path of the original city street that was historically leading to the Arab communities inside the green line and Gaza Strip had become partially closed and the path is completely diverted towards another alternative route.

On the other hand, Table 4.2 show the chronological analysis of the transformations of many related aspects of the city urban growth in relation with the Oslo agreement lands classifications area (A, B and C); the population density in the built-up areas almost decreased to the half during the interval between (1997 and 2018), this is due to the accelerated horizontal expansion of the city where the geopolitical determinants had the upper hand in this situation as were explained previously. Whereas, population density is the most popular urban sprawl measure, the indicators that had been reached through the previous analysis lead to the fulfillment of the conditions of urban sprawl which is in fact a form of urban development that characterized by low densities. The available expansion areas within "Areas A and B" is about 58% of these zones lands.

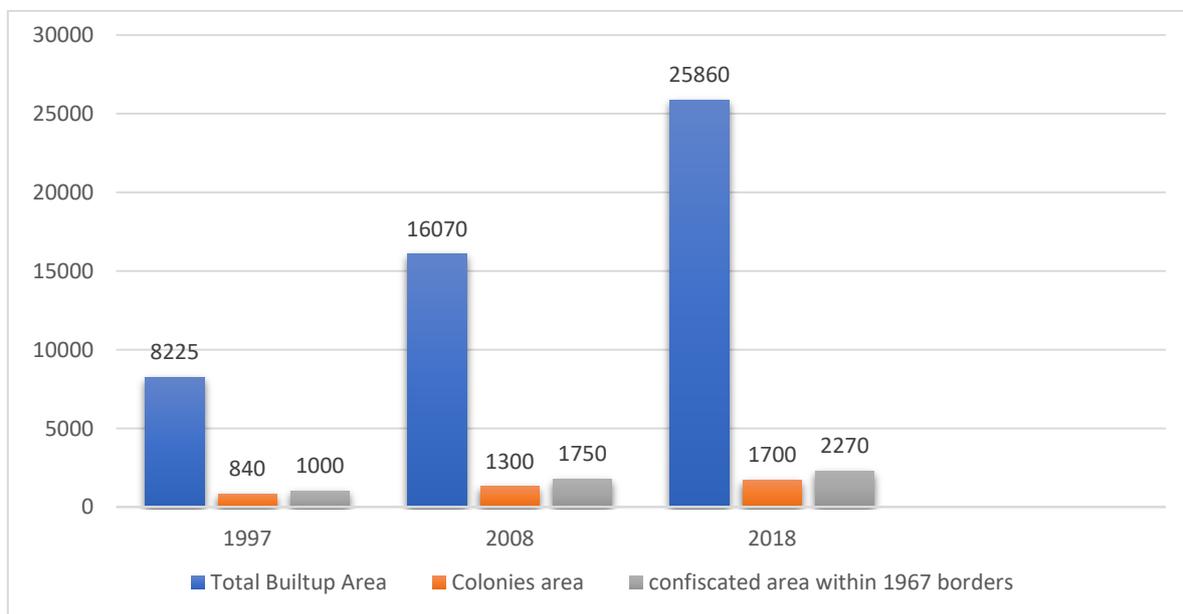


Figure 4.17: Al-dahreih city chronological analysis of built-up area and "Israeli" colonies and confiscated areas transformations (1997-2018). (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

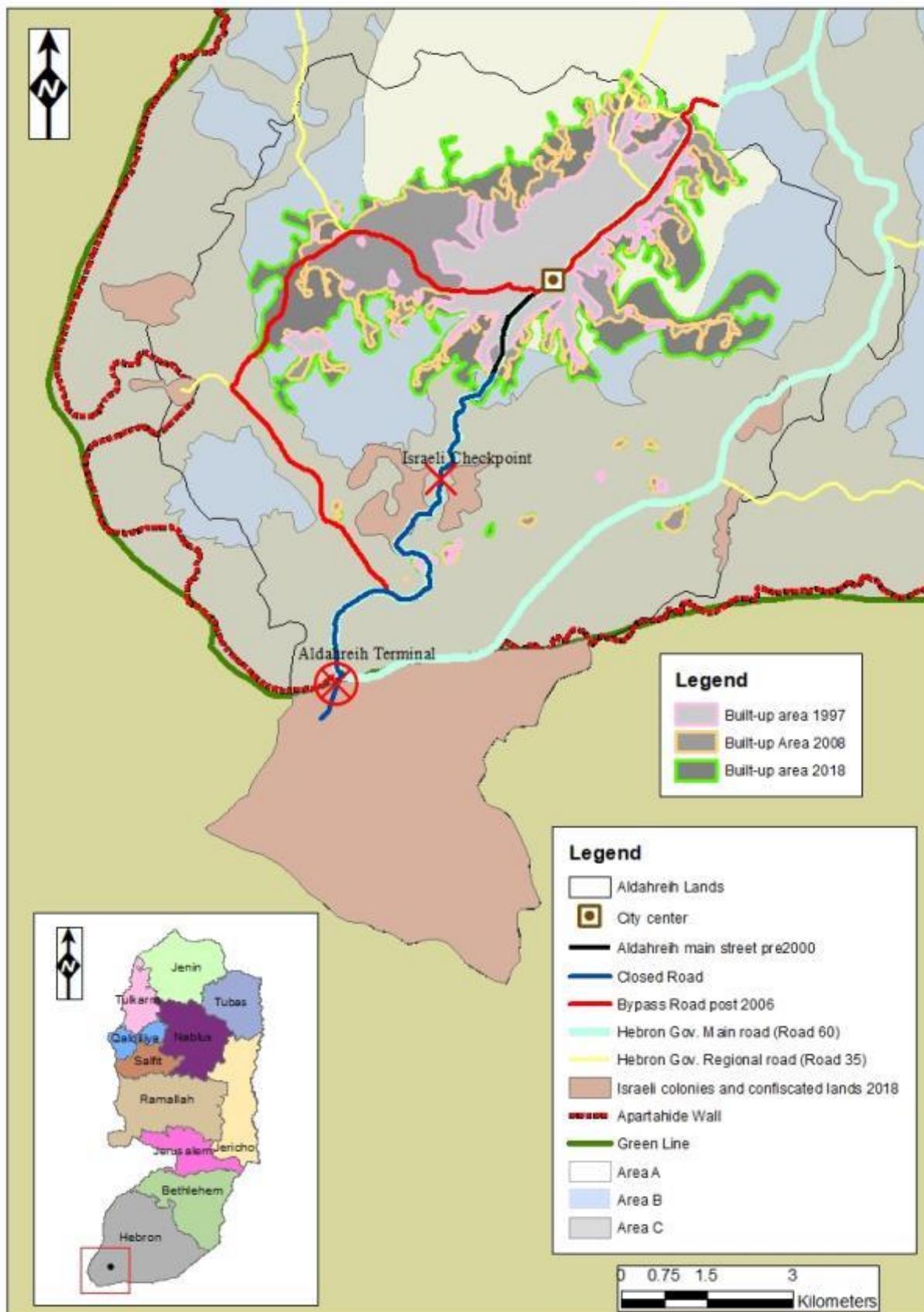


Figure 4.18: Al-dahreih city built up area transformations and geopolitical determinants (1997-2018) (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

According to (Pozoukidou, & Ntriankos, (2017), there is no single indicator could sufficiently measure urban sprawl phenomenon. Furthermore, there is no certain value (threshold) which determines the absence or (existence) of urban sprawl. On the contrary, most of the times the indicators values of sprawl are compared over time for the same city or synchronically between cities (Pozoukidou, & Ntriankos, (2017). Based on the above conclusion of urban sprawl determination, during quarter of a century the analysis indicates a noticeable decline in the net population density in the city during (1997-2019). And by studying the transformations of the built-up areas continuity and fragmentation, it can be recognized that there are signs of urban sprawl according to the indicators of built up areas shift compared to the population density in aldahreih (Table 4.1 & 4.2; Figure 4.17).

At the end, the summary of the previous analysis leads that all geopolitical constraints worked side by side and served as a different integrated forms of prisons that were the main responsible determinants of identifying the city urban fabric, shaping the growth pattern, directions and density. Moreover, they had imposed their terms and conditions on the growth trends. Oslo land classifications, borders, bypass roads, "Israeli" colonies and lands confiscation worked side by side, as a growth constraints, by strangling and besieging the city from three directions (the eastern, western and southern parts) of the city lands that classified as area "C" lands in which the urban expansion of the Palestinians is not allowed according to the Oslo agreement. All geopolitical determinants have created a buffer of restrictions around the city's lands that classified as area (A or B).

According to the analysis of the built up area , the city underwent large shifts as the growth direction has changed radically, the built up area has grown in a ribbon shape, the built-up area has increased significantly, the net population density has experienced considerable decline. The city's commercial identity grew brighter to become the most important market for Arab shoppers from inside the Green Line (Aldahreih municipality,2018).

Tarqumyia Town

The same analysis was conducted on Tarqumyia town. A state of leapfrogging has begun to appear strongly after the year 1997 which eventually turned into another form could be described as "radial urban growth" which resulted from the interaction between the town urban growth and the changing geopolitical determinants (checkpoints and crossing mainly).

Figure 4.19 illustrates the built up areas and geopolitical determinants in **1997**. It is clear that urban development before 1997 was limited and linked to the town center and the historical main streets routes. Since the town's lands are classified as area B and C only , there are no area A zones . At that time, the total builtup area were 2310 dunum (Table 4.3). 93.6% of the the built-up area of the city were in the area "B" zone, and the rest builtup areas falling within areas "C" which formed about 6.4% of the built-up areas. Moreover, according to PCBS (2019) and by calculating the built-up area of the city then, the population density in 1997 reached about 4329 person/ km2 (Table 4.4).

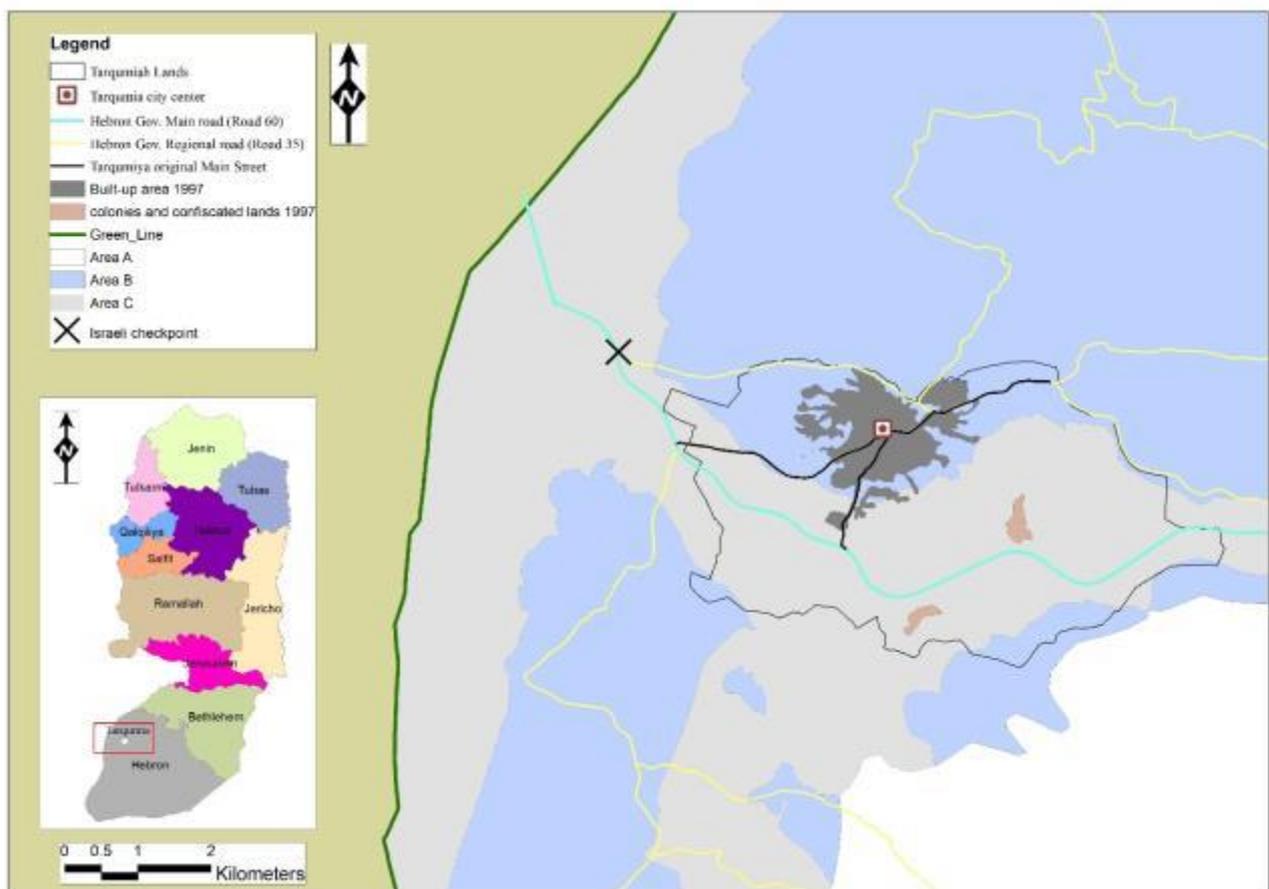


Figure 4. 19: Tarqumyia town built up area and geopolitical determinants 1997 (Source edited by the author based on Tarqumyia municipality and GEOMOLG database, 2018).

Year	Built up areas (dunum)	Green line (Km)	Colonies area built-up areas (dunum)	Confiscated area (dunum)	Closed roads (Km)	Check points (No.)	Separation wall (Km)	Crossings (No.)	Crossing Area (dunum)

1997	2310	3.5	200	----	----	1	----	----	----
2008	4285	3.5	400	55	----	1	4	1	160
2018	6500	3.5	900	80	----	1	4	1	205

Table 4.3: Tarqumyia town chronological analysis of built-up area and geopolitical determinants transformations (1997-2018) (Source edited by the author based on GEOMOLG database, 2018).

