



وزارة الشؤون
البلدية و القروية
Ministry of Municipal & Rural Affairs

MAKKAH City Profile



مستقبل المدن السعودية
FUTURE SAUDI CITIES



UN HABITAT
FOR A BETTER URBAN FUTURE

Future Saudi Cities Programme
City Profiles Series: **Makkah**

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King Fahd National Library Cataloging-in-publication Data

Ministry of Municipal and Rural Affairs
Makkah City Profile./ Ministry of Municipal and Rural Affairs
Riyadh, 2019
.p ; .cm

ISBN: 978-603-8279-30-4

1-City planning- Makkah Al-Mukaramah
I-Title
309.2625314 dc 1440/8323

L.D. no. 1440/8323
ISBN: 978-603-8279-30-4

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www.unhabitat.org



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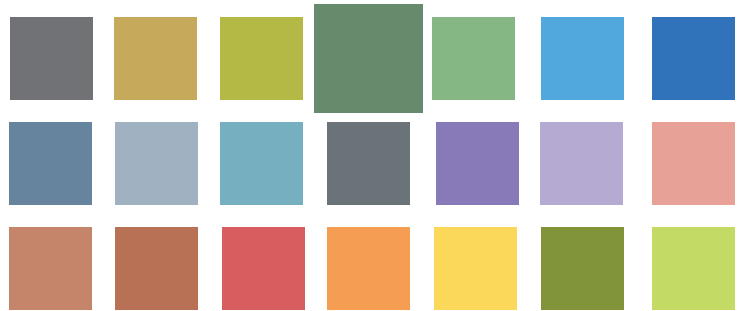
The Future Saudi Cities Programme is a jointly implemented project managed by the Deputyship of Town Planning of the Ministry of Municipality and Rural Affairs of the Government of the Kingdom of Saudi Arabia and the United Nations Human Settlements Programme (UN-Habitat).

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MAKKAH

مكة المكرمة



FUTURE SAUDI CITIES PROGRAMME

CITY PROFILE

View from the clock tower overlooking the Great Mosque and the Jannat Al Muallaa Cemetery in Makkah



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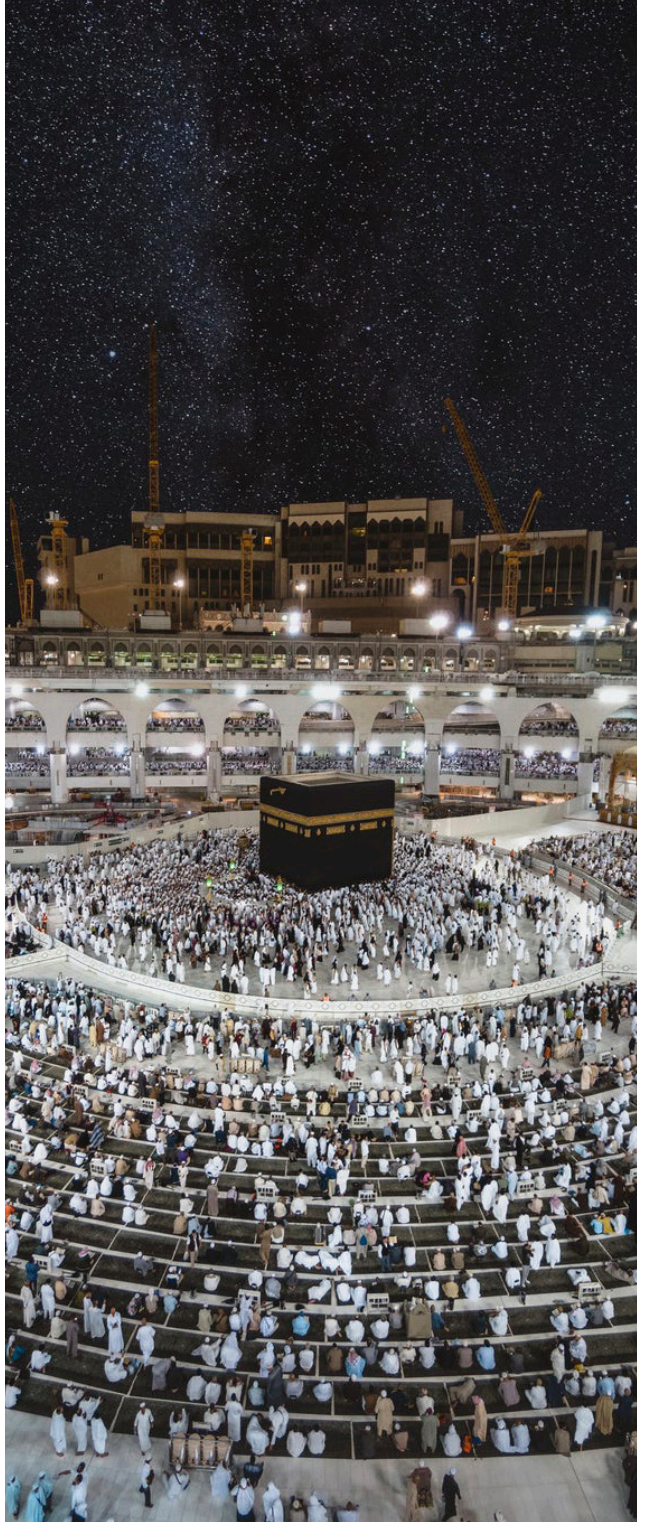
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INTRODUCTION 1



2.1 About the Future Saudi Cities Programme

The Future Saudi Cities Programme is a joint programme developed by the Saudi Ministry of Municipal and Rural Affairs and UN-Habitat, implemented in close cooperation with the municipalities of 17 major Saudi cities. The cities have been selected based on their different population sizes, geographic distribution, and a range of criteria based on capacities and economic potential to create a more balanced regional development among the cities of Saudi Arabia. The chosen cities include Riyadh, Makkah, Jeddah, Taif, Madinah, Tabuk, Dammam, Qatif, Al-Ahsa, Abha, Najran, Jazan, Hael, Arar, Al Baha, Buraidah, and Skaka.

After undertaking city-level reviews in the 17 cities, five cities were chosen as a representative cross-section, for in-depth analysis. The city-level reviews considered the linkages between urban and territorial planning by examining the city within the relational context of its sub-region and exploring specific issues at the neighbourhood level. These reviews, when referenced with City Prosperity Index reports and validation processes in the Rapid Planning Studio workshops, were used to extrapolate strong, evidence-based conclusions that relate to the planning system as a whole.

Applied research, with a strong focus on action-oriented conclusions, was used to collect evidence to diagnose the strengths and weaknesses of the planning system and local planning practices in each city. The methodology utilised design tests and demonstration projects as avenues to apply and analyse potential solutions, before concluding on policy recommendations.

UN-Habitat's three-pronged approach considers spatial planning in relation to legal and institutional frameworks, in addition to financial mechanisms. In this way, success criteria for the sustainable implementation of a spatial plan should include flexible but enforceable rules and regulations, in addition to a financing strategy and projections.

As a pragmatic explication of this approach, three local demonstration projects, representing essential elements of a strengthened and improved planning system, have been developed. These were elaborated to include schematic designs and feasibility studies, that can later be transformed into implementation plans. Such implementation plans are projected to be undertaken by MoMRA, in collaboration with other partners in the Kingdom.

In order to facilitate this process, a joint "FSCP Urban Lab" was created as a vehicle to strengthen endogenous capacities and to develop tailored tools, and instruments. The Lab, composed of international expertise from the planning, legal and economy branches of UN-Habitat Nairobi office, has been working with Saudi-based staff in the UN-Habitat Riyadh office (selected by MoMRA), to enhance knowledge exchange and to apply a learning-by-doing method to the programme.

As such, all 17 cities have been simultaneously engaged in a capacity-building strategy that included foundational learning, and 'on the job' training, culminating in Saudi-specific advanced training. This training was based on the planning-system conclusions and recommendations, that the FSCP produced. Thus, the Urban Lab functions as a tool to generate evidence whilst additionally strengthening capacities through a process of learning-by-doing.

2.2 Saudi Initiatives for Sustainable Urban Development

The Saudi Government, along with the respective Ministries, and in line with a larger country-wide transformation process, has made several efforts aimed at the sustainable development of its growing cities. These contributions vary from plans at the national level, like the National Spatial Strategy (NSS), to strategies and plans at the regional level, cutting across various sectors towards realising Vision 2030. The FSCP recognises these efforts as positive, supporting Vision 2030 goals to realise a sustainable urban environment for the Kingdom of Saudi Arabia. The FSCP acknowledges and builds upon the current tools, plans, and strategies as part of a comprehensive assessment and suggests variations and improvements where appropriate.

2.3 Objectives of the City Profile Report

2.3.1 Scope of the city profile

The city-profile combines MoMRA's new strategy, with a review of existing studies, plans, and strategic documents, such as the review of the Kingdom of Saudi Arabia (KSA) National Spatial Strategy (NSS) to identify and address the root causes of problematic conditions outlined in the preliminary findings. The report acknowledged low uptake of the NSS by regions, utilities and ministries, as a key weakness. The issue of horizontal (sectors) and vertical (scales) integration is thus a key challenge that the FSCP aims to address going forward.

Policy recommendations for improving urban planning frameworks and practice shall be structured through a multi-scalar lens, considering the city as a continuum in the urban fabric, that should grow from the neighbourhood to the wider city-region, whilst influenced by dynamics and regulations at the national and supranational levels. This ensures that policy recommendations for these cities do not operate in isolation from the city's envisioned role in the administrative region and the national system of cities.

2.3.2 Objectives of the city profile

The City Profile Report brings together diagnostic urban analysis and aligns that analysis with the UN-Habitat sustainable development framework and the Saudi Vision



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Aerial view of the Great Mosque with pilgrims performing Tawaf around the Kaaba

2030. It performs as a thinking tool that constitutes together an assessment tool and guidance for the current and future planning of the city, whilst defining a clear strategy for sustainable development.

The definition of an ad-hoc strategy is rooted in an evidence-based approach to the issues, building upon both primary and secondary data collection and analysis. The profile, as well as the Programme as a whole, uses the data collected by the City Prosperity Initiative (CPI), to identify significant trends and challenges at the city level. This evidence is then combined with reviews of existing planning documents, and cross-referenced with multi-scalar GIS spatial analysis, to define the above-mentioned ad-hoc strategy.

2.4 City Profile Methodology

2.4.1 Evidence-based input approach

The evidence-based planning approach creates a deeper understanding of the spatial dynamics of the urban area, by combining and comparing urban datasets such as demographics, density, land use, natural features, and accessibility analysis.

The evidence (data) is reflected in the form of indicators that can be compared with best practice standards and benchmarks

for sustainable urban development. Not only does this provide a clear perspective on the main developmental issues, but it also quantifies the projected effect of future development proposals on the indicators applied in the analysis.

The programme recognises that the methodology, on which policy recommendations guiding improvements and adjustments in the planning system are based, needs to be evidence-based. For this purpose, different methods were integrated to first provide the necessary body of evidence on which to build an understanding, and full assessment of issues before making recommendations for the respective cities.

The elements constituting the evidence-based approach are primarily constituted of the following:

- Reviews of existing policy documents and plans;
- CPI index;
- GIS spatial analysis.

All of these elements are utilised in a cross-scalar diagnostic methodology that incorporates quantitative and qualitative evidence. The method used to generate evidence-based policy recommendations, which develops capacities and engages stakeholders in all 17 cities, provides conclusions derived from both top-down and bottom-up approaches, cross-cutting all scales of planning.



Downtown Makkah, Azizia District

© King Elliot

By analysing how the structures of spatial, socio-environmental and economic issues interact at different scales of influence, the diagnostic methodology moves from the national to the neighbourhood scale, tracking the interdependencies within the city's physical development patterns, and seeking to decrypt the reasons behind them.

2.4.2 The reviews

Several reviews of existing policy documents and plans were undertaken with the purpose of a) extracting information useful to the understanding of the context, and the city itself, and b) assessing their contents based on three criteria: content relevance, process integration, and effectiveness. The reviews focused on assessing the:

- National Spatial Strategy;
- Makkah Regional Plan;
- Makkah Comprehensive Plan;
- Makkah Local Plan.