Year	Net population density in the built-up areas (person/km ²)	Built up areas in Area B (dunum)	Built up areas in Area C (dunum)	Builtup area within Master plan	Expansion area within Area B zone (dunum)	Expansion area within Area C zone (dunum)
1997	4329	2160	150	There was NO master plan.	5617	12893
2008	3390	3835	440	3125	3942	12348
2018	3107	5400	1100	6250	2377	11163

Table 4.4: Tarqumyia town chronological analysis of population density, built-up areas and Oslo land classifications (1997-2018) (Source edited by the author based on Al-Dahreih municipality and GEOMOLG database, 2018).

And by analyzing the built-up areas growth in the interval between (1997 - 2008) under the geopolitical determinants during that period, the analysis show that the built-up area doubled over that period (Figure 4.20; Table 4.3). The urban growth of the town was heading radially. The new bypass main street route due the the israeli clouser policy after the year 2000 (which were represented in the existance of the "israeli" checkpoint near the town which turned later into the terminal) did not affect the town urban growth dirictly, as it does not pass through the central areas directly, however the street formed a bypass road in the outskirts of the town. The built-up area started to move toward the bypass street route, as the newly constructed industrial and commercial enterprises began to appear there. The first reason for this phenomenon was the transformation of the town into a border area because of the presence of the Terminal near it. As it became a border

passage between the WB and lands inside the Green Line as well as Gaza Strip. Especially as the terminal is classified as a commercial crossing, and trade is permitted through it. At that time, 89.5% of the total built-up area of the town was in area "B" zone, and the rest of its lands in area "C" (Table 4.4). According to (PCBS,2019) and by calculating the built-up area of the town then; the population density in the built-up areas during that period decreased by 21.7% and reached about 3390 person/ km² (Table 4.4).

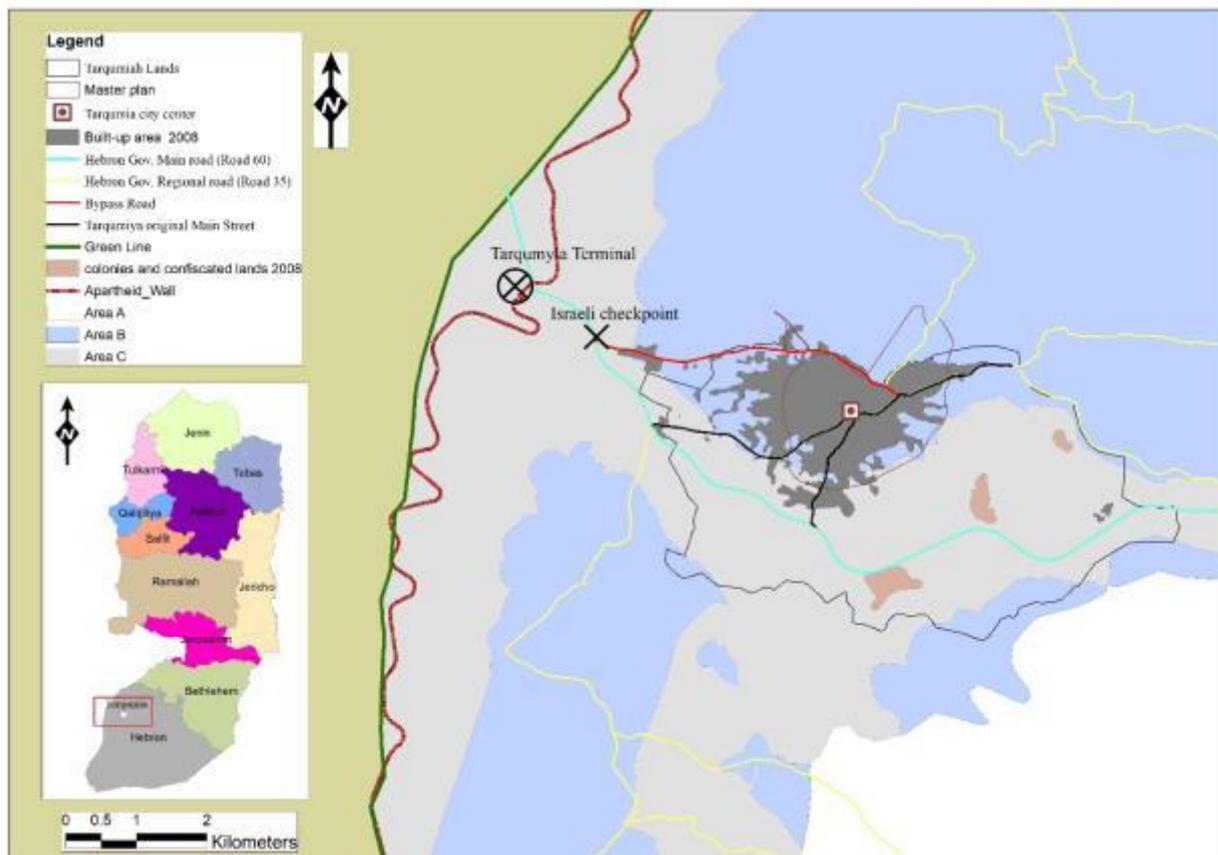


Figure 4. 20: Tarqumyia town built up area and geopolitical determinants 2008 (Source edited by the author based on Tarqumyia municipality and GEOMOLG database, 2018).

Figure 4.21 & Table 4.3 show the built-up area during (2008-2018) , by considering 1997 as the reference point in the analysis that the built-up area had tripled over (2008-2018). Between 2008 and 2018, the relationship and correlation between the town urban growth and the new bypass street became deeper. The town outskirts along the bypass street path have become fully built-up area. The industrial and economic activities had continued to creep towards the periphery towards the western areas of the town along the bypass street to get closer and closer to the terminal. At that time, 83 %

of the total built-up area of the town was in the area "B" zone, and 17% in area "C" (Table 4.4). According to (PCBS,2019); the population density in the built-up areas of the city in 2018 decreased by 28% and reached about 3107 person/ km² in the year 2018 (the year 1997 is the reference year) (Table 4.4).

Since the construction of tarqumia terminal, which was located on the agricultural confiscated lands of Khirbat Jamrorah, the town gained high economic and industrial importance at the governorate level. And became the focus of investors and traders, due to its strategic location near the terminal, which turned Tarqumia into a border town. The town became a contact point because of the presence of the terminal on a part of its territory. Moreover, became part of the route towards the gateway that linking the W.B. and Gaza Strip, to transport goods, workers and traders between the West Bank and Israel.

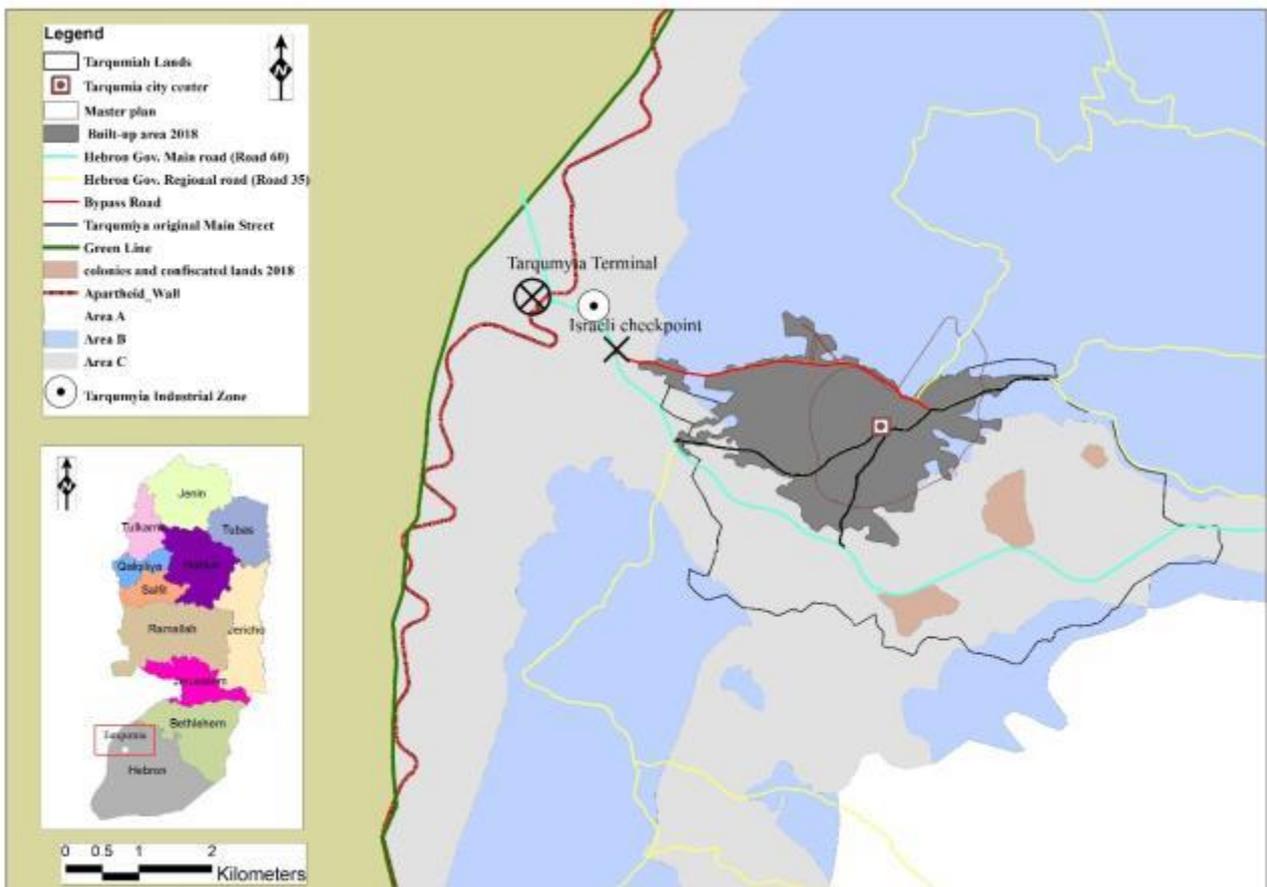


Figure 4. 21: Tarqumia town built up areas and geopolitical determinants 2018 (Source edited by the author based on Tarqumia municipality and GEOMOLG database, 2018).

Table 4.3, figure 4.22 and figure 4.23 presenting a summary of the most prominent aspects of the changes and transformations reflected on the built-up areas growth. The analysis show that the built-up areas had been almost tripled during that period. The Israeli colonies built-up areas on confiscated lands also had been tripled. The confiscated lands had been tripled also. The new bypass street at the edge of the town has become more important than the historical main street.

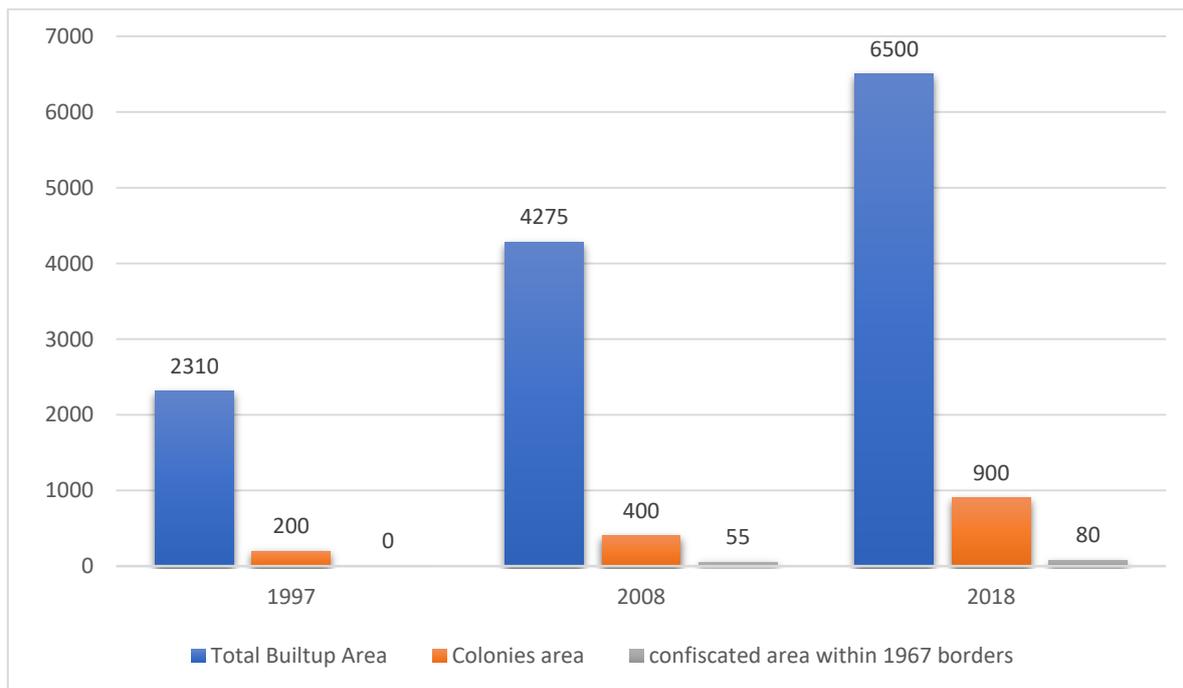


Figure 4. 22 : Tarqumyia town chronological analysis of built-up areas and "Israeli" colonies and confiscated areas transformations (1997-2018) (Source edited by the author based and GEOMOLG database, 2018).

Table 4.4 show Tarqumyia urban growth transformations in relation with Oslo land classifications (Area A, B and C). As mentioned above the city lands were classified as (Area B and C only). In 2018 the population density almost decreased to the third (the year 1997 is the reference point), due to the accelerated horizontal expansion with "Area B ". Moreover, the expansion possibility within Area C as stipulated by the Oslo Accords is almost impossible.

What is striking in Tarqumyia case is that area "B" zone of the towns land has almost become built-up. The available expansion area within "Area B" is about 30% of this zone area; this raises the alarm about the future expansion prospects in the town. Accordingly, the results that has been reached through the previous analysis indicates the fulfillment of urban sprawl conditions in terms of low-density urban expansion. During quarter of a century the analysis indicates a noticeable decline

in the net population density in the city during (1997-2019). And by studying the transformations of the built-up areas continuity and fragmentation, it can be recognized that there are signs of urban sprawl according to the indicators of built up areas shift compared to the population density in aldahreih (Table 4.3 & 4.4; Figure 4.23).