2.4.3 The City Prosperity Index assessment report

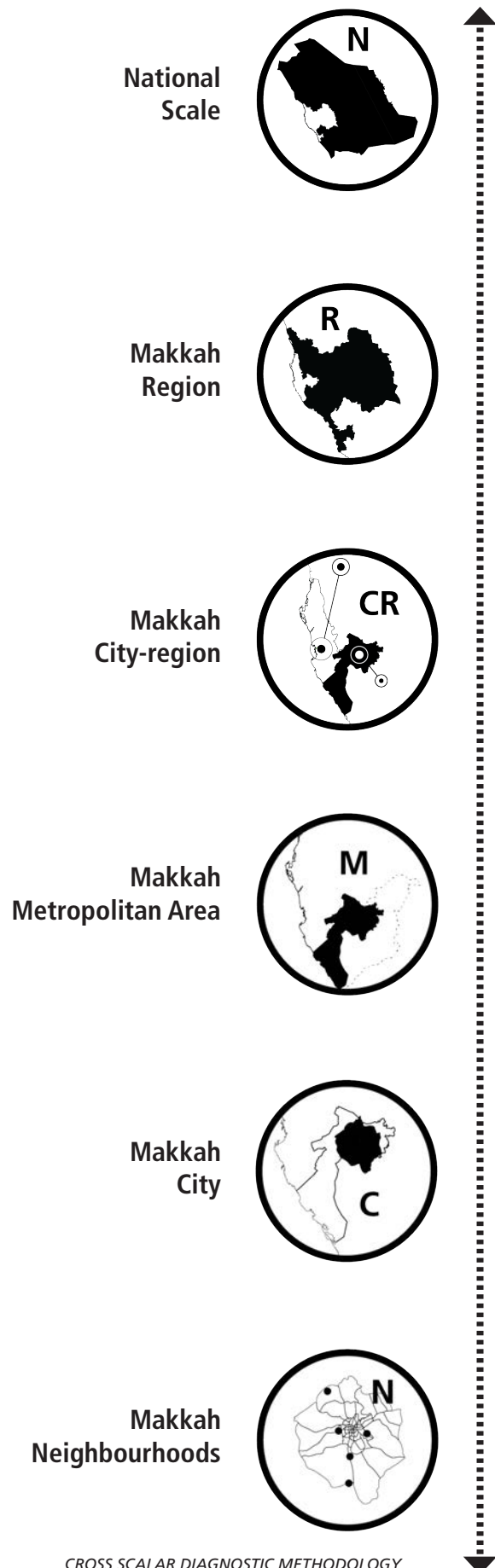
The City Prosperity Index is made up of six dimensions that serve to define targets and goals that can support the formulation of evidence-based policies. These include the definition of city-visions and long-term plans that are both ambitious and measurable. The six dimensions are:

- Productivity;
- Infrastructure;
- Quality of life;
- Equity and inclusion;
- Environmental sustainability;
- Governance and legislation.

These dimensions have been assumed as guiding principles in the spatial assessment of Makkah. There are ten detailed spatial indicators at the FSCP city profile level that link into the 72 flexible indicators of the CPI assessment.

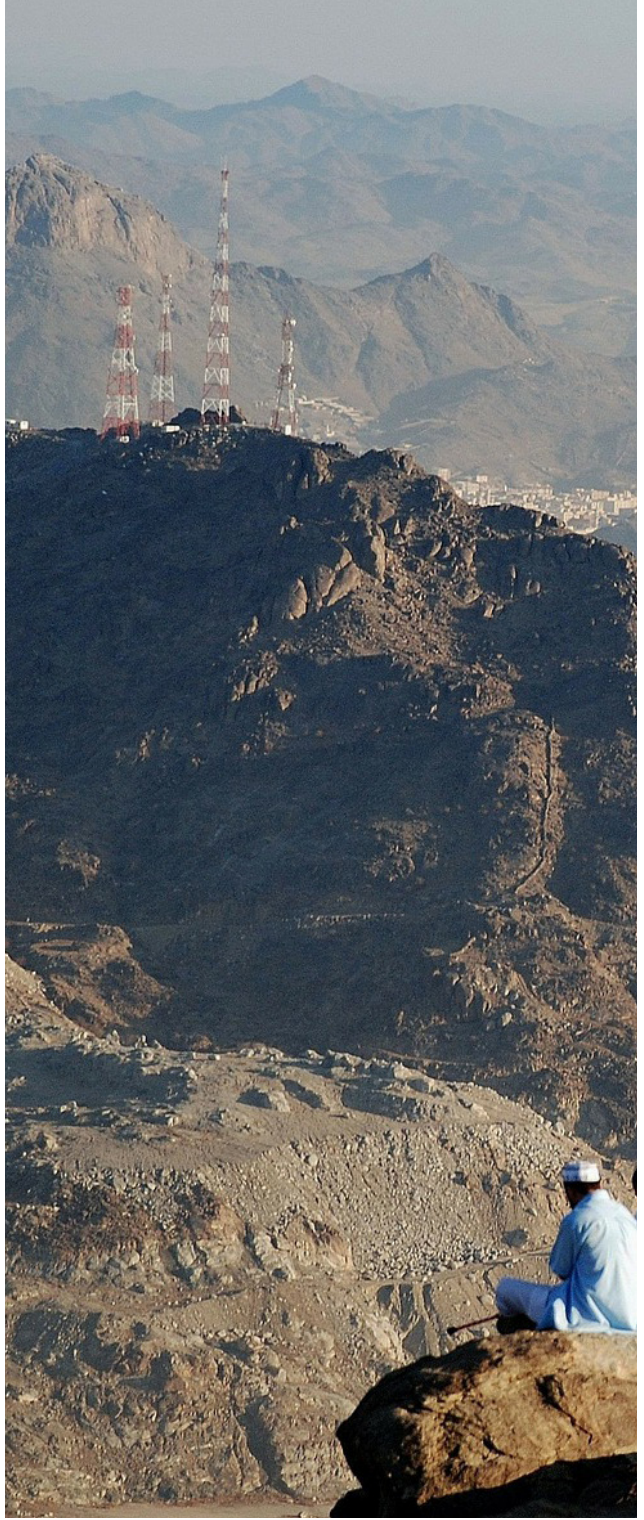
2.4.4 The GIS spatial analysis

The spatial reflection of the above indicators highlights detailed patterns of development and the interactions and dynamics associated with movement, densities, and land use within the urban system. This process enables a dynamic understanding of the physical expressions of weaknesses and strengths in the urban system and the main issues to be addressed. The effect of proposals for future development can also be assessed by use of the same indicators.



NATIONAL AND REGIONAL SPATIAL CONTEXT

2





3.1 The Region’s Role in the Kingdom of Saudi Arabia

3.1.1 Historical background

Makkah Region falls within the historic Hejaz Region. The capital, Holy Makkah, is an important location due to several religious, strategic, spatial, and economic factors. Spatially speaking, the geographical location of Holy Makkah has always played the role of mediator in the international trade between the South in Yemen, and the North in the Levant countries, prior to Islam. The region still enjoys the benefits of its intermediate location, its extended coasts along the Red Sea which enclose important commercial and urban centres, such as Jeddah, and Taif cities, which form a connection between the Red Sea coast and the Kingdom’s interior.

3.1.2 Geography and location

Located in the centre of the Western part of Saudi Arabia, Makkah region enjoys an extended coastline of the Red Sea. It has a particular importance, since its capital city, Makkah, where the Holy Mosque and Kaaba are located, is the holy city of Islam. The region also includes the city of Jeddah, which is the country’s main port city. The Region covers a vast area that extends between the latitudes 19° and 24° North, and longitudes 39° and 44° East. The area of the region is about 140,100 square kilometres, or about 6.22% of the total area of the Kingdom. It is divided administratively into the capital of the region - the city of Makkah - and eleven governorates:

Jeddah, Taif, Al-Gonfedah, Allaitih, Rabigh, Al-Jamoum, Khulais, Al-Kamil, Khermah, Reniya, and Teriba.

3.1.3 Demographic background

The Makkah Region is the most populated region in KSA, hosting more than a quarter of the population of the Kingdom. It has a population of 6,915,006, (according to the 2010 Census). Jeddah Governorate has the most significant share of the total population of the region at 50.3%, followed by Makkah with 24.2%, and by the third largest city, Taif, with 14.1%. The number of Saudi population in the region is estimated to be 4.55 million and 3,340 non-Saudis, which is one of the highest ratios in the Kingdom.¹

3.1.4 Socio-economic background

Having established that more than a quarter of the Kingdom’s population is concentrated in the region, this indicates that the region holds a sizeable population base that provides various human resources necessary for future development. Taking into consideration that humans are considered the ultimate aim of development, and the means to achieve it, human resources also represent the market necessary for selling

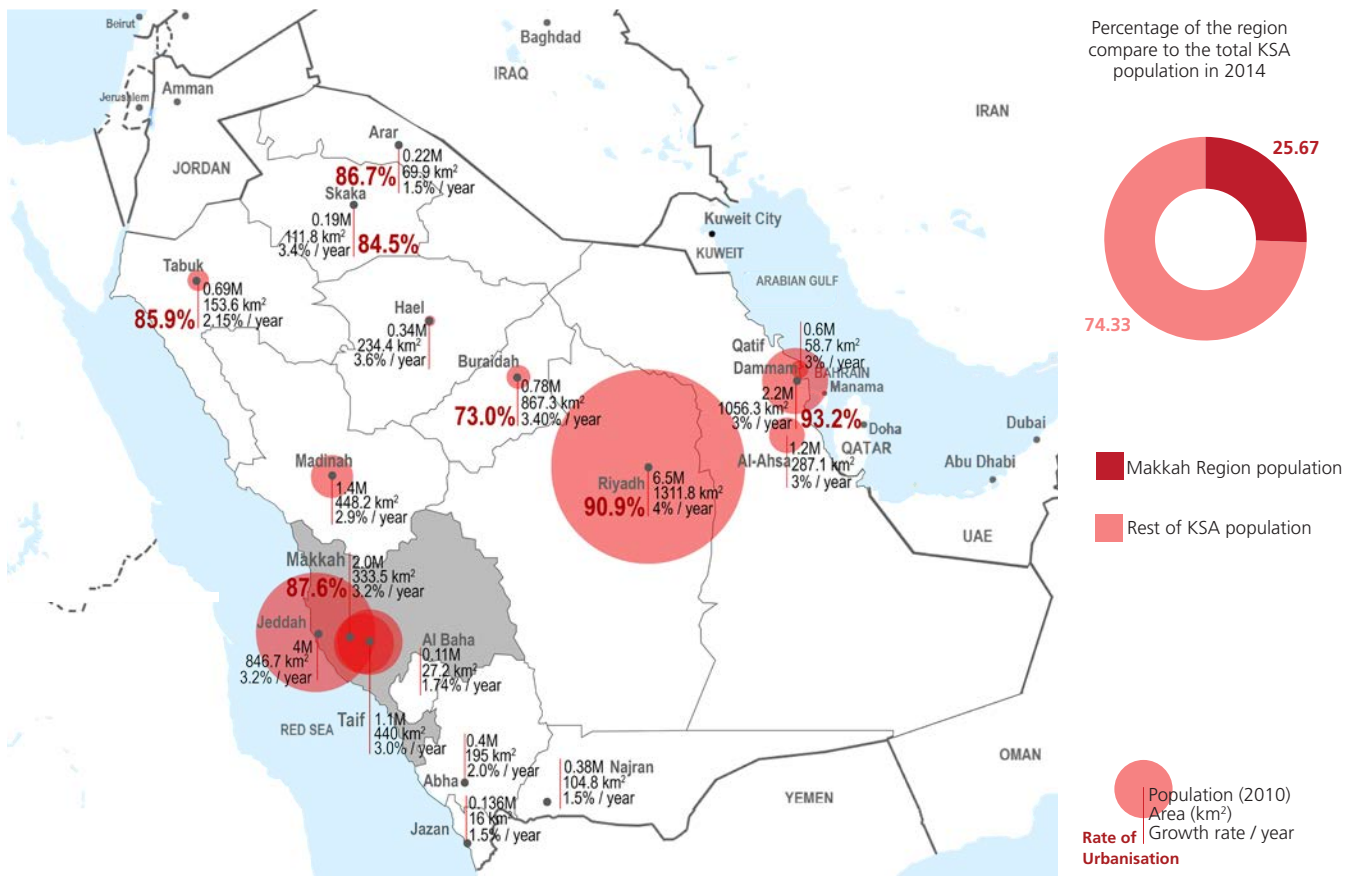


Fig. 1. Population distribution, growth rate and urban areas within the Kingdom of Saudi Arabia



different products. Another characteristic of the Makkah Region is its considerably young society, with 78.6% of the total population the under the age of 40.

On the economic front, Makkah Region enjoys natural coastal resources, as well as other mining, human resources and commercial service activities, besides the existence of the Grand Mosque, a major hub for multiple businesses, touristic, and industrial activities. First and foremost, the religious tourism in the Makkah Region is considered to be one of the most important sources of national income in the Kingdom, after mining activity. The Kingdom receives millions of pilgrims each year, which peak during the season of Hajj, leading to an increasing need for more accommodation units and facilities.

The transformational industries sector in the region ranks first in terms of importance, given its large number of existing plants. The Makkah Region includes two industrial cities, Jeddah and the Holy Makkah. Real estate development and construction are increasingly important and vital to the economy of the region, due to the rise of quality buildings and construction projects around the Holy Mosque. Currently, Holy Makkah is witnessing the most significant expansion of the Holy Mosque to date. Similarly, Jeddah witnessed a rise in coastal resorts, and major buildings including skyscrapers, both inside the city and on the seafront.

Gross Domestic Product

The Gross Domestic Product (GDP) of the Makkah Region (2012) was 288 billion Riyals, representing 10.9% of the GDP of the Kingdom, and 20.8% of the GDP of the Kingdom excluding crude oil and gas. The average annual growth rate of the GDP for the region was 30% during the 2009-2012 triennium. Real estate and financial services sector ranked first in terms of contribution to the region's GDP with 18%, followed by industry with 16.9%, trade with 16.7%, transport and communications with 9.5%, building and construction with 6.7%, and personal and community services sector with 3.3%.²

3.1.5 National connectivity

The region has two airports: one being a major international airport in the Kingdom - King Abdulaziz Airport in Jeddah - and a regional airport in the city of Taif. The number of passengers using the two airports in 2012 was 13.7 million. The air traffic movement in the region represents about 35.5% of total air traffic of passengers in the Kingdom. The quantities of goods transported through these airports amounts to about 44.4% of total air cargo in Saudi Arabia. King Abdulaziz Airport in Jeddah is witnessing a substantial redevelopment to improve the level of services, in accordance with the highest international

standards. The redevelopment also aims at intensifying the region's infrastructure and enhancing the capabilities of the airport by increasing its capacity to 30 million passengers in the first phase, and 80 million passengers in the following ones. In addition to the two mentioned airports, there is a runway for small agricultural planes in Qunfudah Region, as well as a private airstrip in Rabigh Region, belonging to Aramco. Plans for a new international airport in Taif to serve pilgrims heading to Makkah was first revealed in 2014, and the works started in February 2017, aiming at meeting its scheduled completion by the beginning of 2020. Once completed, the new airport in Taif will have the capacity to handle five million passengers per year.

As for maritime transport, there are small marinas in three of the four coastal regions that are used exclusively by Border Guards and small fishing boats. However, the region hosts the Jeddah Islamic Port - the largest port in the Kingdom and one of the largest ports in the region. Jeddah Islamic Port contributes to approximately 31% of the total shipping movement in the Kingdom. The number of passengers (arrivals and departures), traveling via the port accounted for around 24% of the total number of travelers using the Saudi ports. There is also another new port, currently under construction - the King Abdullah Economic City Port - which is expected to be among the top ten ports worldwide once completed.

On another front, the region is investing in a significant development of its railways transport system, with the Al Haramain High-speed Rail Project already operational. The railways project total length is 480 kilometres and is designed to transport passengers. The first phase of the project included construction of five passengers stations, one in Makkah, two in Jeddah city - one in King Abdulaziz International Airport and the other one in the downtown - another station in Madinah, and the fifth station in King Abdullah Economic City in Rabigh. The railway line serves mainly the pilgrims coming for Hajj or Umrah, with an annual transport capacity expected to reach three million passengers. The new line reduces the travel time between the Jeddah and Makkah to less than half an hour, while the distance between Holy Makkah and Madinah, which is 410 kilometres, will now take about two and a half hours. It also reduces the traffic congestions dramatically. Another railway line is planned to connect the region with Riyadh, which is part of the Land Bridge Project. This line will serve transport of passengers, and cargo between the region and the other regions, in the middle and Eastern parts of the Kingdom.