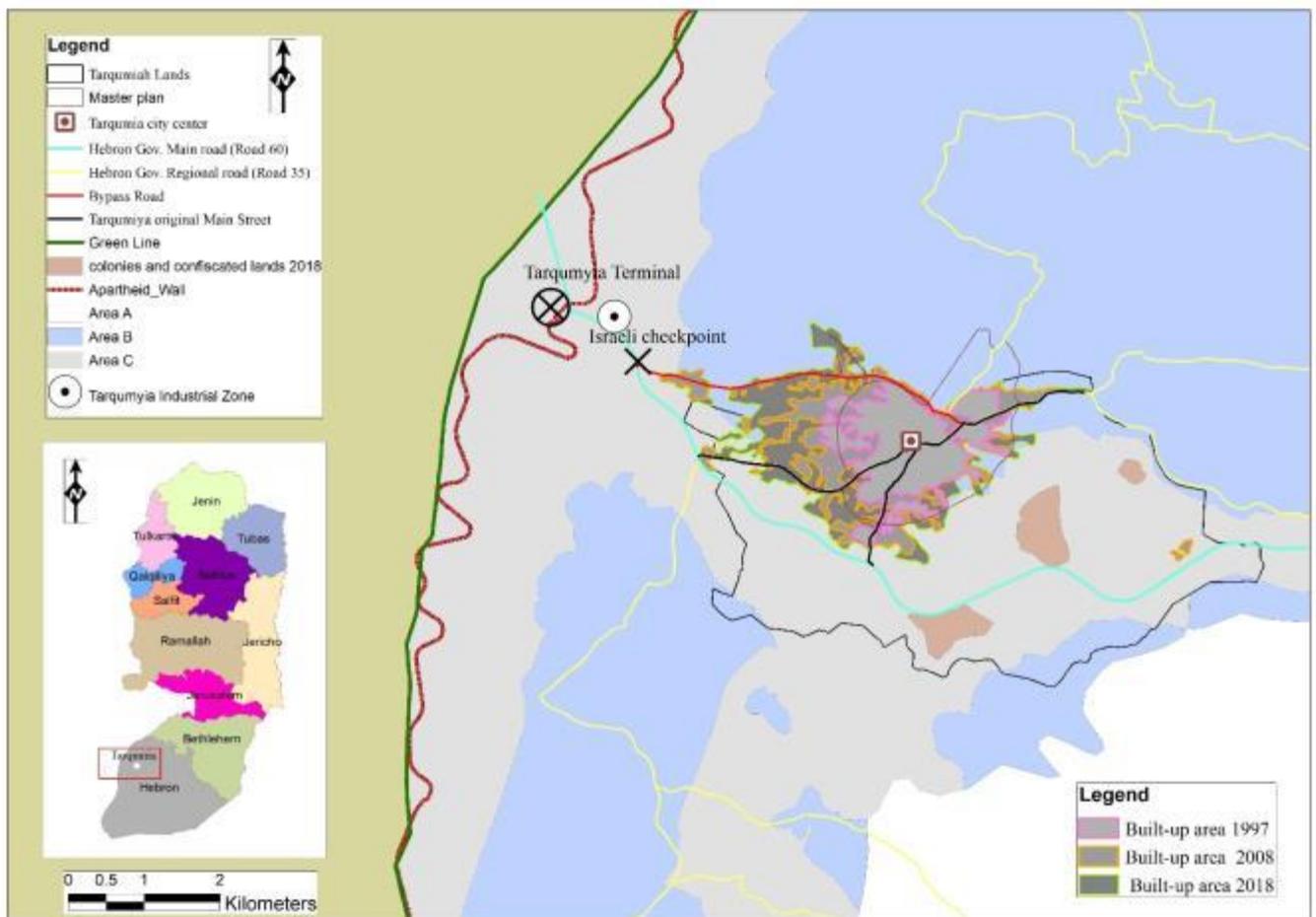


Figure 4.23: Tarqumiyah town built up area transformations and geopolitical determinants (1997-2018) (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

At the end, the summary of the previous analysis leads that all geopolitical constraints worked side by side and served as a different integrated forms of prisons that were the main responsible determinants of identifying urban fabric of the town, shaping the growth pattern, directions and density. Moreover, they had imposed their terms and conditions on growth trends; Oslo land classifications, borders, bypass roads, "Israeli" colonies and lands confiscation has worked side by side as a growth constraints, by strangling and besieging the town. The town underwent large shifts as the growth direction has changed radically, the built-up area has increased significantly, the net population density has experienced considerable decline. The town's economic identity grew

brighter, it has become an important destination for investors in the industrial sector as a result of its border location. As Tarqumiya was a traditional Palestinian town that relied mainly on agricultural activities, but the geopolitical determinants were the main responsible for the decline the original identity of the town, and replacing it with a new different economic identity.

At the end, all geopolitical constraints were the main determinants of the shape, directions and density of urban fabric. The urban growth in the two communities have been fully subjected to the geopolitical determinants that had the upper hand in this situation as were explained previously.

4.2.4 Land Use/Cover and geopolitical constraints.

According to (MOP, National Spatial Planning, 2014) agricultural land has classified to four categories based on the level of soil fertility: high value, medium, low value and forests; in the high value category the land are suitable for field crops, in the medium value category the land are suitable for other crops and especially the trees, the forests, and the low agricultural value category include other lands.

In this section, a chronological analysis was performed to monitor changes and transformations of land cover in the study areas, during the interval between 1997 and 2018. The analysis based on the use of three main layers; agricultural lands classifications, built-up area and the existing geopolitical conditions.

Aldahreih city

The city is 655 meters above sea level, with a semi-desert climate as well as the Mediterranean basin. The average of annual rainfall in the city is 337 mm (ARIJ,2009). Figure 4.24 show the agricultural land classifications in the city. The city lands includes all agricultural categories except forests. Most of the city's land are classified as low value agricultural land that constitutes 76% of the city's land. The land of high agricultural value is located in the western areas of the city; another part is located in the far south of the city, in addition to other areas scattered in the eastern areas of the city. The total percentage of land with high agricultural value in the city is about 15% of its land. As for the medium agricultural value land it constitutes 9% of the city's land and they concentrated in the western and northern areas of the city (figure 4.25).

Figure 4.26 & table 4.5 illustrates the agricultural land classifications according to Oslo accords. The total area of lands within area "C" is about 65000 dunum of the city area, 10.5 % of these lands are high agricultural value lands, while only 1.5 % of area C lands has medium agricultural value, and the largest percentage of area "C" (88%) are lands with low agricultural value. The percentages of high and medium agricultural land value within area "B" are 26.5 % and 5.2 % respectively. The ratios of high and medium agricultural land value within areas "A" were 14.3% and 25.9% respectively.

By tracking the city urban growth compared to agricultural land value between (1997-2018), the shrinking of agricultural lands appeared clearly. Many factors played vital roles in that status: the geopolitical constraints, which manifested mainly in Oslo land classifications, borders, land confiscations and bypass roads.

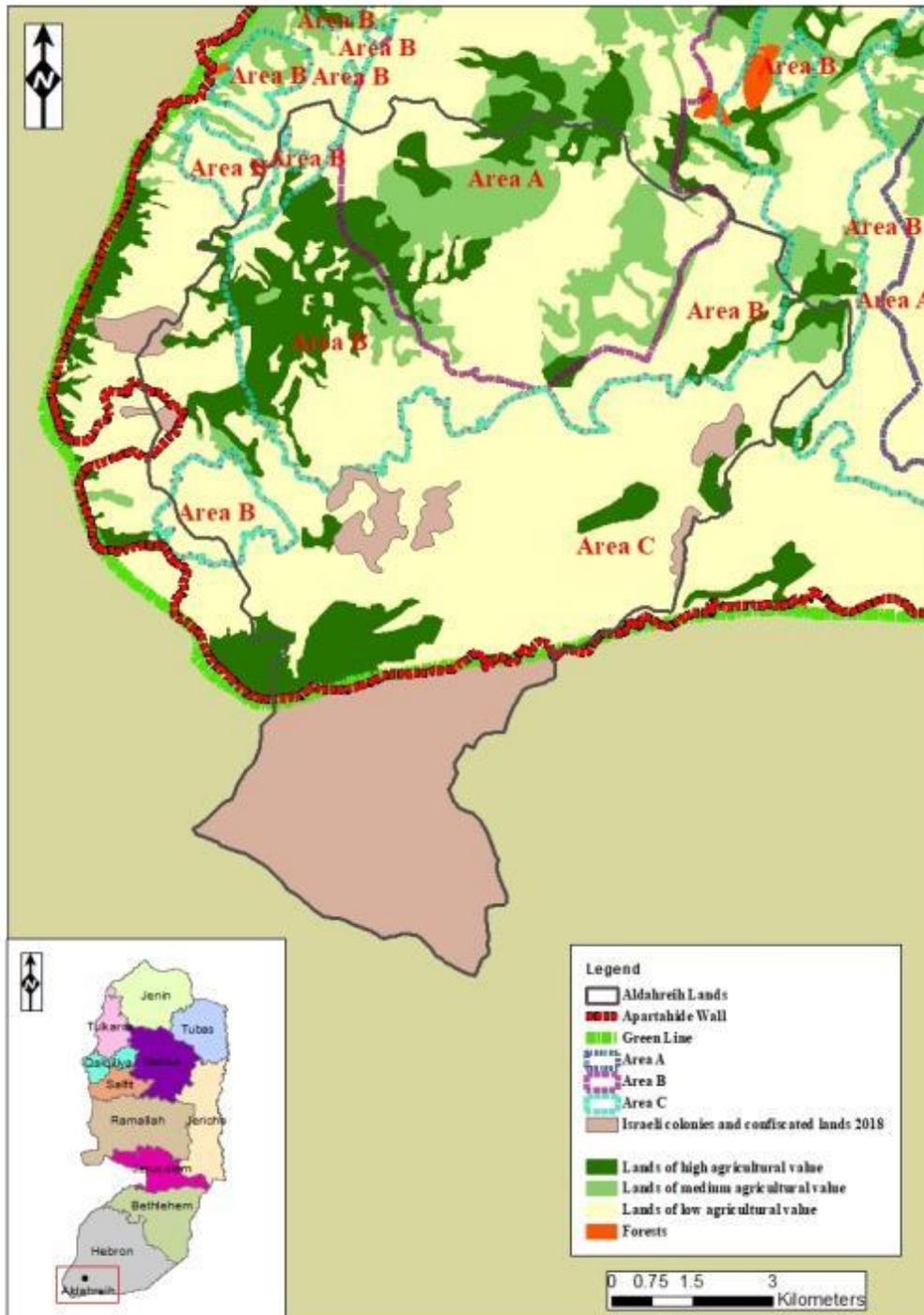


Figure 4. 24: land cover/use (Agricultural land classifications) and geopolitical determinants in aldashreih city (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

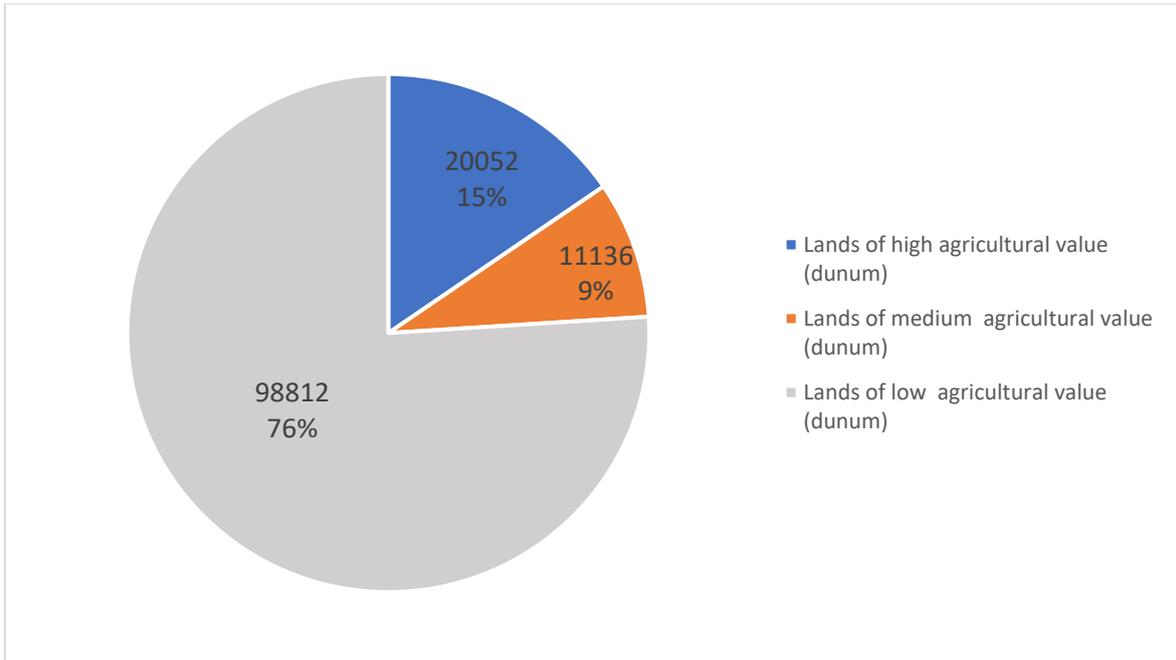


Figure 4.25 : land cover/use (The agricultural classification) of Al-dahreih city lands (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

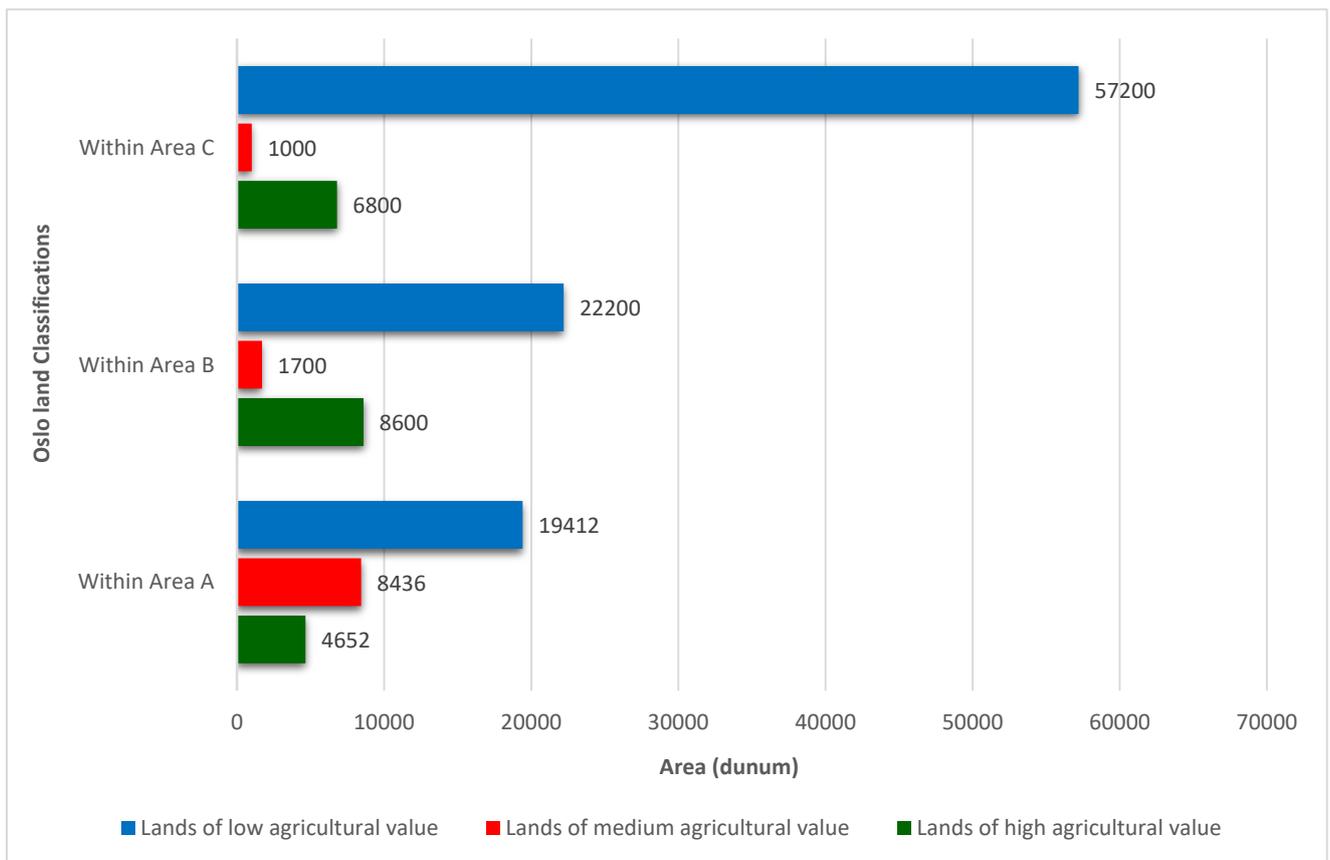


Figure 4.26 : land cover/use and Oslo land classifications in Al-dahreih city (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

Oslo Land classifications	% Lands of high agricultural value	% Lands of medium agricultural value	% Lands of low agricultural value
Area A	14.3%	25.9 %	59.8%
Area B	26.5%	5.2 %	68.3 %
Area C	10.5 %	1.5 %	88 %

Table 4.5: The percentages of agricultural land Value and Oslo land classifications in Al-dahreih city (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

Figure 4.27 illustrates the status of built areas compared with land cover/use in the city at the year **1997**. As shown in the figure, most of built up areas were located within areas of low agricultural value, with the exception of small areas that extended within the land of high or medium agricultural value. The built up area were concentrated mainly on area "A" zone (figure 4.30and table 4.6).

And by analyzing the growth of the city's built-up areas compared with land cover/use in the interval between (1997 - 2008), figure 4.28 show the start of shrinking the agricultural lands in the city because of the expansion of built-up areas in the city and their spread in areas of high or medium agricultural value. During that interval 22% of the built-up area were located within high agricultural value lands, in addition to 19% of the built-up area were located within medium agricultural value lands, and the rest of built-up area were located within low agricultural value lands (figure 4.30and table 4.6). During this period, the first master plan of the city was adopted and most of the master plan area were within low agricultural value lands. By the end of that period, most of the master plan area were almost built-up. The expansion of the built-up areas beyond the boundaries of the master plan has started in areas with high or medium agricultural value as these areas were available for urban expansion in terms of their geo-political classification (areas "A" and "B"), in the western and south western sides of the city. It should be noted here that the process of urbanization in these areas has not been subjected to any regulatory or planning controls; most of the buildings and facilities within these areas were not licensed as they fall outside the boundaries of the master plan. This trend coincided with the start of activating the route of the bypass street, the built-up areas which was predominantly commercial facilities began to creep towards the new street path to become closer to the shoppers.

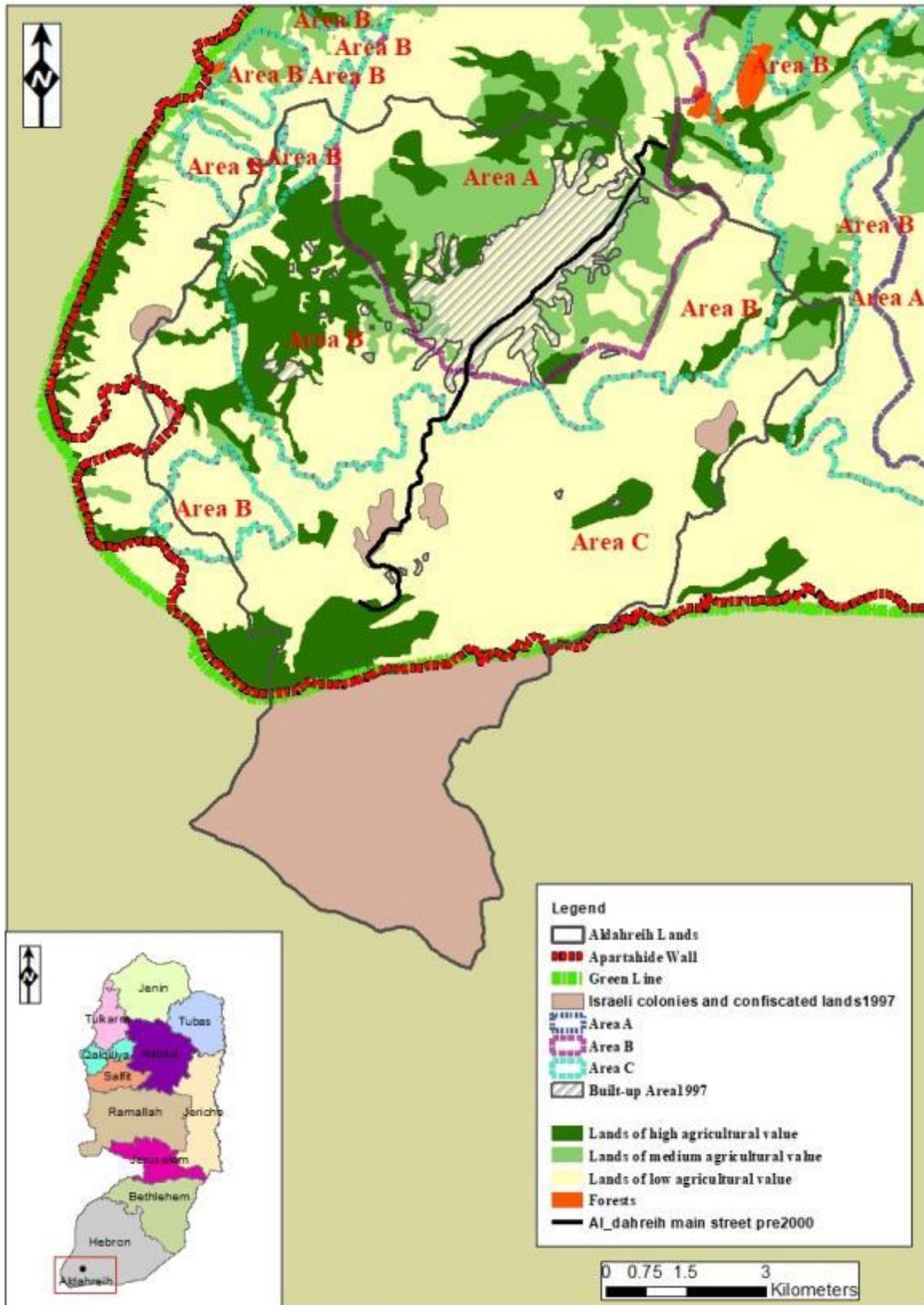


Figure 4. 27: Agricultural land classifications, built up areas and geopolitics determinants in aldashreih city 1997 (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

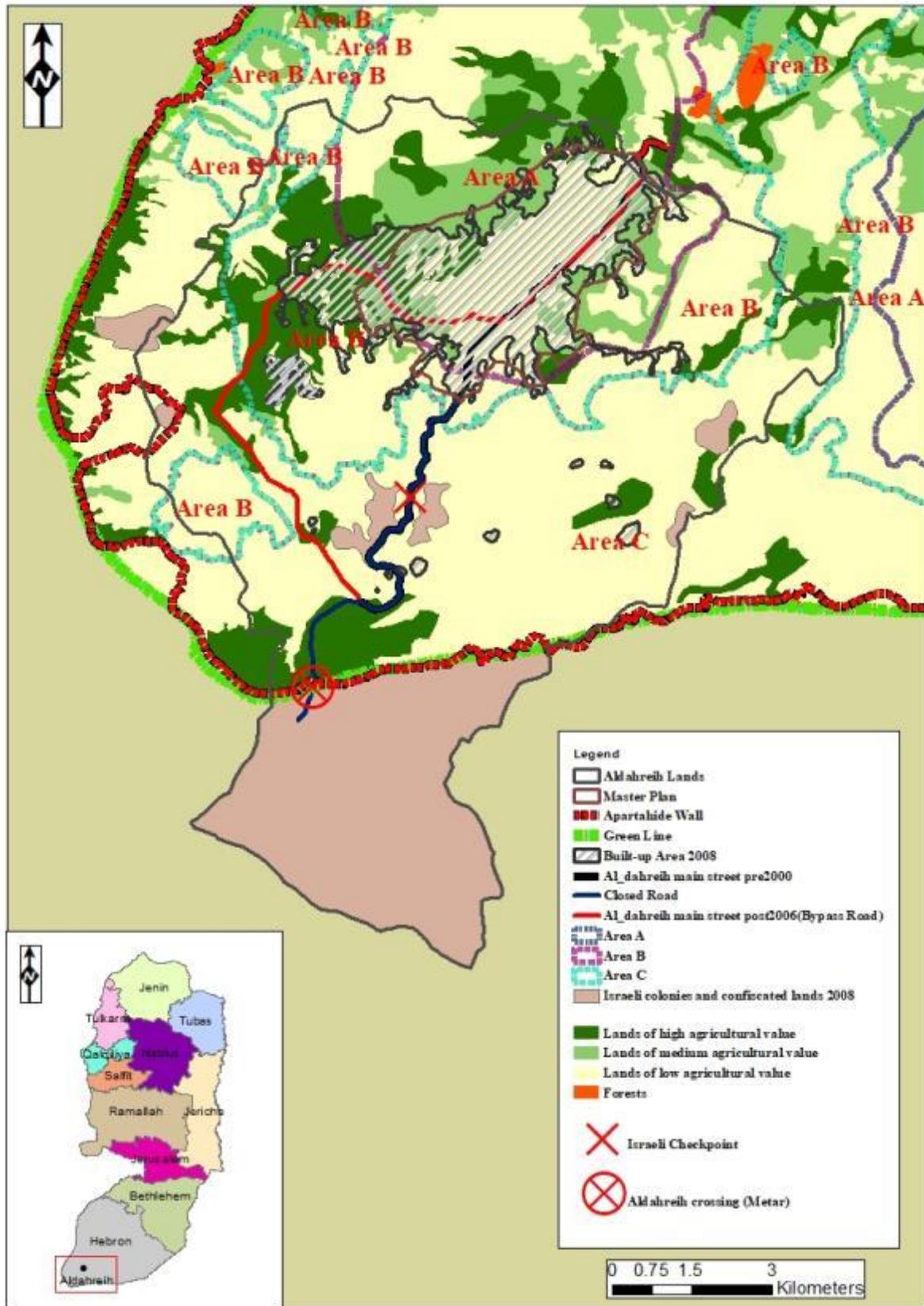


Figure 4. 28: Agricultural land classifications, built up areas and geopolitics determinants in al-dahreih city 2008 (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

Moving to the analysis of the built-up areas growth compared with land cover/use during (2008-2018), figure 4.29 Shows that the accelerated urbanization of the city as the built up areas continued to expand and spread within areas of high or medium agricultural value. During that interval 26% of the built-up area were located within high agricultural value lands, in addition to 25% of the built-up area were located within medium agricultural value lands, and the rest of built-up area were located within low agricultural value lands (figure 4.30 and table 4.6). The expansion of the built-up areas beyond the boundaries of the master plan has continued within areas of high agricultural value overwhelmingly as these areas were available for urban expansion in terms of their geo-political classification (areas "B"), and mostly concentrated in the western and southern west parts of the city. The unplanned and random expansion in these areas has been exacerbated by the fact that it is located outside the boundaries of the city's master plan.

Furthermore, the bypass road route of the main street in the city leading to Al-dahreih crossing has continued to put a clear footprint on guiding the growth and expansion of built-up areas of the city. Through dragging the urban expansion to those areas precisely as it has become a dynamic commercial interface that continues to expand. Most of the high agricultural value lands in these areas of the city have been converted into commercial and residential areas without any restrictions on planning and regulation controls.