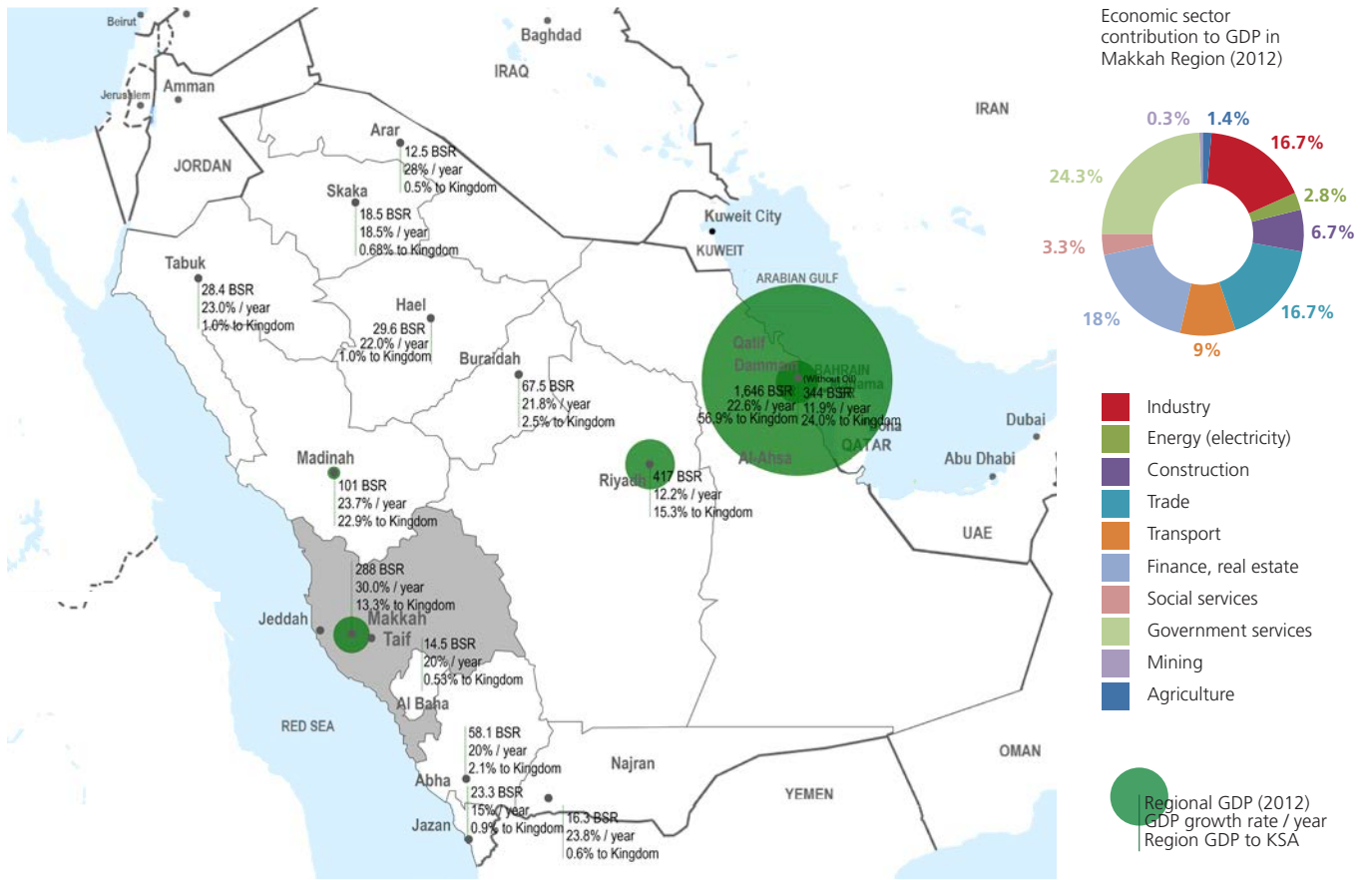


Fig. 2. Regional Gross Domestic Product and economic sector contribution

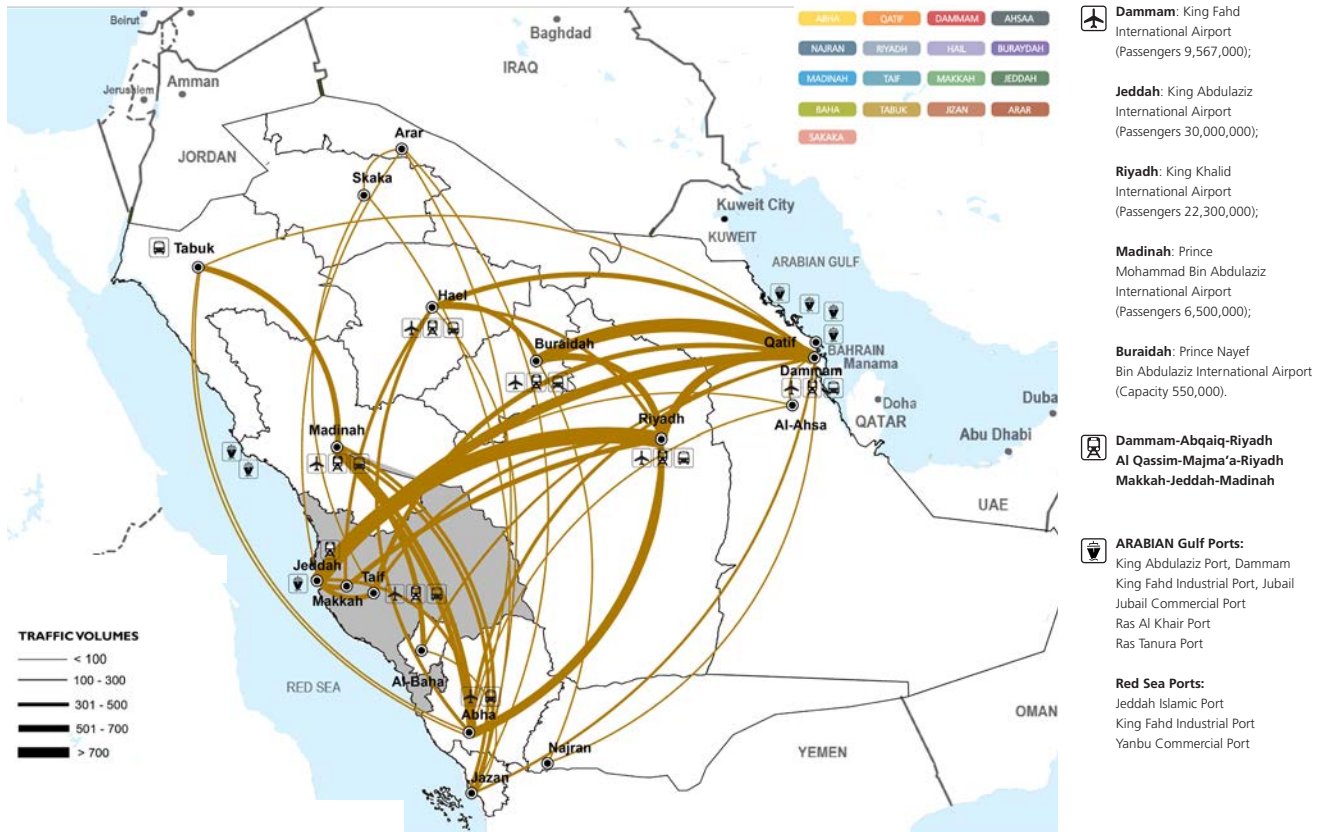


Fig. 3. Transport connectivity between Saudi cities

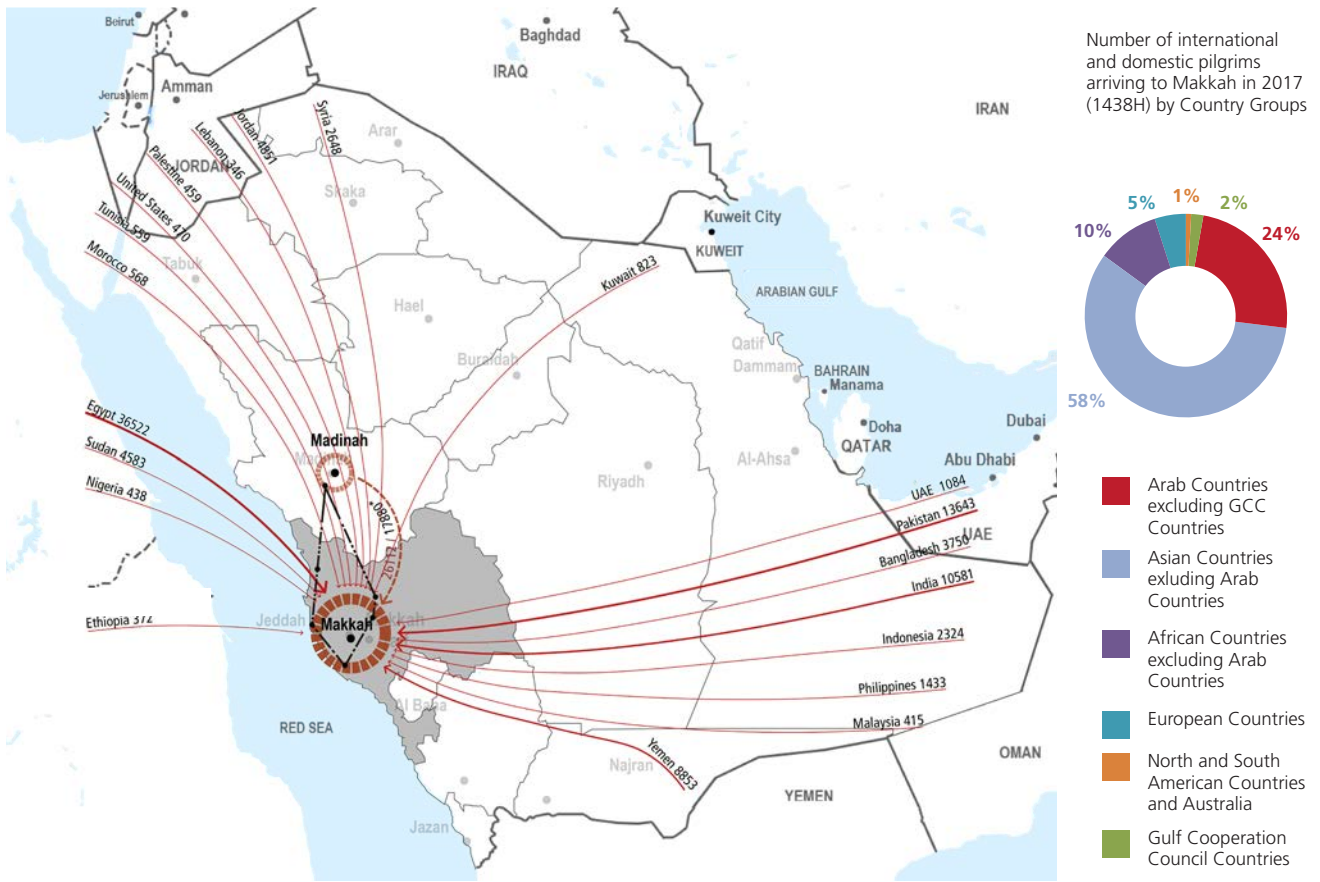


Fig. 4. Non-saudi domestic pilgrims in 2017

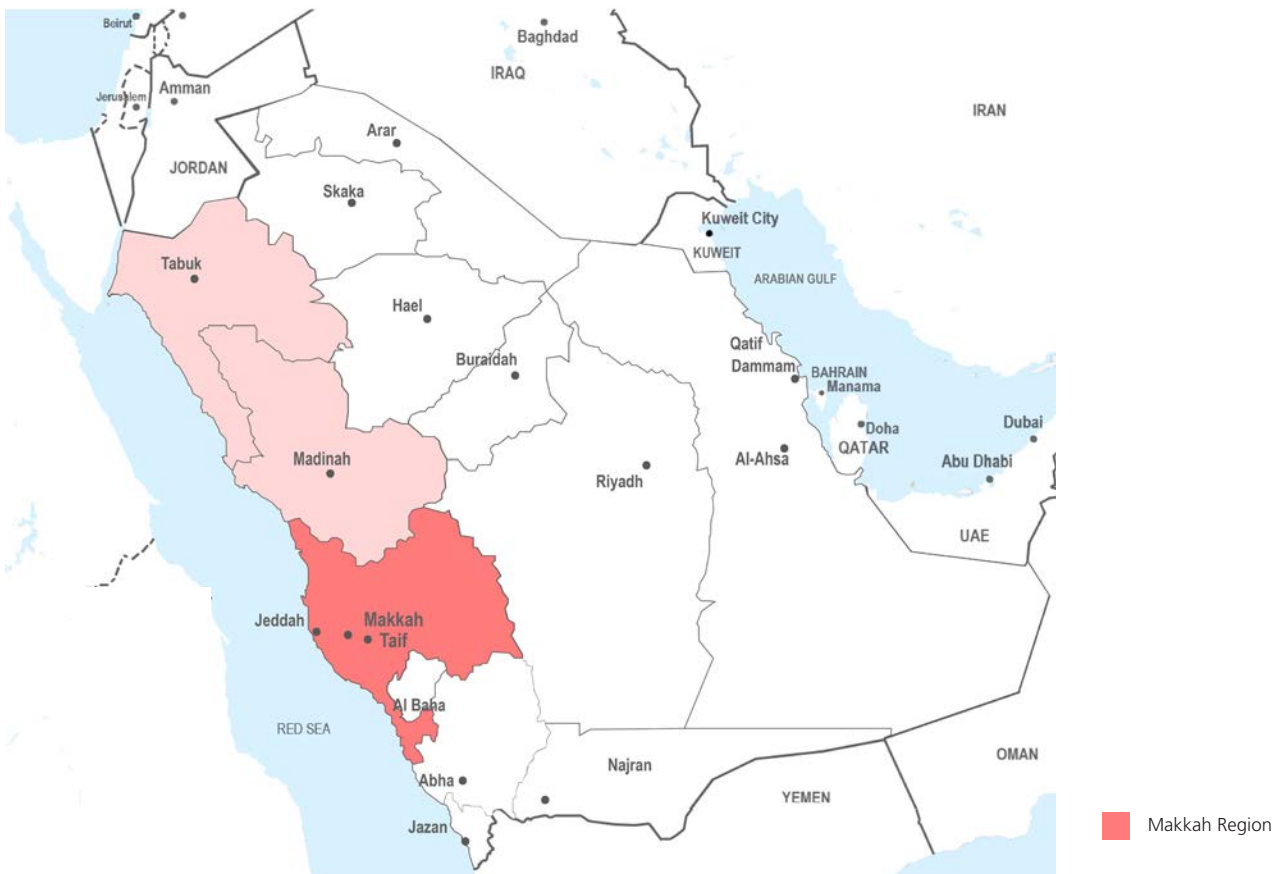


Fig. 5. Makkah and its relationship with other regions in the Kingdom of Saudi Arabia



3.2 Regional Development Patterns and Dynamics

3.2.1 Regional organisation

Administrative Boundaries

The external boundaries of the Makkah Region were revised in 2016, when the number of governorates increased from 12 to 17. The 17 governorates, ordered by population from largest to smallest, are: Jeddah, Makkah, Taif, Qunfudah, Bahra, Al Jamoom, Rabigh, Laith, Al Ardhayat, Maysan, Khulais, Adhaam, Raniyah, Tarabah, Khurmah, Al Muwayh, and Al Kamil.

The Regional Plan for Makkah Region

The existing plan of the Makkah Region for the year 1460H, divides the region into the main development planning sectors and development corridors, as the maps display.

The first sector is the Northwestern coastal development corridor. The main economic activities include industrial, mining, and offshore activities, as minerals are abundant in the region. The second development sector features the pillars of the current economic activities in the Makkah Region (including Makkah, Jeddah, and parts of Al-Jamoom area), having the highest population density in the region. The third development sector is the Southwestern coastal corridor, primarily represented by maritime and related

activities. The fourth development sector, represented by the Western and Southwestern parts of the Taif area, is considered to be the main agricultural source in the region because of its mild climate and fertile valleys. It is also one of the most important traditional summer destinations in the Kingdom, hosting many recreational locations, particularly in the Al-Hada and Shafa areas. This sector also enjoys a large coverage of basic services, such as sewerage, water supply networks, highway, and regional road infrastructure. Agricultural and industrial activities are the primary economic engine of the region, in addition to a tourism industry largely servicing domestic tourists. The fifth development sector contains some promising mining sites; however, it also includes one of the most impoverished areas of the region in terms of economic resources. Small mining and agricultural activities exist, as well as grazing activities, but arable land areas could be increased if serviced with irrigation and other improvements.

In addition to the development sectors identified by the Regional Plan for Makkah, four strong functional / thematic axes have been identified:

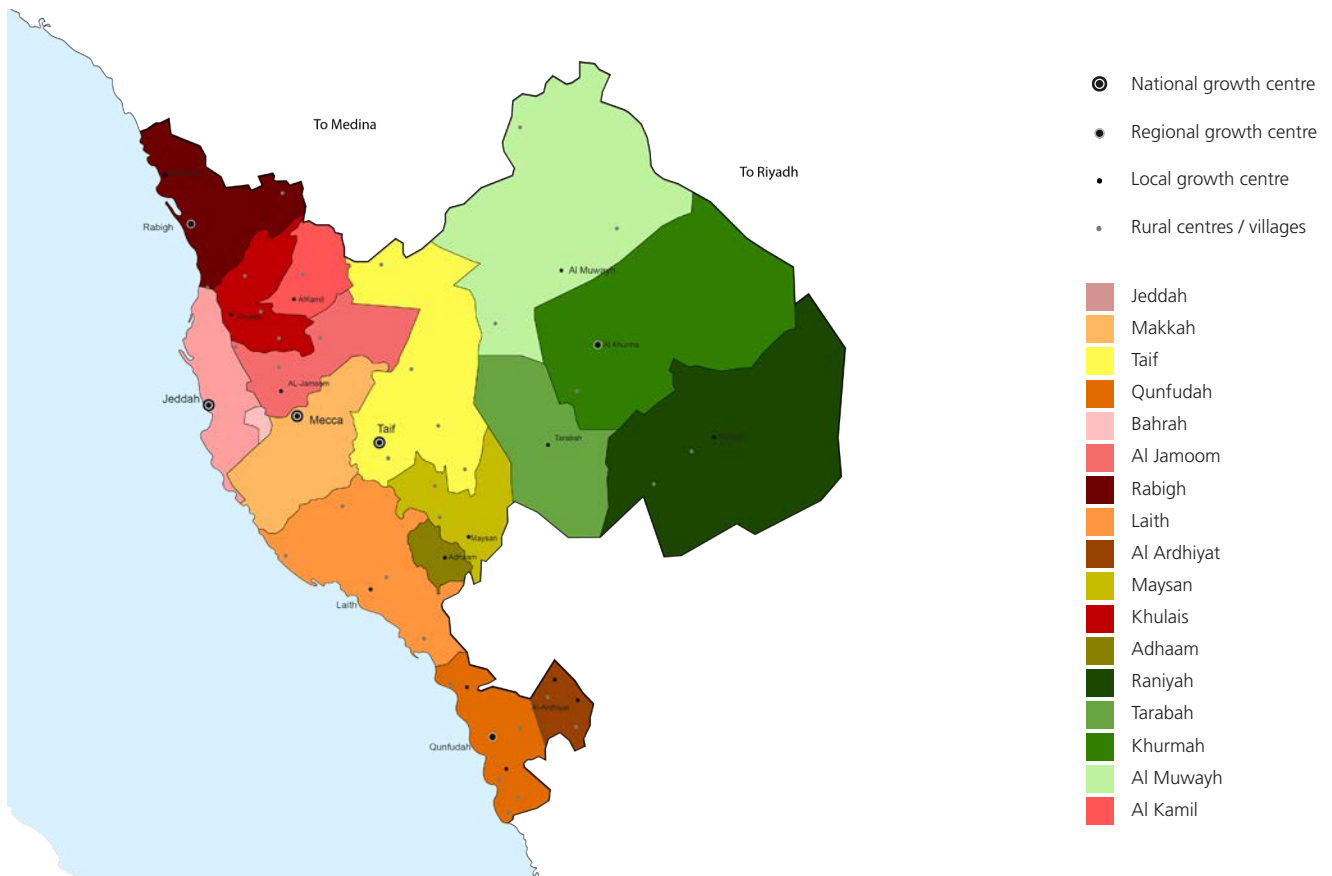


Fig. 6. Administrative boundaries

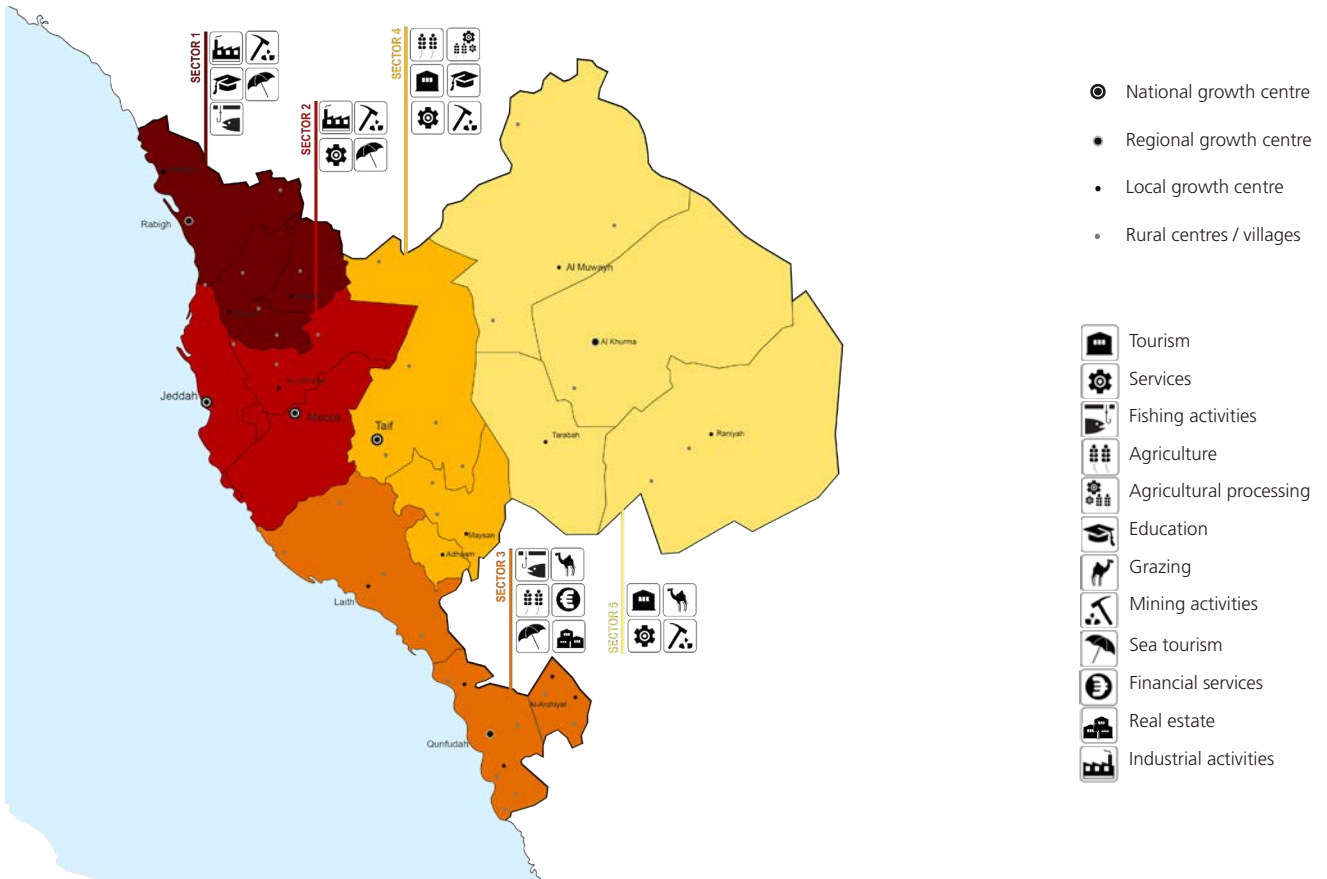


Fig. 7. Development sectors according to the Regional Plan for the Makkah Region, Vision 1460H (2038)

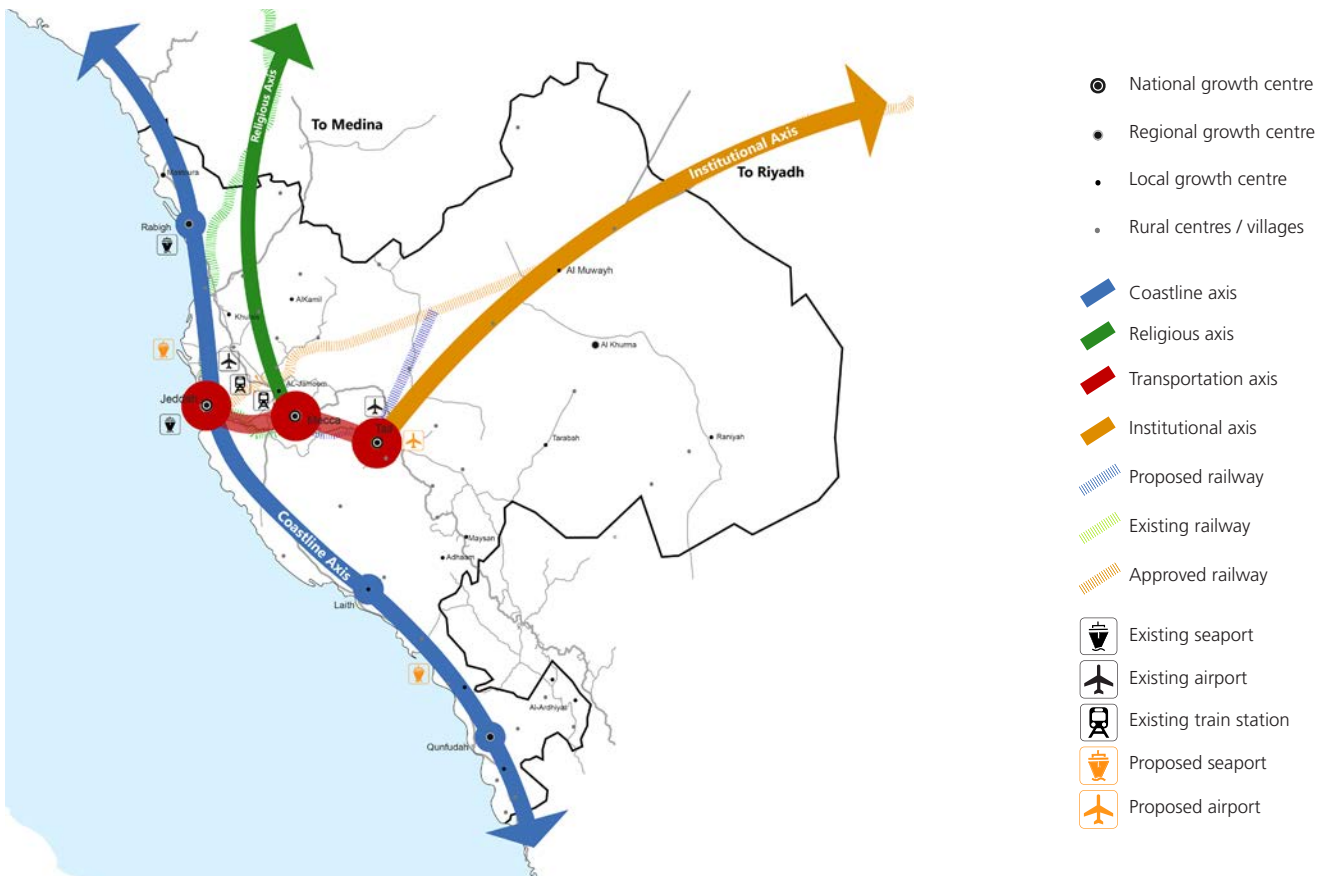


Fig. 8. Development corridors according to the Regional plan of the Makkah Region, Vision 1460H (2038)

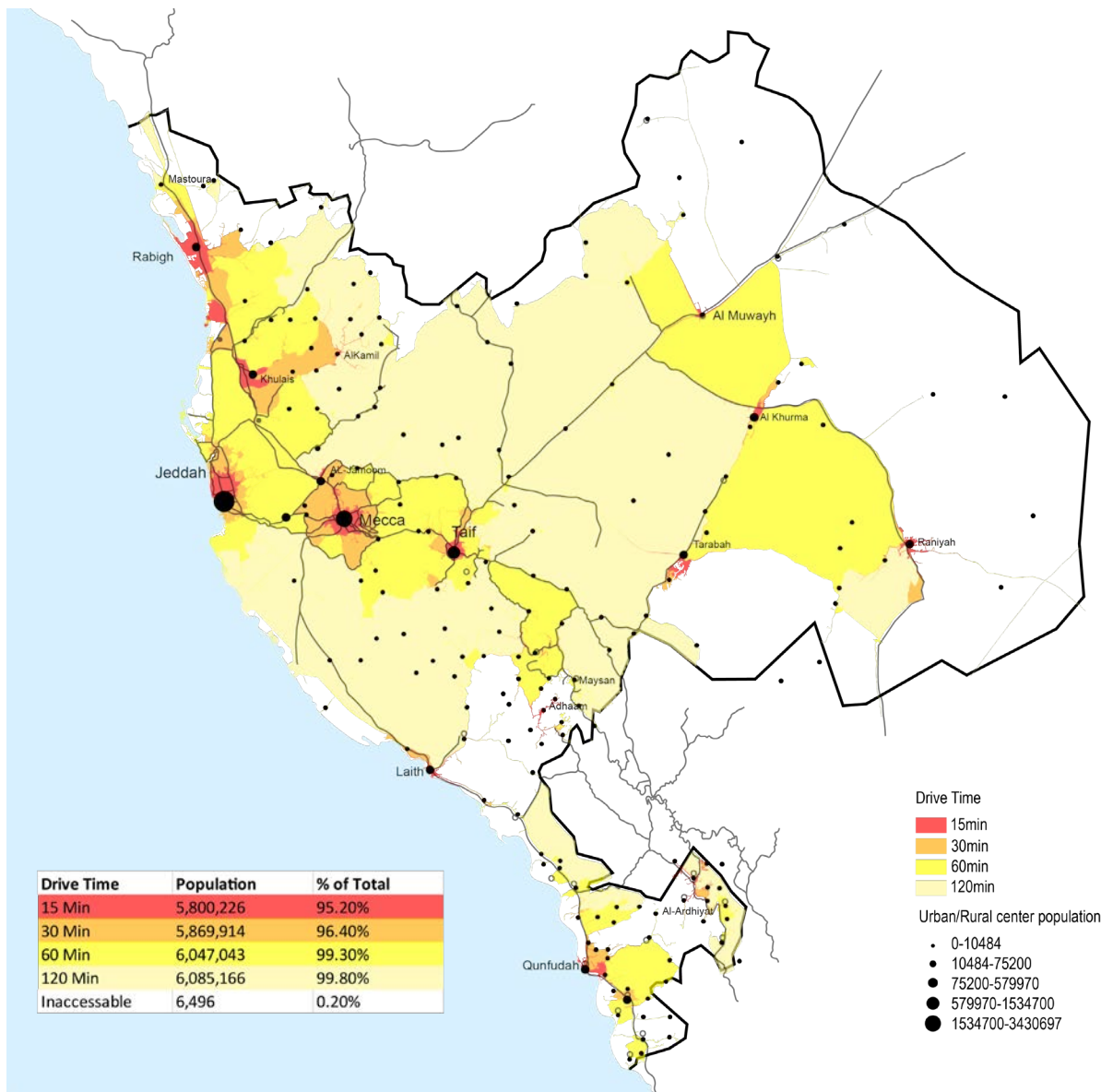


Fig. 9. Access and connectivity in the Makkah Region

- The religious axis between Makkah and Madinah;
- The coastline axis connecting Jeddah with other regional growth centres along the coastline, supported by a major highway;
- The institutional axis directly connecting Taif to Riyadh; and
- The Jeddah-Makkah-Taif Corridor.

3.2.2 Regional structures and resources

Movement Infrastructure

Although the region is considered well serviced with roads in comparison with other regions, the Regional Plan adopted the idea of developing a link between various parts of the region and establishing a road network characterised by a well-structure road hierarchy, including the upgrading of desert roads linking villages and urban centres. According to our drivability analysis, about 95% of the population resides within 15-minute drive time from the major urban centres

with more than 80% of the total population living in the three major cities (and their peri-urban region).

Land use, physical constraints and urban clusters

The estimated space allocated for mining activities within the region is 3,663 square kilometres, which accounts for 2.6% of the total area and about 15.4% of the urban land area. This areas are concentrated in the regions of Rabigh, Jeddah, Makkah, Khulais, and Raniyah. Agricultural uses are allocated to 4.3% of the land, while 12.8% is dedicated for roads and railways, and 4.9% for urban clusters.