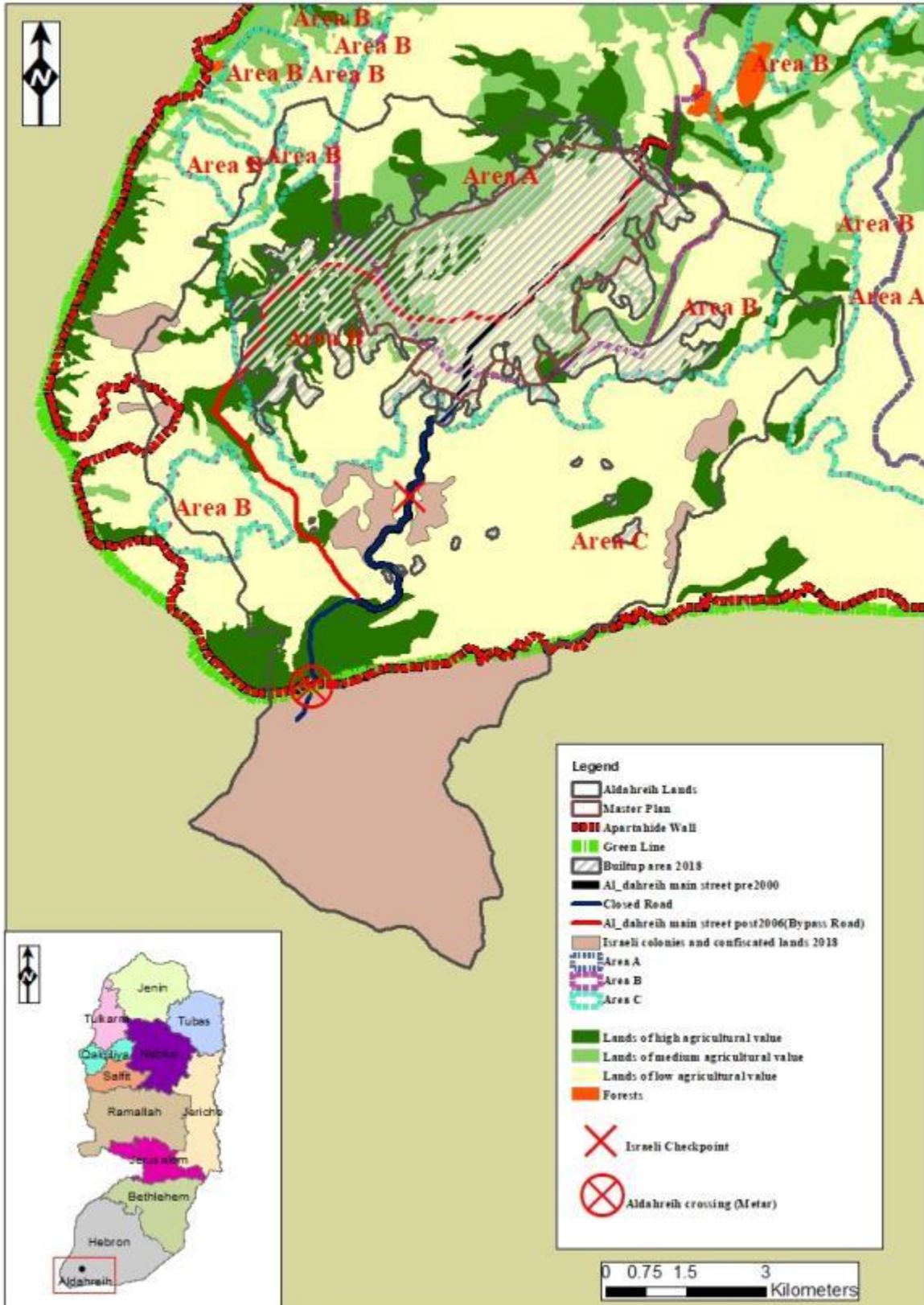


Figure 4. 29: Agricultural land classifications, built up areas and geopolitics determinants in aldahreih city 2018 (Source edited by the author based on Al-Dahreih municipality and GEOMOLG database, 2018).

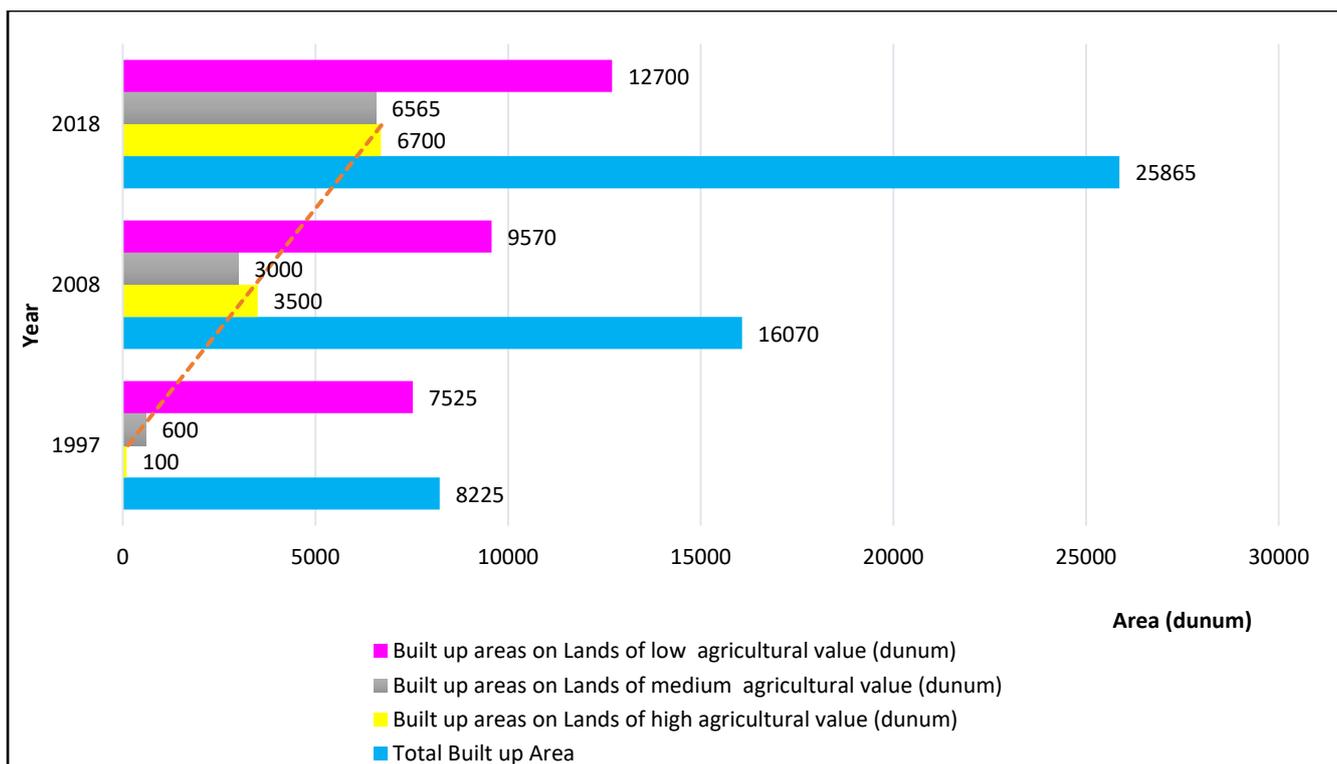


Figure 4.30 : Al-dahreih city chronological analysis of built-up areas transformations and agricultural lands classification (1997-2018) (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

Year	% Built-up area in Area A and Low agricultural value.	% Built-up area in Area A and Medium agricultural value.	% Built-up area in Area A and High agricultural value.
1997	96%	3%	1%
2008	63%	17%	20%
2018	57%	25%	17%

Year	% Built-up area in Area B and Low agricultural value.	% Built-up area in Area B and Medium agricultural value.	% Built-up area in Area B and High agricultural value.
1997	71%	0	29%
2008	38%	3%	59%
2018	48%	12%	40%

Year	% Built-up area in Area C and Low agricultural value.	% Built-up area in Area C and Medium agricultural value.	% Built-up area in Area C and High agricultural value.
1997	67%	0	33%
2008	75%	0	25%
2018	78%	0	22%

Table 4.6 : Al-dahreih city chronological analysis of built-up area transformations, agricultural lands classification and Oslo lands classifications (1997-2018) (Source edited by the author based on Al-dahreih municipality and GEOMOLG database, 2018).

Tarqumyia Town

The town is 490 meters above sea level. The average of annual rainfall in the city is 419 mm (ARIJ,2009). Figure 4.31 show the agricultural land classifications in the town. The town lands includes all agricultural categories. Most of the town's land are classified as low value agricultural land that constitutes 60% of its area. The land of high and medium agricultural value is located in the eastern and western areas. The total percentage of land with high agricultural value in the town is about 10% of its land. As for the medium agricultural value land, it constitutes 23% of the lands. The forests constitutes 7% of the town lands and they concentrated in the northern areas of the town (figure 4.32).

Figure 4.33 & table 4.7 illustrates the agricultural land distribution according to Oslo land classifications in the town. The total area of lands within area "C" is about 13243 dunum of the town area, 13.6 % of these lands are high agricultural value lands, while 31.7 % of area C lands has medium agricultural value, and 4.2 % of area "C" lands are forests, the largest percentage of area "C" (50.5%) are lands with low agricultural value. The percentages of forests, high and medium agricultural land value within area "B" are 12.9%, 3.9 % and 7.7 % respectively.

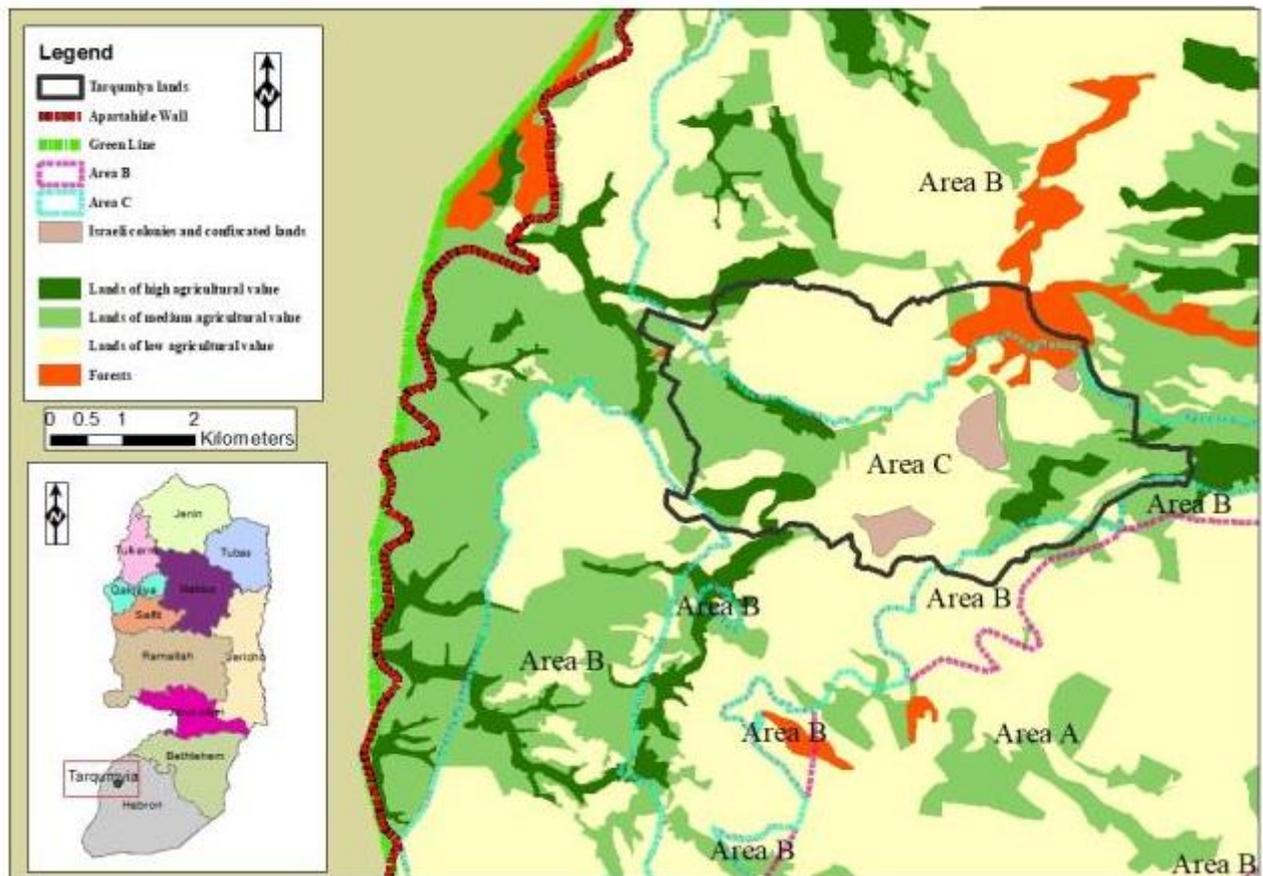


Figure 4. 31: land cover/use (Agricultural land classifications) and geopolitical determinants in Tarqumiya town (Source edited by the author based on GEOMOLG database, 2018).

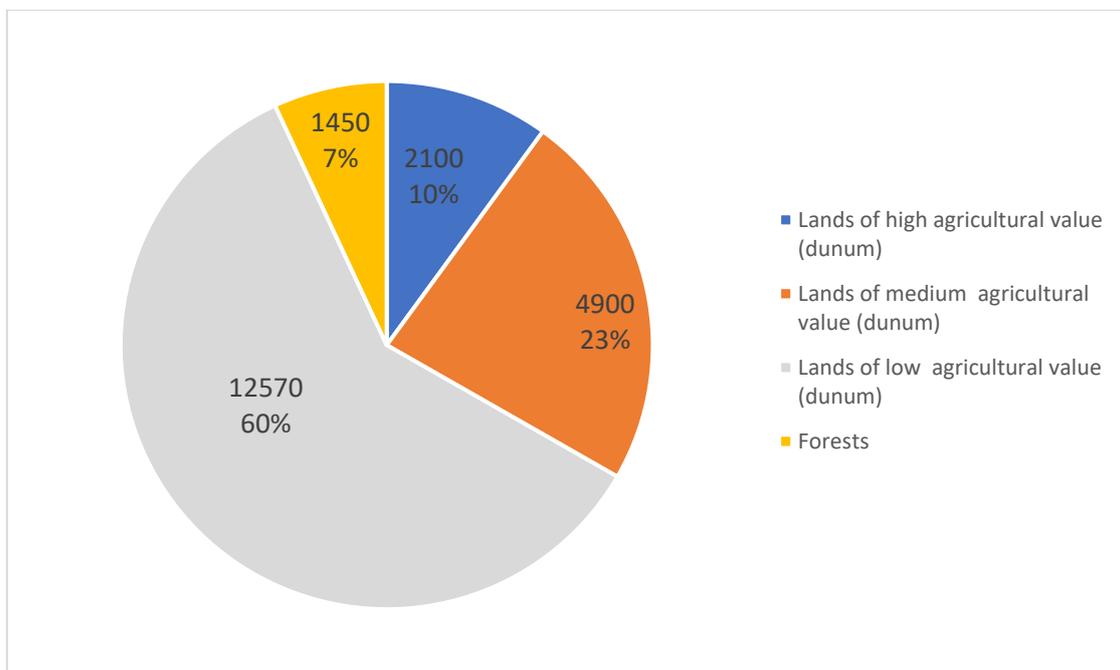


Figure 4.32 : land cover/use (Agricultural land classifications) of Tarqumiya town lands (Source edited by the author based on GEOMOLG database, 2018).