Pastures in desert areas represent 65.8% of natural land uses in the region. The desert areas, with a percentage of 53% of total area, are concentrated in Khomra and Raniaih, while pastures are concentrated in Laith, Gunfudah and Rabigh governorates. Undevelopable mountainous areas and valleys constitute 9.2% of the total area.



Panoramic shot of Makkah overlooking the First Ring Road

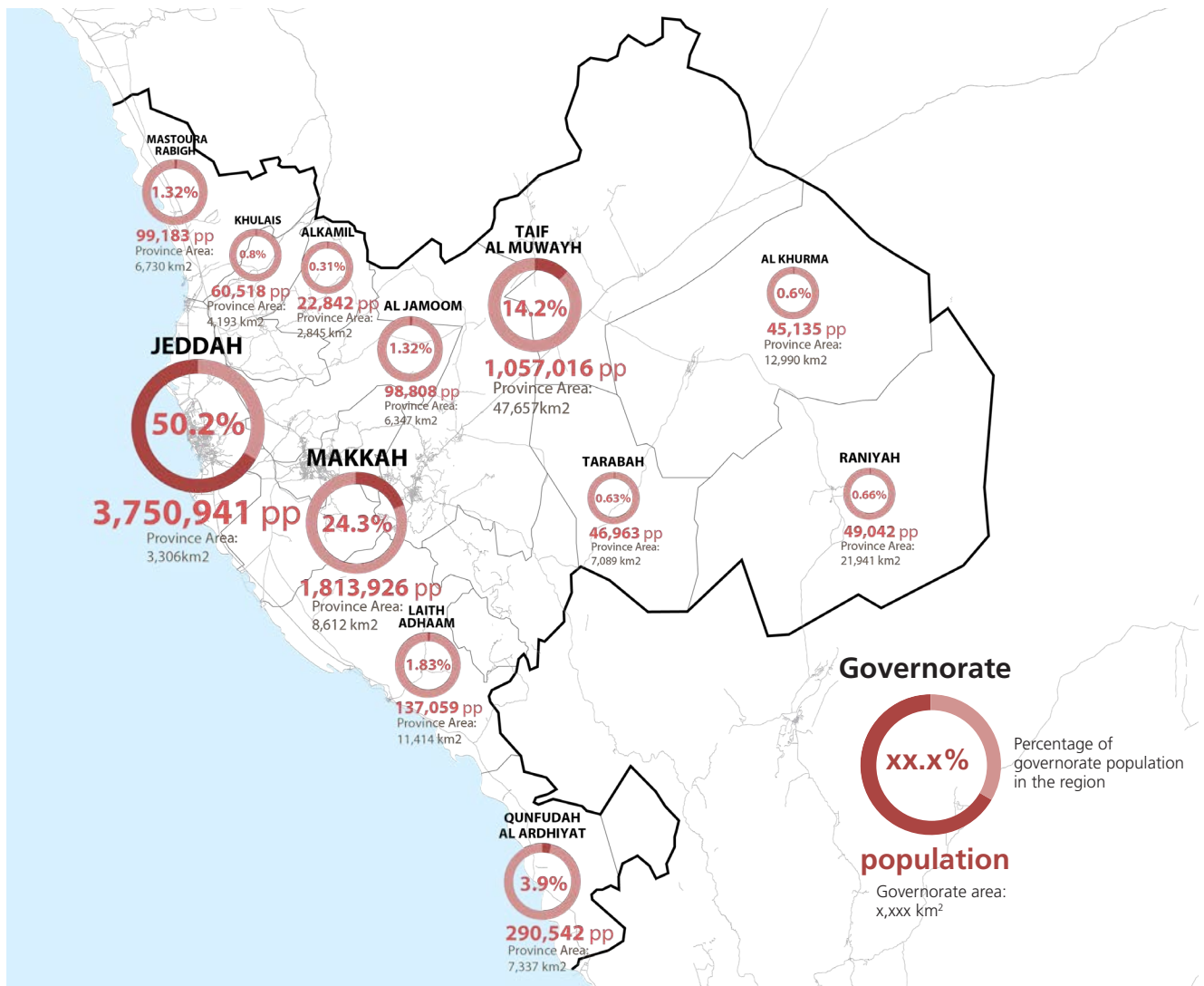


Fig. 10. Population distribution in the governorates according to 2010 Census

3.3 City-region Structure and Dynamics

3.3.1 City-region economy

For mountainous areas, the gradient level of 20% is considered the maximum level needed for acceptable development, as after that, the cost of construction is highly raised, with the only exceptions for a few special projects, such as touristic or road infrastructure development projects. Regarding the valleys, the Regional Plan recommends their preservation and the prevention of encroachment on the paths of these wadis.

Urban clusters in the Makkah Region are characterised by spread out cities, villages, and towns, which are distributed along the sides of valleys and road corridors. The cities represent 74.0% of the total urban clusters space, and the rest spreads over the rural clusters, at different levels. The reason behind the relative rise in the total space of cities is due to the presence of the three large urban clusters in the region which are: Jeddah, Makkah, and Taif.

Jeddah and Makkah continue to be engines of the region's economy as a whole. Despite the comparative advantages of Makkah and Jeddah that continue to attract populations from smaller settlements in the region. According to current rates, this may result in an increased of unsustainable urban growth patterns and the consequent widening of the disparity gap among the governorates of the region. The current conditions confirm that the pattern of settlement in the Makkah Region is concentrated in two major urban centres which are Jeddah and Makkah, hosting almost 71% of the total population of the region. There are no other medium-sized urban centres, except for the city of Taif, with a population of 667,000. 96% of the urbanised population lives in these cities, while the rest of the region remains populated by small communities and insignificant urban agglomerations, which emphasizes the absence of a balanced hierarchy of cities and growth centres.



The Great Mosque in Makkah

3.3.2 Environmental and topographic elements

It can be argued that the Jeddah, Makkah, and Taif corridor is the strongest in the Kingdom, as this corridor hosts 22% of the national population, and contributes to 20% of the total GDP of the Kingdom. With almost 7 million people, the corridor concentrates 87% of the regional population, and at the current growth rates, its population will rise to reach a little over 10 million people in 20 years time. This is also due to the recent inauguration of Al Haramain Railway, and the new Taif Airport, licensed as a Hajj and Umrah terminal, to be operational by 2020. Over time, these three most populated centres will be more and more linked through interlocking economic systems, shared natural resources and ecosystems, and common transportation systems.

A great example of these shared resources and the complementarity of functions is the water desalination plant in Jeddah providing drinking water for Makkah and Taif, with Taif being the food basket of the region, exporting crops to Makkah and Jeddah. Another example is the recent development in transport infrastructure in the region such as the Al Haramain Railway and the New Taif International Airport. The idea behind that developing Taif as a major hub for international Hajj and Umrah traffic, will ease the burden on Jeddah's King Abdulaziz International Airport during the peak seasons.

Makkah within its city-region context records higher average temperatures across the year when compared to Jeddah or Taif which has a milder climate due to its geographic location and higher altitude. As per humidity, the percentage of humidity in Makkah and Jeddah have wider variations across the year in comparison with Taif due to proximity to the sea. The average yearly humidity in Makkah is around 46%.

As per rainfall rate, they vary consistently across the terrain of Makkah Region, starting with very minimal rain in Jeddah, the rainfall rate increases significantly as we move to the Eastern areas, such as Taif. In Makkah however flash floods are common during winter season even though the amount of precipitation is low. Moreover, since Makkah is located in a desert, dust storms are common in the city. The prevailing wind across the scale of the region is predominantly West and Northwestern winds. The wind speed is relatively moderate across the year. During months of seasonal transition, prevailing winds may increase in speed up to 36 km/h, mainly in the form of sandstorms. These mostly occur during the spring and the end of fall, with the phenomenon considered one of the factors leading to air pollution in the region.

Topographically, the city-region shows diversity in terrains. From satellite imagery, the Hejaz Mountains is clearly visible between