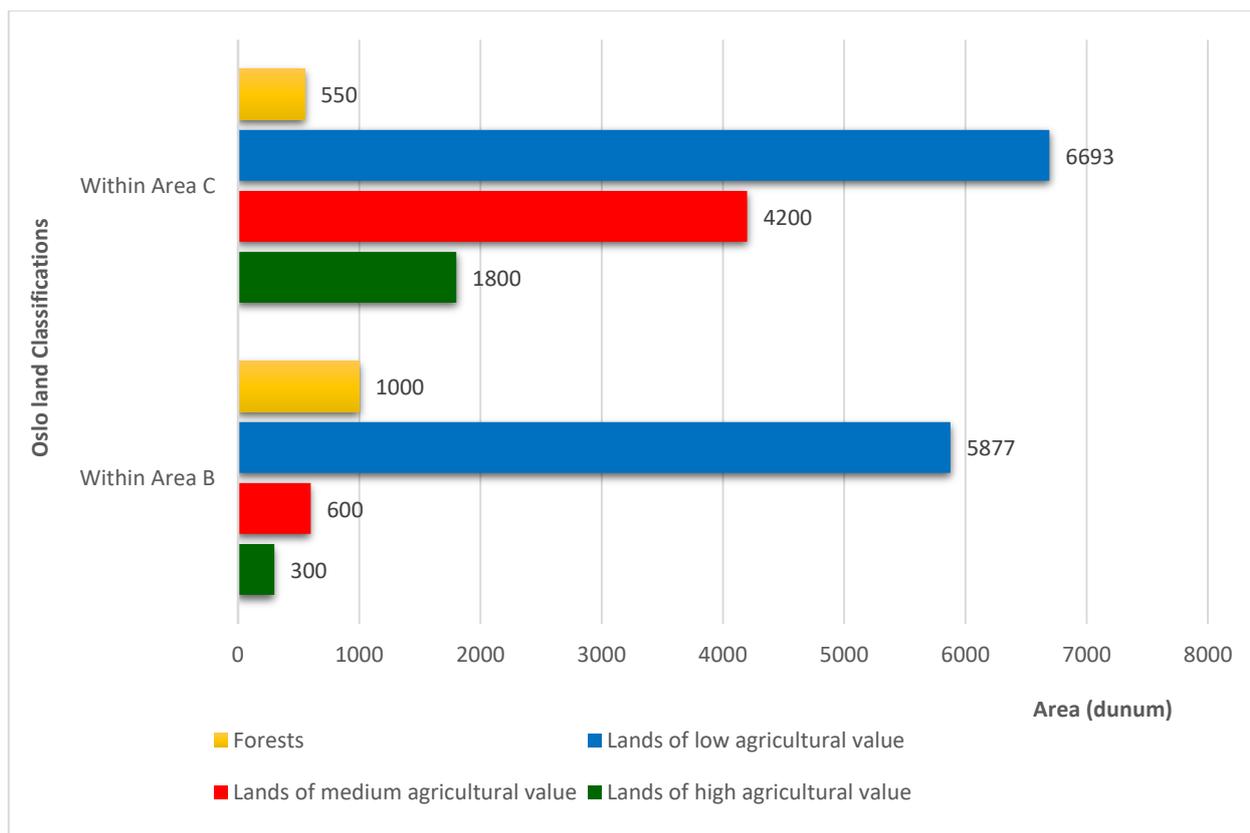


Figure 4.33 : land cover/use and Oslo land classifications in Tarqumiya town (Source edited by the author based on GEOMOLG database, 2018).

Oslo Land classifications	% Lands of high agricultural value	% Lands of medium agricultural value	% Lands of low agricultural value	% of Forests
Area A	The classification does not exist within the city lands.			
Area B	3.9 %	7.7 %	75.5 %	12.9 %
Area C	13.6 %	31.7 %	50.5 %	4.2 %

Table 4.7: The percentages of agricultural land Value and Oslo land classifications in Tarqumiya town (Source edited by the author based on GEOMOLG database, 2018).

The urban impact on agricultural lands were different in Tarqumiya case, the difference here resulted from the geopolitical constrains; which is mainly manifested in the limited available areas for expansion of the towns lands, as most of the town's lands fall under a political classification "C". In addition to the impact of the terminal and the special status of urban growth movement associated with its existence, that turned the city into a de-facto border city.

Figure 4.34 illustrate the status of built areas compared with land cover/use in the town at the year 1997. As shown in the figure, most of built up areas were located within areas of low agricultural value, with the exception of small areas that extended within the land of high or medium agricultural value. The built up area were concentrated mainly on area "B" zone (figure 4.37 and table 4.8).

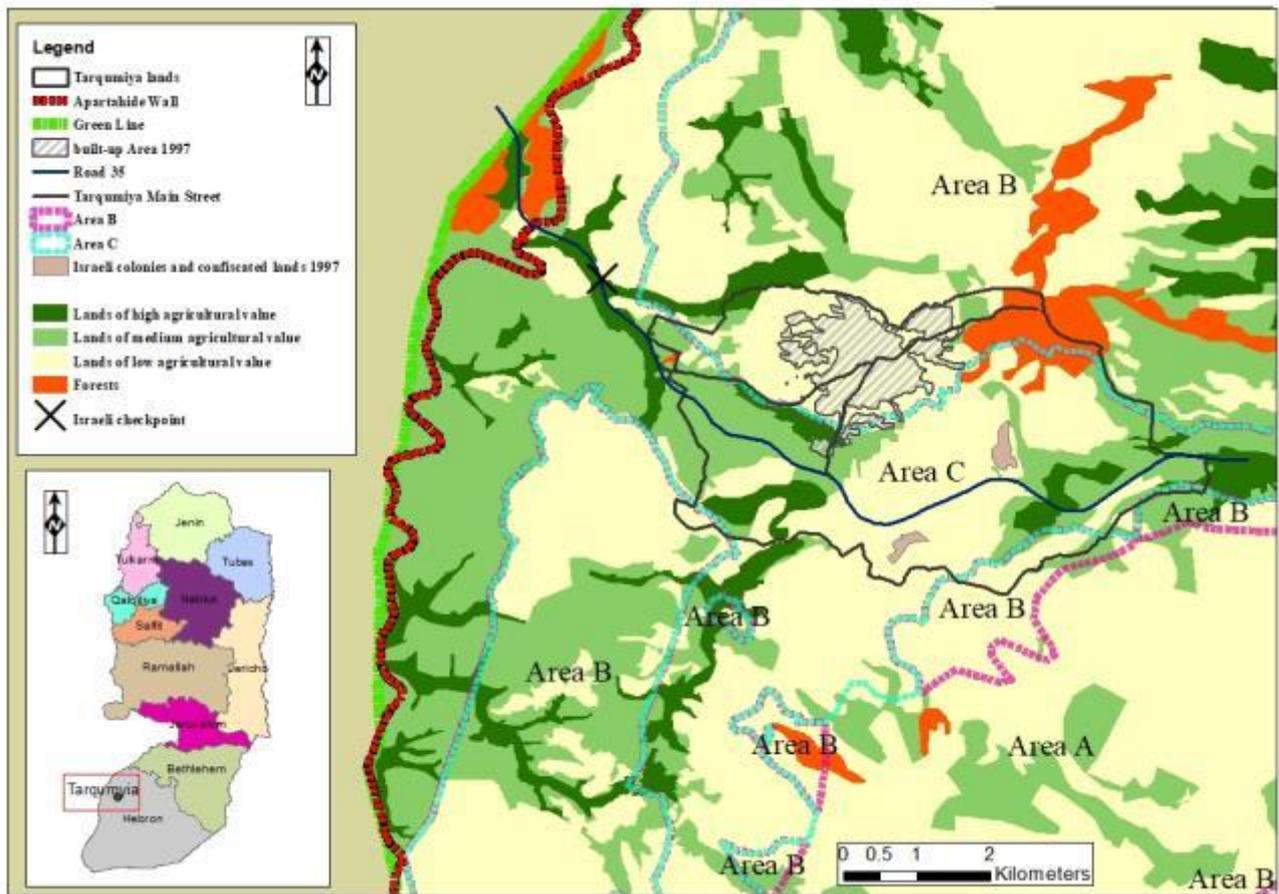


Figure 4. 34: Agricultural land classifications, built up areas and geopolitics determinants in Tarqumiya town 1997 (Source edited by the author based on GEOMOLG database, 2018).

The changes in built-up areas of the town compared with land cover/use in the interval between (1997 - 2008), figure 4.35 show the start of urban expansion within the agricultural lands in the town, during that period, most of the built-up areas expansion has took place within land of low agricultural value. During that interval 5.8 % of the built-up area were located within high agricultural value lands, 10.5 % of the built-up area were located within medium agricultural value lands, in addition to 1.2 % of the built-up area were located within forests lands, and the rest of built-up area were located within low agricultural value lands (figure 4.37 and table 4.8). During that period, the first master plan of the city was approved and most of the master plan area were

within low agricultural value lands and on areas "B" zone. By the end of that period, most of the master plan area were almost built-up. The expansion of the built-up areas beyond the boundaries of the master plan has started mainly within areas with low or medium agricultural value as these areas were available for urban expansion in terms of their geo-political classification (areas "B" as 63% of the city lands are classified as area C lands) in the southern western areas of the city. The urban expansion outside the master plan boundaries has not been subjected to any regulatory or planning controls, mostly all buildings and facilities within these areas were not licensed. The effect of activating the bypass street leading to the Tarquimiya terminal began to appear. Therefore, the built-up areas which were predominantly industrial and commercial facilities began to take a place along the new street path to become closer to the city Terminal which is classified as a commercial terminal, trade exchange operations are carried out through it.

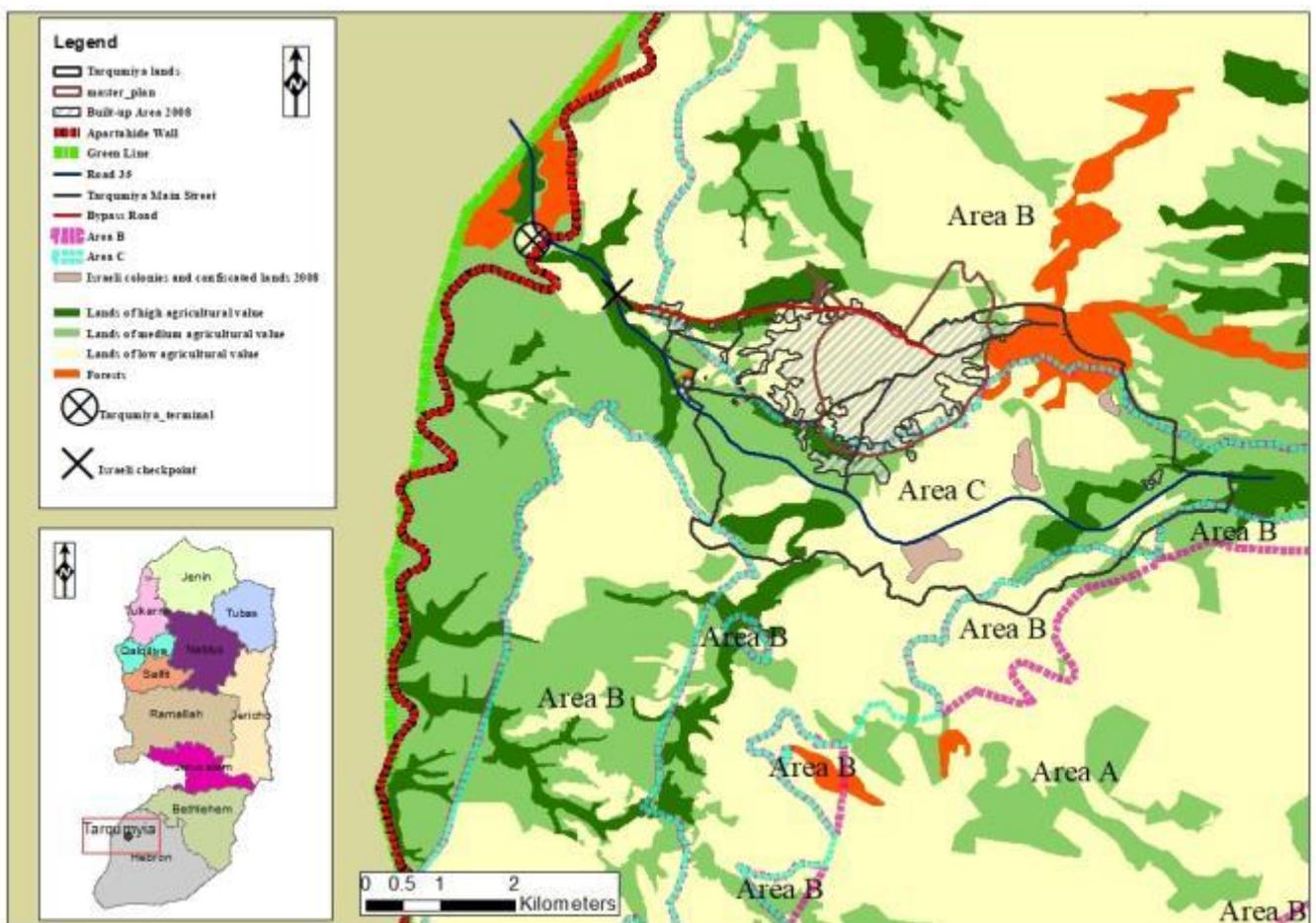


Figure 4. 35: Agricultural land classifications, built up areas and geopolitics determinants in Tarquimiya town 2008 (Source edited by the author based on GEOMOLG database, 2018).