Streets of Makkah during Hajj

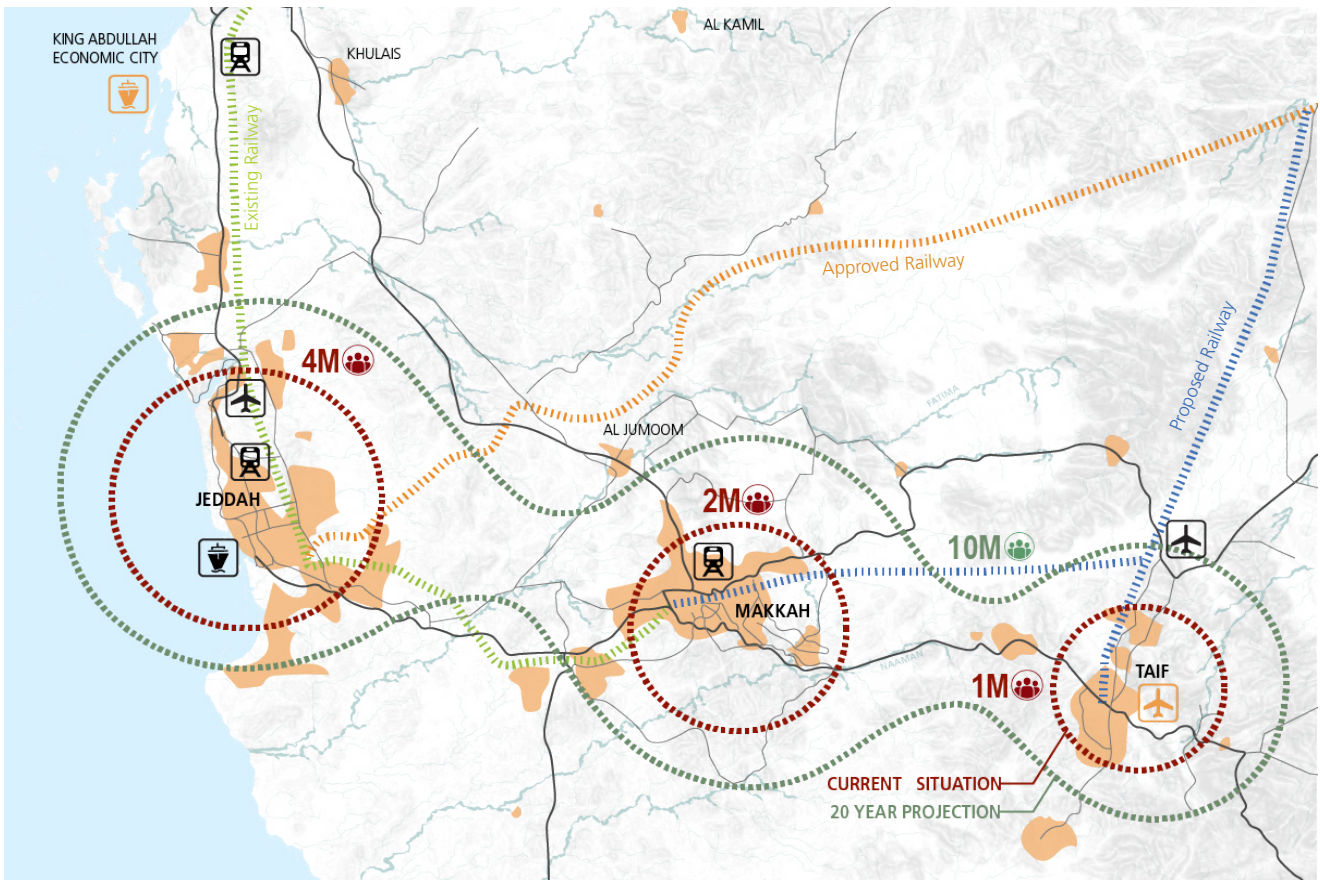


Fig. 11. Current population distribution and 20 years projection

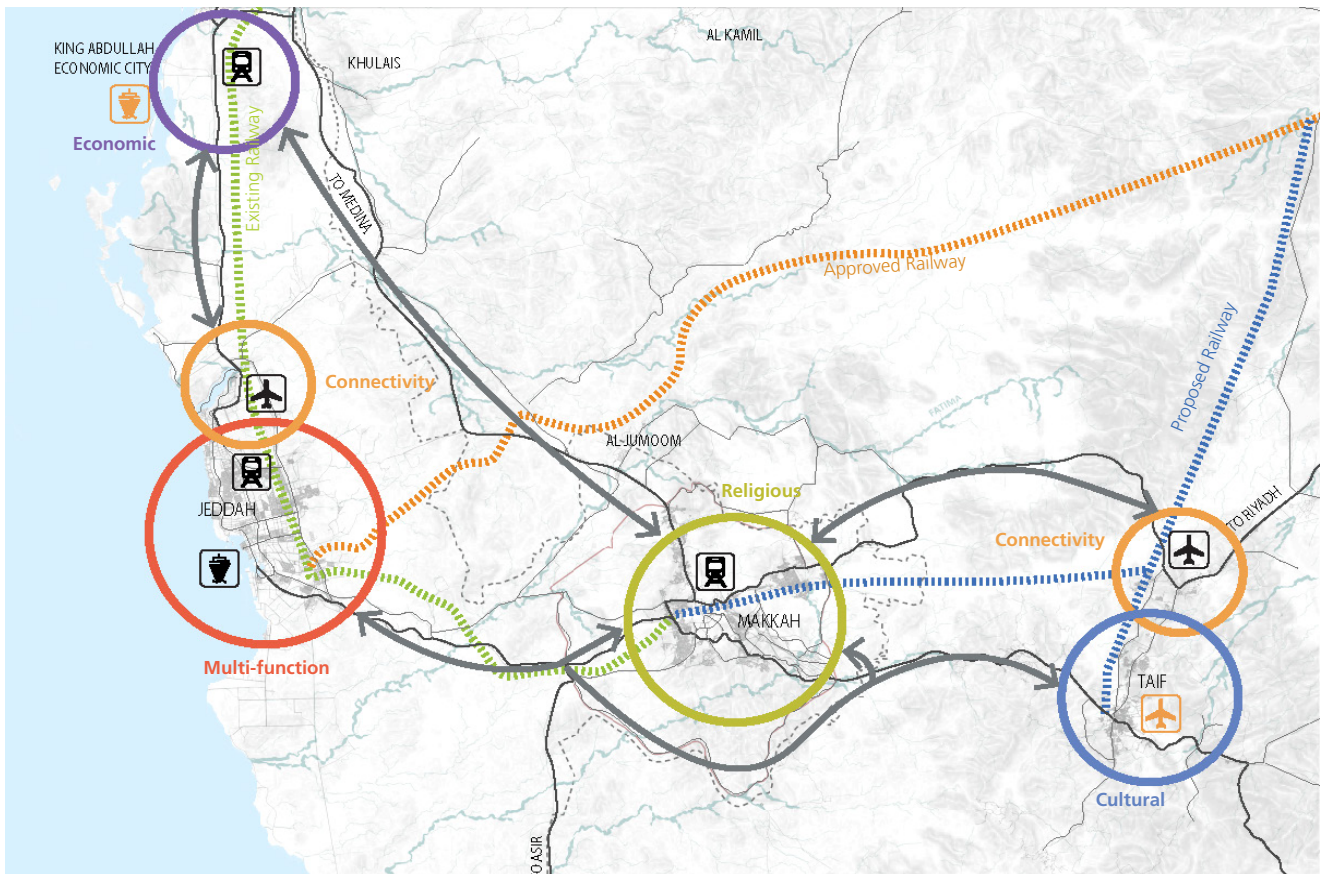


Fig. 12. Functional connectivity in the city-region

the cities of Taif and Makkah. The Hejaz Mountain line comprises a range of heights with an upper limit of approximately 2,700 metres of elevation to the South and 1,450 metres to the West. This mountain line is argued to be one of the reasons behind not implementing the long-proposed Makkah-Taif rail connection, where its feasibility becomes questionable.³



Jabal-Ur-Rehmah (Mountain of Mercy) on the plain of Arafat

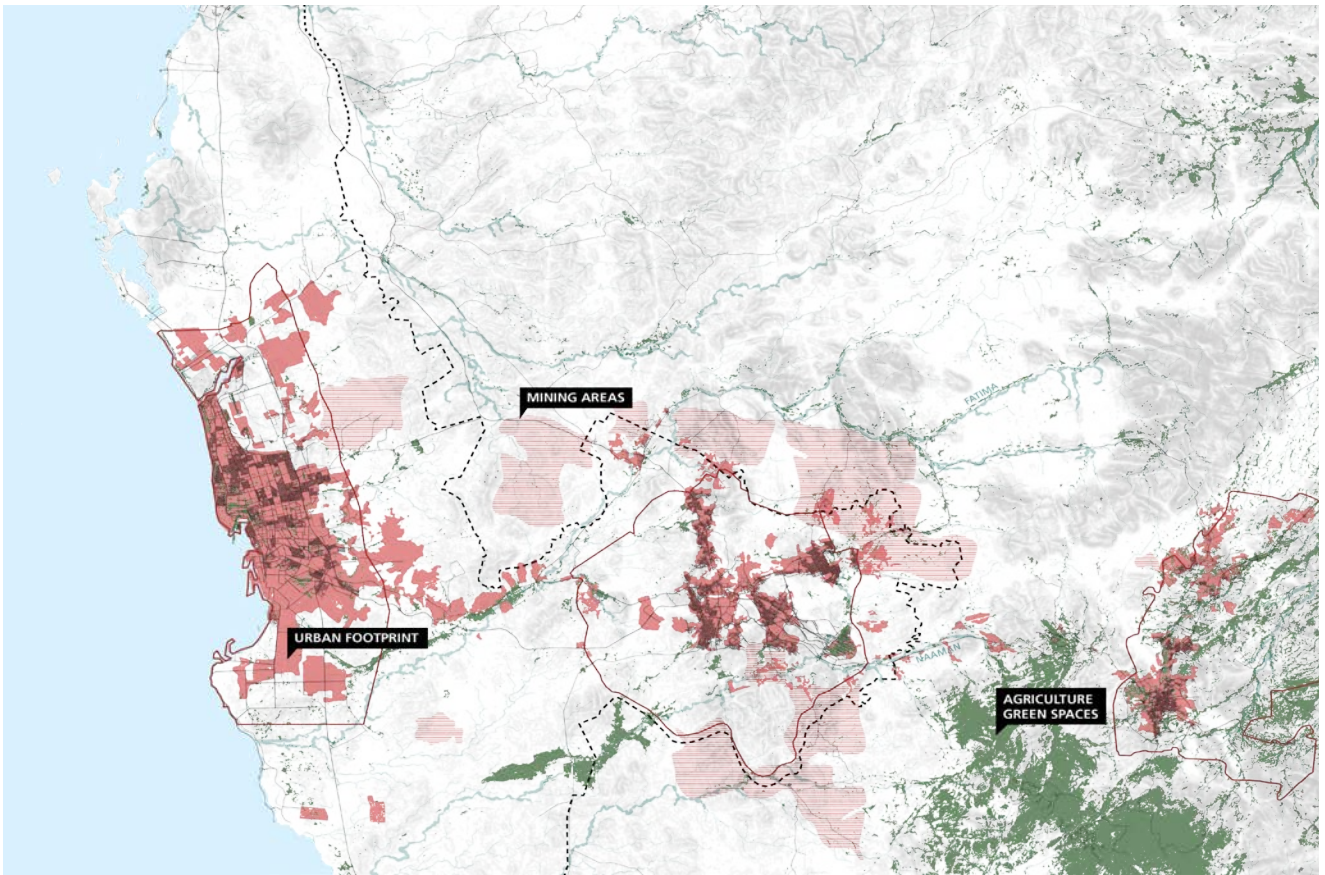


Fig. 13. Urban footprint, agricultural land and mining areas

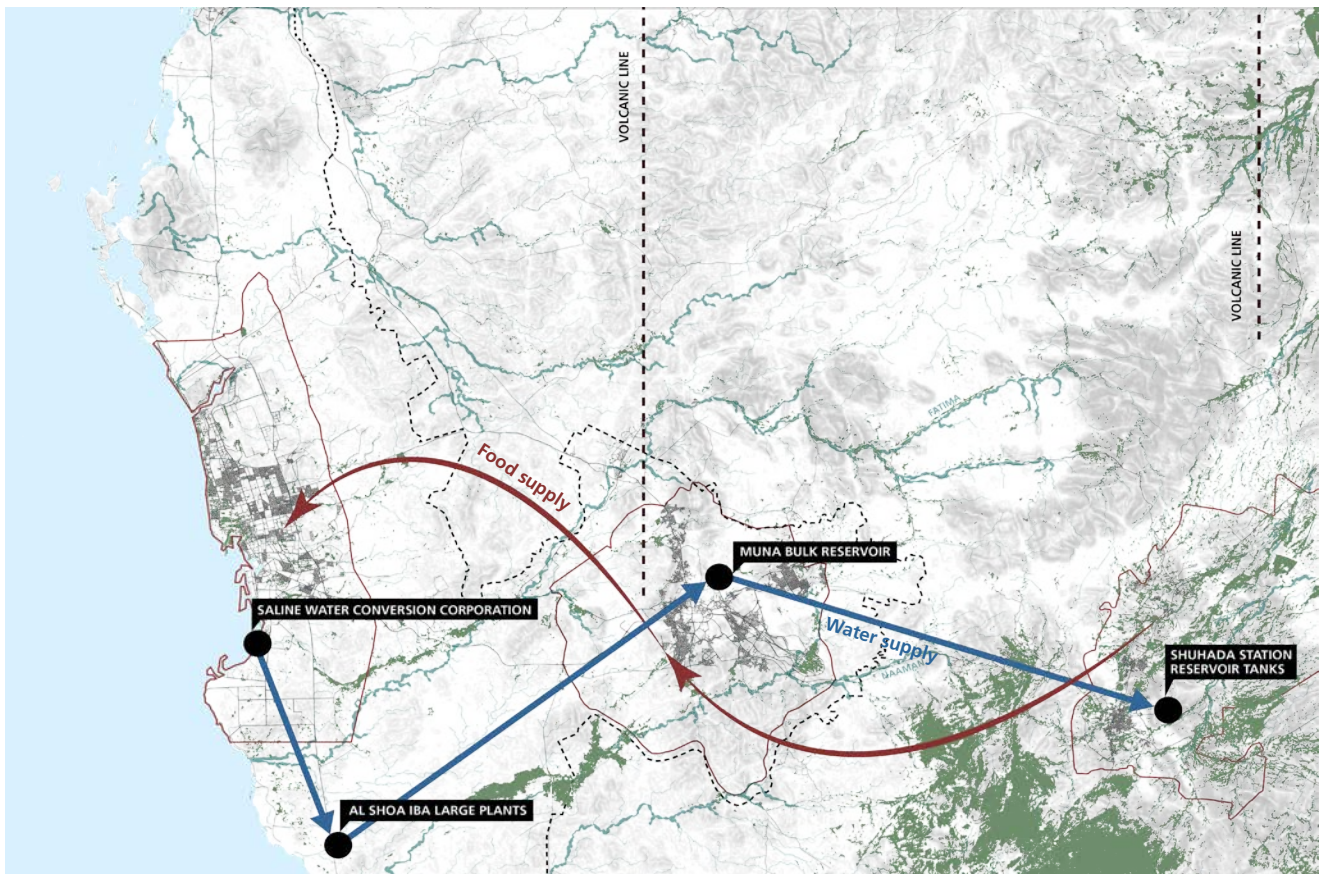


Fig. 14. Wadis, green areas and water distribution and food production

3

GOVERNANCE AND FINANCIAL FRAMEWORKS



4.1 Legal and Institutional Context

The legal planning framework of Makkah is shaped by the Kingdom’s legislative environment, which is based on Islamic Sharia Law. The law-making authority is vested in four entities; the King, the Shura Council, the Council of Ministers and the Ministerial departments. Consequently, there are five legislative instruments that function in a hierarchical order, underpinning their authority and validity: Royal Order, Royal Decree, Supreme Order, Council of Ministers Resolution and Ministerial Decree.

To deal with the unplanned settlements in the region of Makkah, a bylaw was issued in 2008.⁴ The bylaw requires two committees, a Ministerial⁵ and a Technical preparatory committees,⁶ to develop an Action Plan for developing unplanned areas. This Action Plan has been formulated and is being used as a guide by urban regeneration companies during their plan making processes. The law also contains financial incentives for the private sector to invest in areas earmarked as having high probability for high returns through public-private partnerships. Moreover, there is a specific regulation - Fatwas of the high scholars - that only applies in the central zone of Makkah, and which guides development to accommodate the influx of visitors to the holy areas. For instance, it prohibits any form of construction or trading within the Mina and Mashaer areas.