Figure 4.36 show the transformations of land cover/use during the last time period (2008 - 2018). In the case of Tarqumiya town the encroachment of areas built on land of agricultural importance was relatively very limited. And the shrinking of agricultural lands because of the urban expansion were not sharp as the built up areas continued to expand and spread mainly within areas of low agricultural value, as these available areas for expansion in terms of their geopolitical classification. During that interval 15.4% of the built-up area were located within high agricultural value lands, 16.2 % of the built-up area were located within medium agricultural value lands, in addition to 1.7 % were located within forests lands, the rest of built-up area were located within low agricultural value lands (figure 4.37 and table 4.8). During that period, no expansion of the city's master plan has took place, and by the end of the period most of the master plan area were almost built-up.

The expansion of the built-up areas beyond the boundaries of the master plan has continued within areas of low agricultural value and some areas, as well as it has spread within areas of high and medium value in addition to forests areas, as these areas were available for urban expansion in terms of their geo-political classification (areas "B"), and mostly concentrated in the western parts of the town. The unplanned urban expansion in these areas has took place outside the boundaries of the city's master plan. On the other hand, the alternative route of the main street in the town leading to the terminal has continued to put a clear footprint on guiding the built-up areas growth and expansion in the town. Through dragging the urban expansion movement to those areas precisely as it has become a dynamic industrial and commercial zone that continues to expand. This has led to the emergence of proposals at the national level to establish the largest industrial zone in the WB near the town in "Jamrura lands" near the terminal district with a total area about 1500 dunums in area C and high agricultural land value (figure 4.37).

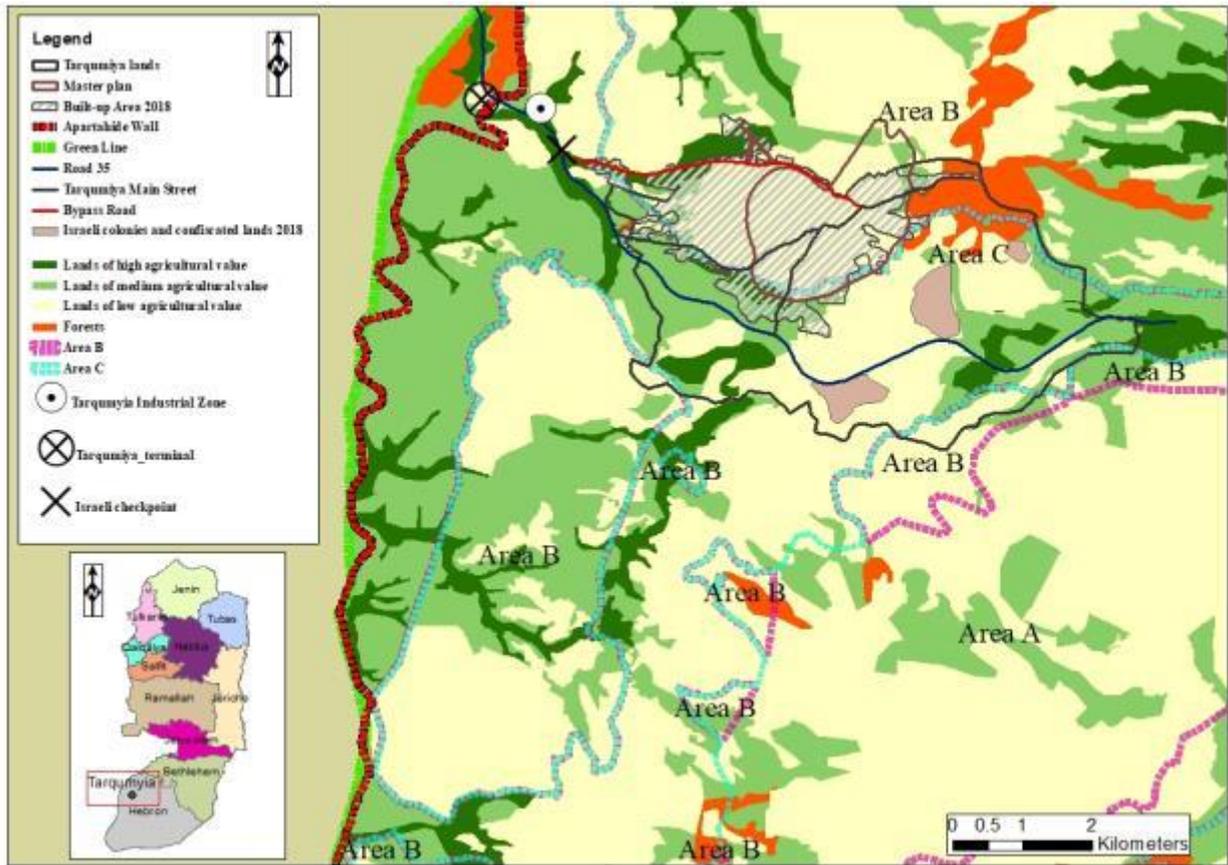


Figure 4. 36: Agricultural land classifications, built up areas and geopolitics determinants in Tarqumiya town 2018 (Source edited by the author based on GEOMOLG database, 2018).

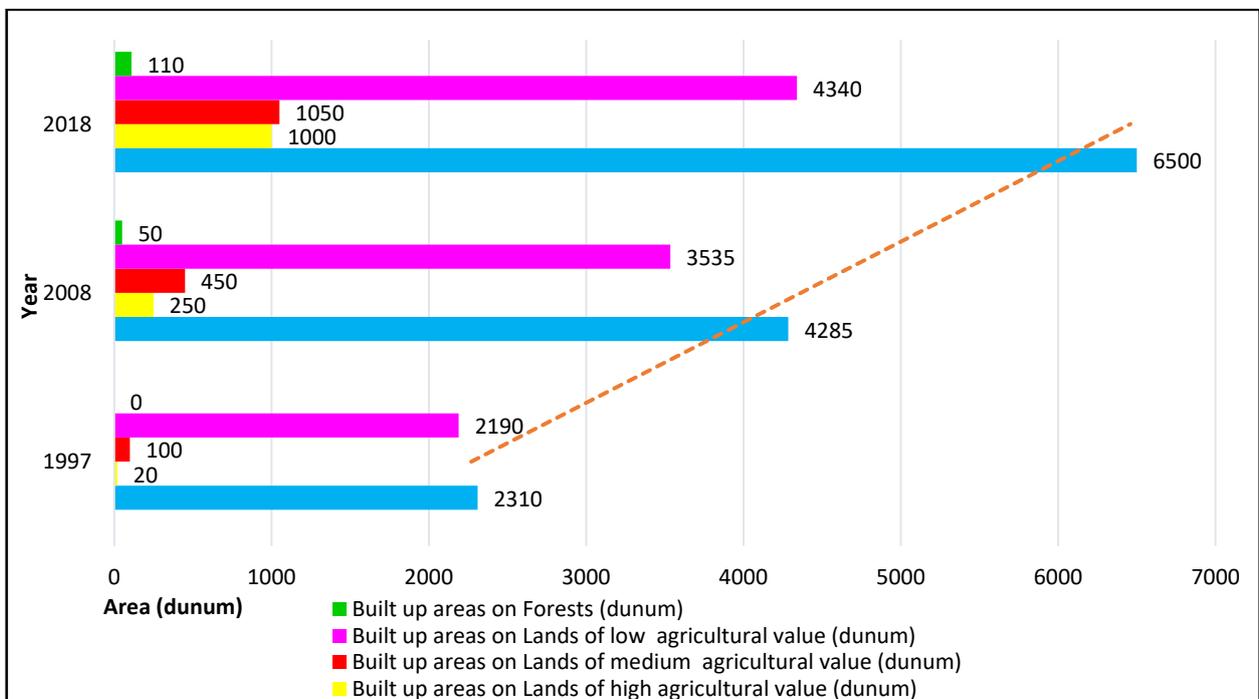


Figure 4.37 : Tarqumiya town chronological analysis of built-up areas transformations and agricultural lands classification (1997-2018) (Source edited by the author based on GEOMOLG database, 2018).

Year	% Built-up area in Area B and Low agricultural value.	% Built-up area in Area B and Medium agricultural value.	% Built-up area in Area B and High agricultural value and Forests.
1997	97%	3%	0
2008	93%	5%	2%
2018	85%	8%	7%
Year	% Built-up area in Area C and Low agricultural value.	% Built-up area in Area C and Medium agricultural value.	% Built-up area in Area C and High agricultural value and Forests.
1997	27%	56%	17%
2008	17%	35%	48%
2018	18%	47%	35%

Table 4.8 : Tarqumiya town chronological analysis of built-up area transformations, agricultural lands classification and Oslo lands classifications (1997-2018) (Source edited by the author based on GEOMOLG database, 2018).

4.2.5 Urban growth patterns.

Aldahreih city

In 1980s, Al-dahreih was relatively a small typical Palestinian town. It has been growing since then, and transferred legally to become a city in 1998 (the village council was upgraded to become a municipality). Over about a quarter of a century, Al-dahreih developed rapidly from a town of population about 22450 with 3000 buildings to a city of 38000 people with 6200 buildings in 2018 (Al-Dahreih Municipality, 2019). Figure 4.38 summarizes the chronological analysis of the urban growth patterns in Aldahreih city since 1997 - until now.

Before 1997, the city represented a traditional Palestinian town with a compact urban structure along the main road layout. Several factors have played an important role in determining the features of the urban growth pattern in the city: topography, land ownership, geopolitics, the main roads route, as well as the Israeli occupation and control over land and its practices in restricting building permits in the city before the declaration of the Palestinian authority in 1994. During that period the city urban structure has a longitudinal diagonal shape that runs from the northeast to the south along the historical main street route (the extension of Route 60 in the WB).

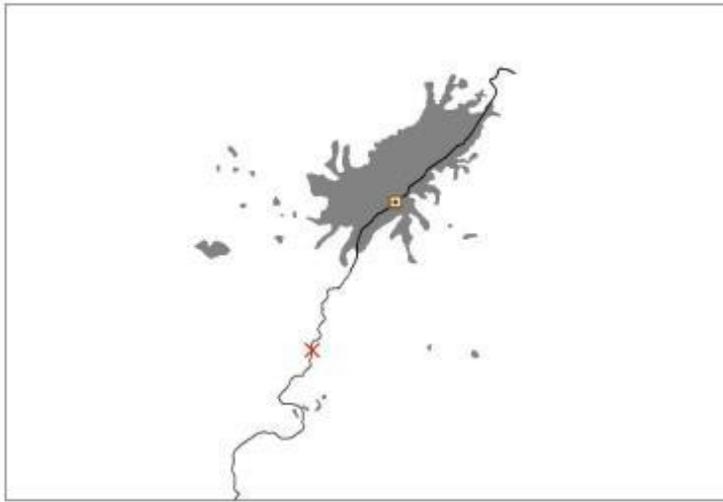
Urban growth of the city **before 1997** was limited and linked to the old main street route leading to the Israeli checkpoint and then into the communities inside the Green Line. Al-dahreih was and still is an important connector between the WB and "Israel", while at the same time it is also the main service and shopping center for the Arab communities inside the Green Line. A vibrant commercial market runs along the main street, it was the closest stop for the city visitors and shoppers from inside the Green Line. The built-up area has a ribbon shape, interspersed with some leapfrogging development in within remote areas within the city lands (Figure 4.38-A).

The growth pattern during the second interval between (1997-2008) as shown in figure 4.38-B indicates a deviation in the urban growth direction. The axis of built-up area layout changed its direction, the built-up areas crept towards the southwest of the city. High resilience of the city urban structure where the city was forced to comply with the current geopolitical conditions imposed on its urban structure. As a result of the Israeli Military closure policy on the WB. in the year 2000; commercial activities were disrupted, traders abandoned their shops due to the closure of the historical street, and so Al-dahreih began to creep towards the fringe areas especially from the southwest to align with the deviation of the city's main street path leading to Al-dahreih terminal.

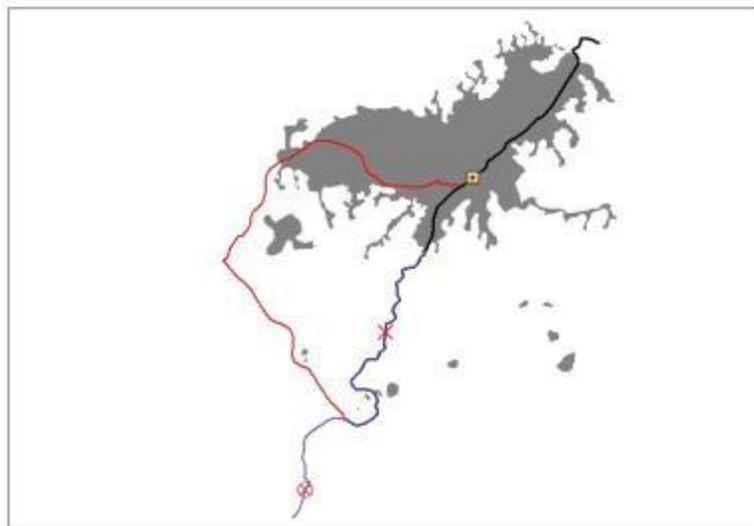
Oslo land classifications were the other geopolitical factor that contributed in shaping the city's growth pattern during that period, by setting virtual determinants on the ground that sets the possibility of urban expansion based on the land classifications (Area A,B and C). The doors of urban sprawl was proceeded into agricultural lands; as a result of random commercial building creep in areas A and B. the expansion areas was not subjected to any urban growth criteria or planning processes as they are located outside the master plan boundaries. The continues urban sprawl created a dynamic moving city center with rapidly expanding commercial activities along the bypass main street. Subsequently urban expansion of residential zones has followed the commercial expansion movement in these areas as the nerve of life and services has also crept as an inevitable result. During this period, the rehabilitation of the remote outskirts (Khirbet Shweika) internal connecting road encouraged housing creep toward this area and began to form a new growth arm in the eastern district of the city.

During **(2008-2018)**, The same factors continued to shape urban growth in the city. Al-dahreih has continued creeping towards the fringe areas especially the southern parts to perfectly match the city's main street path deviation leading to Al-dahreih terminal. The impact of Oslo land classifications became more intense in shaping the city's growth pattern during that period. The urban sprawl continued into the agricultural lands in the city randomly without any urban growth criteria or planning processes as the expansion areas located outside the boundaries of the city's master plan. The creep of commercial buildings flared during that period, which intensified urban sprawl indicators in the city. The continuous urban sprawl deepened the dynamic moving city center, the commercial activities continued and also dragged further expansion of residential areas. The new growth arm turned (Khirbet Shweika) from a remote agricultural area into a residential suburb in the eastern district of the city.

The resilience of the city urban structure has deepened and become a dominant sign of the city growth pattern which confirmed that the city is forced to comply with the current geopolitical conditions which imposed on its urban structure. The resilience of built-up areas appeared clearly. The built-up areas continued to follow and simulate the alternative street path in a ribbon pattern of sprawl with a forked organic edges. The end of the serpented dominant growth spine has trend southeast. (Figure 4.38-C).



A 1997



B 2008



C 2018

Figure 4.38 :A) Al-dahreih city growth pattern 1997, B) Al-dahreih city growth pattern 2008, C) Al-dahreih city growth pattern 2018. (edited by author based on aldahreih municipality database,2018 and GEOMOLG,2018).

Tarqumyia Town

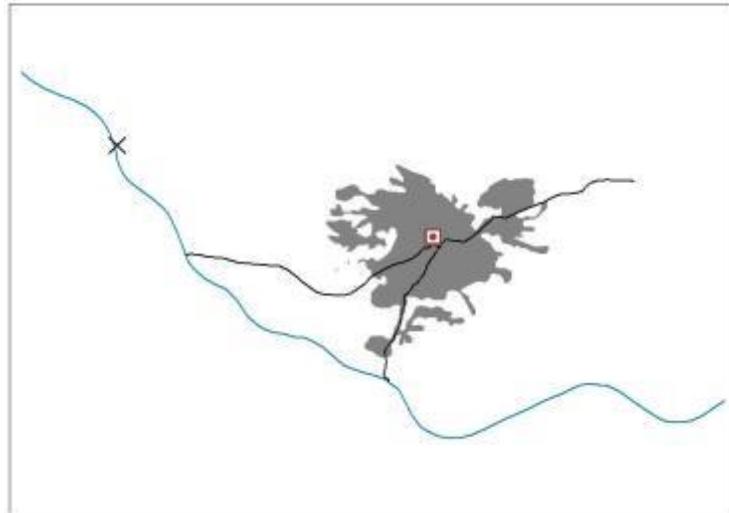
According to the chronological analysis Tarqumyia was a small typical Palestinian village. It has been growing since then, and transferred legally to become a town in 1998 (the village council was upgraded to become a municipality). Over about a quarter of a century, Tarqumyia developed rapidly from a village of population about 10000 with 1450 buildings to a town of 20200 people with 2900 buildings in 2018 (Tarqumyia Municipality, 2019). Figure 4.39 show the chronological urban growth patterns in Tarqumyia town since 1997 - until now.

Before 1997 the town represented a typical Palestinian village with a compact urban structure focused on a cross roads intersection layout. Several factors has played fundamental role in determining the shape of urban growth in the town: topography, land ownership, geopolitical context, the main roads route, as well the "Israeli" occupation and control over land and its practices in restricting building permits in the city before the declaration of the Palestinian authority in 1994. During that period the town urban structure has radial shape its center was the historical town center. The built-up area was located in the northwestern quarter of the town, the main street in the town passed through it diagonally and intersects with the Road 35 route in the southern parts of the town. Before 1997 the urban growth of the town was limited and linked to the historical street route leading to the "Israeli" checkpoint and then into the communities inside the Green Line. Tarqumyia was and still an important connector between the WB, "Israel" and Gaza Strip. The town is a trade corridor between Hebron governorate specifically, southern WB generally and "Israel". The built-up area has organic radiant shape, interspersed with some of leapfrogging developments in remote areas (figure 39-A).

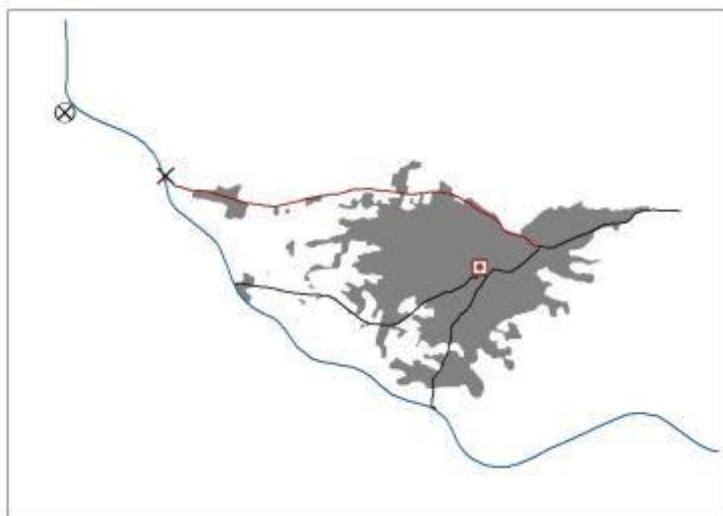
Figure 4.39-B show the growth pattern during **(1997-2008)**, the town kept growing radially. Oslo lands classifications were the main direct geopolitical factor that has contributed in shaping the city's urban growth pattern during that period. The town is suffocated by these land classifications; the vast majority of its lands are classified as "Area C" and the other part is classified as "Area B". These classifications had the upper hand controlling the city's growth prospects and structure. On the other hand, the built-up area was compatible with the change of the main streets network, with the activation of the north street that becomes the main street leading to Tarqumyia Terminal instead of Road-35 in the far south of the town during that period. The alternative street path began to attract economic and industrial investment around its path. During that period the town witnessed the start of industrial and commercial buildings creep along the bypass street path. The axis of built-up area layout deviated its direction and crept towards the northwest, which indicated resilience tendency

of the town urban structure under the imposed geopolitical determinants. Meanwhile the radiant urban structure with more manifold organic edges continue as a dominant growth pattern in the town. The building expanded randomly and rather in a low density pattern and that's expansion was not subjected to any urban growth criteria or planning processes as the expansion areas located outside the boundaries of the town's master plan. Subsequently urban sprawl has coincided with the fact that available expansion areas are limited as 67% of the town lands are classified as area C lands, where development is prohibited.

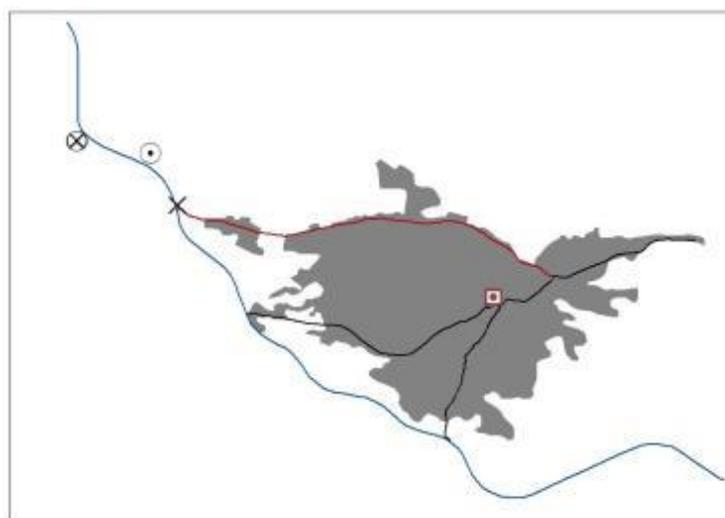
Figure 4.39 -C illustrates the evolution of the urban growth pattern in the town during (2008-2018). The built up area continued to comply with the bypass street. And the same factors continued to shape urban growth characteristics. Accordingly, Tarqumyia has continued creeping towards the fringe areas especially the northwest areas to perfectly match the boundaries of the northwestern quarter of the town's land. The radial growth pattern has not changed except for the more monotonous edges in the boundaries of the built up areas. The lands along the bypass street became entirely built-up area and the leapfrogging were almost filled. The urban sprawl continued in expanding within the available areas randomly with out any urban growth criteria or planning processes as the expansion areas are located outside the boundaries of the town's master plan which made the impact of Oslo lands classifications became more intense in formulating the town's growth pattern during that period. The creep of industrial and commercial buildings was boosted during that period and intensified urban sprawl features in the town. The analysis pointed out that the axis of built-up area layout continue in deviation its direction and creeping towards the northwest, which confirmed that the town is forced to comply with the current geopolitical conditions that imposed on its urban structure.



A 1997



B 2008



C 2018

Figure 4.39 :A) Tarqumiyah town growth pattern 1997, B) Tarqumiyah town growth pattern 2008, C) Tarqumiyah town growth pattern 2018. (edited by author based on GEOMOLG,2018).

CHAPTER FIVE

Conclusion and Recommendations.

5.1 Conclusion

Let's begin with the fact that geopolitical analysis begins with a map, but certainly the map is not the end. The study of geopolitics implications on cities urban growth is an essential component of spatial planning as it plays a crucial role in the assessment of urban structure and city morphology. Moreover it is a main pillar formulating the future urban growth trends. No doubt, the appreciation of geopolitical realities and the induction of their significance is the way to extrapolate the looming scenarios.

In the Palestinian case, as elsewhere, all the affecting factors should be placed under a microscope in modelling and managing urban growth. Planning for urban growth is a complex problem globally. The complexity in the Palestinian case is compounded under extraordinary geopolitical conditions. In Hebron governorate, geopolitical determinants playing a fundamental role in affecting urban growth of cities. Political subdivisions of land, Israeli crossings and terminals, the separation Wall, Israeli colonies, bypass roads and land confiscation are the geopolitical components of the study.

The tow-selected communities as a case studies sharing the same key geopolitical features mainly the borders existence on their lands. GIS chronological analysis was conducted between (1996 to 2018). In each of the axes of analysis, several comprehensive and integrated maps, tables and graphs were produced as a tool of formation a clear perception about the impact of geopolitical determinants on urban growth of the WB. cities. Both of the selected sites have become "de-facto" border communities as a result of the "Israeli" borders shifting as discussed in first part of analysis. In the second part of the analysis, the impact of terminals and crossings and the associated transformations in the main arterial roads in these communities was analyzed. Whereas the most common way to understand urban growth is to analyze built-up areas, the third part of analysis was about the built-up areas growth challenges and constraints. Scanning the transformations in land use/cover is another common method of urban growth analysis, and it was the focus of the fourth part of the analysis. In the last part of analysis the geopolitical determinants and constrains impact on the growth pattern and city structure was studied.

The main result of the research is that geopolitical conditions should be considered the first pillar of urban planning in Palestinian cities. The study emphasized that geopolitics have had the upper hand in shaping the spatial space of the tow selected communities in the study. Furthermore, it is the main responsible of identifying the shape, morphology, directions and density of their urban growth over time. One of the most prominent results of the study is that; geopolitical determinants have created appropriate conditions for the growing state of urban sprawl, as a result of the imposed geopolitical

determinants and constrains in terms of crossing and terminals, bypass roads and Oslo land classifications directly. The state of urban sprawl has affected the land use/cover; as the building and expanding movement has moved randomly without paying any attention to the agricultural land value.

The analysis confirmed that the communities were forced to comply with the current geopolitical conditions, which imposed on its urban structure by behaving in a high resilience growth pattern. The urban morphology of the cities has undergone a transformation were it was obliged to adaptation with the changing geopolitical determinants and constrains. These de-facto conditions have affected the city's internal urban structure and transformed the components of the growth backbone. The city's identity was not excluded from the influence of geopolitical determinants; the reshaping of geopolitical borders of Palestine has risen a special tendency of the city identity.

5.2 Recommendations

It is clear from this study that geopolitics should be vigorously present in studying urban growth. The evocation and incarnation of geopolitical determinants and constraints is urgently needed in urban planning process not only at the international or regional level but also at the local level.

Accordingly, in the light of the study results, the following recommendations should be emphasized:

1. Border cities should be considered with great interest at all levels of planning. Special attention is required in planning and managing growth in the de-facto Palestinian cities, towns and communities. The planning and national institutions should intensify the efforts to develop a comprehensive counter plan for the region.
2. The need to developed guidelines and phased spatial plan for managing urban growth to control urban sprawl, by the planning bodies and the municipalities to create a reliable scientific and practical planning reference.
3. In order to come up with a comprehensive, integrated vision about the implication of geopolitics on urban growth; there is a need to do further studies for the two cases (Aldahreih city & Tarqumiya town) to investigate the transformations from a socio-economic perspective.

4. There is a need to do further studies for the two cases (Aldahreih city & Tarqumiya town), and applying scientific system of indicators is required to measure urban sprawl, as one indicator is not sufficient to measure urban sprawl phenomenon, hence each indicator measures a different characteristic of the phenomenon.
5. There is a need to do further studies for each Palestinian governorate in order to identify the implication of geopolitics on urban growth.
6. Encourage spatial planning for local and regional economic development in Palestinian governorates, to fight the dependence of Palestinian cities on the "Israeli" economy. Which in many cases considered the dominant factor in shaping the city structure and its morphology.
7. Improving coordination among the governmental and private organizations. Which will positively affect decision-making by preparing wise and well-planned plans based on accurate results and decisions.
8. Encouragement the coordination between the governmental, private institutions and universities to support researchers in terms of information, expertise and finance.

Arguably, this study does deeply meet the objectives of the scientific research, as it adds a lot of concrete information and knowledge. Moreover, no doubt that this research is a unique one; since it is the first research that address all the domains of geopolitical determinants and constrains and highlighted the case of the de-facto borders cities and communities in studying urban growth.

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