Furthermore, the city of Makkah is guided by over 500 existing urban planning related instruments, most of these having been promulgated at the lowest administrative level (Circulars),⁷ lacking therefore authoritative legal force.

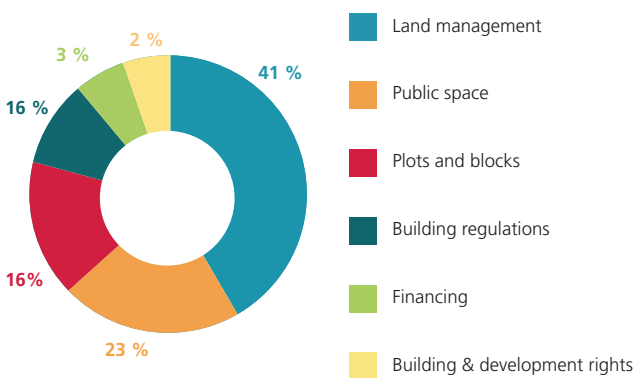


Fig. 15. Number of urban laws in KSA based on the Main Themes of Urban Planning Legislation (UN-Habitat)

The Ministry of Municipal and Rural Affairs (MoMRA) plays a significant role in Makkah’s growth and development patterns because it is legally entrusted with the task of conducting

urban planning of the Kingdom’s cities, including the permitting of all types of construction activity. Consequently, the Municipality of the Makkah Region (Amanah), as the local level actor for Makkah, merely acts as an implementing arm for MoMRA. The institutional budgetary system is also centralised, meaning that Makkah’s development intervention is reliant on funds allocation from MoMRA through an annual line item budgeting, which is the sole fiscal means available.

Makkah is the religious and spiritual hub, not only for KSA but also for all Muslims from around the world, as it is the unique destination for Muslims performing the Hajj or Umrah (pilgrimage). The pilgrimage is becoming one of the Kingdom’s main economic engines, which has been integrated under Vision 2030 with a proposed target of 30 million pilgrimage visitors (8-9 million today). The city’s real estate market has also attracted foreigners, but there is a significant risk that development will take place in spiritually or ecologically sensitive areas. This has engendered speculation on land, as well as incremental displacement of locals living around the Mosque to suburban areas, which has aggravated urban sprawl.

The Kingdom’s planning system, which follows a hierarchy of spatial level and is predominantly top-down, influences the spatial system of Makkah. The National Spatial Strategy (NSS) of 2001 is the guiding plan for the Kingdom. The Urban Makkah Regional Plan 2005, which was updated in 2012 highlights the pivotal role that Makkah, as the regional capital, can play as the economic engine of the Makkah Region.

The Makkah Plan, which is composed of a strategic component (the Comprehensive plan Makkah, Madinah, Mashaer 2011) and supported by a regulatory document (the Local Plan 2003/2010), identifies strategic land uses and infrastructure networks within the metropolitan area, and it applies urban controls to urban land use and building regulations within the municipal boundary. The Urban Growth Boundary aims to prevent urban sprawl in the outskirts of cities without adequate urban infrastructure while the Land Subdivision Plans are the basic building blocks that guide Makkah’s development.

Apart from NSS, these planning instruments are defined by procedural manuals within MoMRA, rather than by Law, and thus they lack legitimacy. By their nature, these instruments cannot construct a system of legal accountability and transparency of the relevant actors.

In terms of reform, Makkah would benefit from both fiscal and jurisdictional decentralisation to facilitate independent and innovative solutions to urban social problems at the Amanah level. This should entail:



Workshop discussion in Makkah with the Amanah

- The transfer of local planning power, authority and function from MoMRA to the Amanah with provision for independent action without recourse to effectively address community needs. This is supported by the New Urban Agenda, which specifies that territorial urban design and planning processes should be led by sub-national and local governments, but their implementation will require coordination with all spheres of governments as well as participation of the civil society, the public sector and other relevant stakeholders.
- Fiscal decentralisation, which gives autonomy to the Amanah to source funds to finance development activities. Revenue generation activities in cities may also include taxes and levies. Urban areas should be allowed to collect some form of property taxes to fund development activities. The recent White Lands Act that imposes fees on undeveloped plots in urban areas to tackle land speculation, housing shortage and indiscriminate land development shows that regulatory mechanisms can be leveraged to generate revenue while fostering an efficient development framework.
- Opening of avenues for actors, including the private and voluntary sector and the general community, to participate in decisions regarding projects that affect them.

The legal framework also needs to enshrine an acceptable mode of public participation in public decision making to foster equality and inclusion. The consolidation of the urban

legislation would also give legitimacy to the plans that Makkah relies on.

Revising the Urban Growth Boundary Law to include clear criteria for its definition would enhance technical and vertical accountability. The Law also needs to place more emphasis on establishing the Development Protection Boundary as a no-development zone, not only to prevent haphazard development but also to discourage the advantage taken by private interests from laxity in the legal text. These initiatives will strengthen policy formulation designed to move the city towards a more sustainable, compact and dense future.

Primarily, a post-legislative scrutiny of the urban growth boundary law should be undertaken to assess whether or not it has met its policy objectives. This could, in turn, inform the legal reform process as well as planning policy options.

4.2 Planning Instruments and Procedures

4.2.1 Hierarchy of plans

The planning system of Makkah is derived from the de facto planning hierarchy of the Kingdom. In this framework, there are four different levels of spatial plans: national, regional, local and district. Figure 16 highlights the planning instruments in force in Makkah.



The Holy Kaaba in the Great Mosque

4.2.2 Regional Plan for Makkah Region

Regional planning represents the second-tier of spatial planning in the KSA, which aims to address the natural, urban, social and economic regional development aspects. The regional plan of Makkah is one of the oldest regional plans in the KSA and one that was leading the regional planning TOR nationwide. The Urban Makkah Regional Plan of 2005, updated in 2012, was prepared and approved by the Regional Council for the Makkah Region and the Emirate of Makkah Al Mukarramah respectively. It is also composed of the sub-regional plan for the biggest governorates within that region, like Jeddah and Taif. The Regional Plan also includes an implementation plan whereby the major projects, their actors and deadlines are decided. The Plan aims to:

- Take advantage of the region's strategic location as the western gate for ksa.
- Enhance the contribution of the region's non-petroleum resources in national development to achieve balanced growth;
- Exert expansion in projects in diverse industries, which are particularly dependent on the region's non-petroleum resources;
- Enhance the participation of the private sector in the provision of education and training across the region;
- Address the developmental concentration on the coastal strip (Jeddah) to achieve a balanced urban development in the region; and

- Support a balanced pattern of cities in the region that confirms the hierarchy of functions.

4.2.3 The Makkah Plan

The Makkah Plan⁸ is a planning tool composed of a strategic component (the Comprehensive plan Makkah, Madinah and Mashaer), supported by a regulatory document (the Local Plan). The former identifies strategic land uses and infrastructure networks within the metropolitan area, while the latter applies urban controls to urban land use and building regulations within the municipal boundary, therefore, contents differ considerably. The Comprehensive Plan is composed of the following;

- Long term strategy for the city;
- Identification of relevant development areas;
- Main mobility system;
- Population and employment;
- Infrastructure provision;
- Housing;
- Economic development;
- Land use (strategic land uses not detailed);
- Expansion of holy mosque and Mashaer area (Hajj dedicated areas);
- Transportation; and
- Environment



Jabal An-Nour Mountain near Makkah

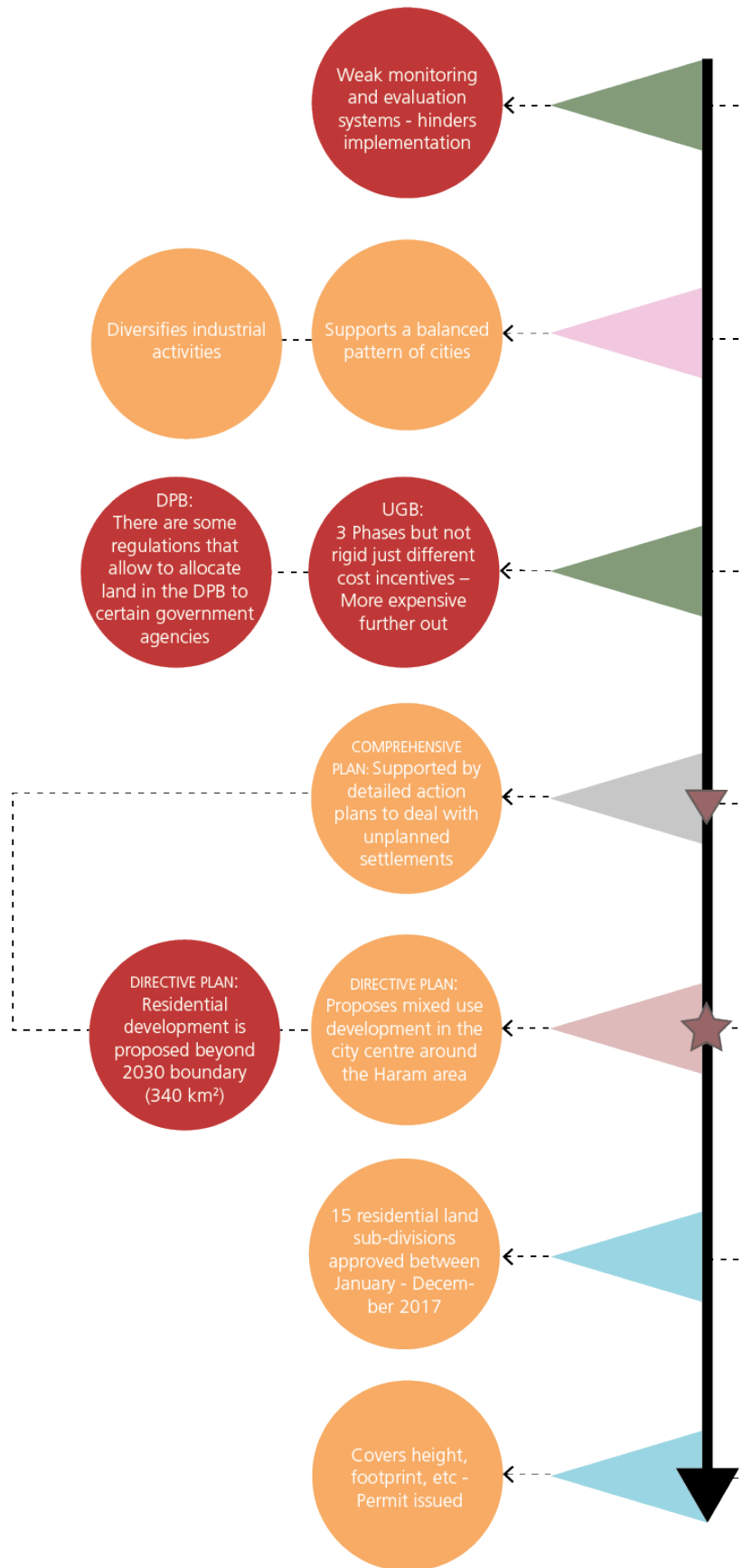
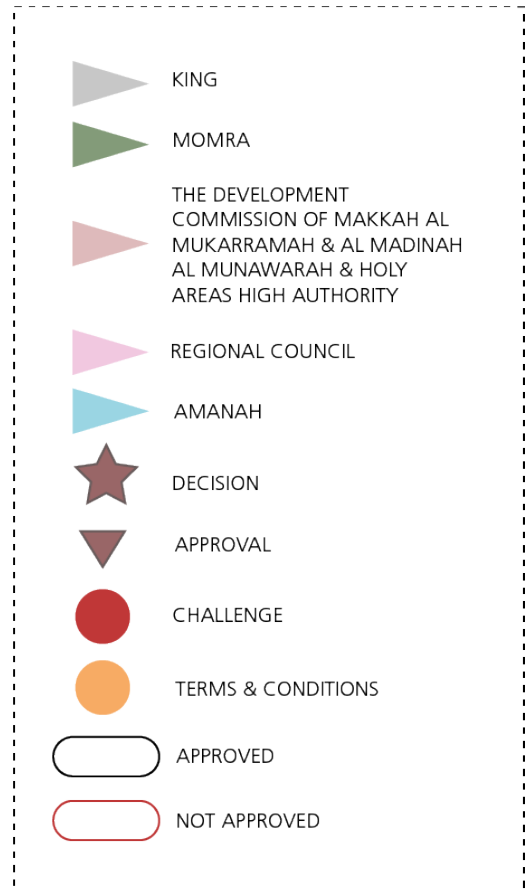
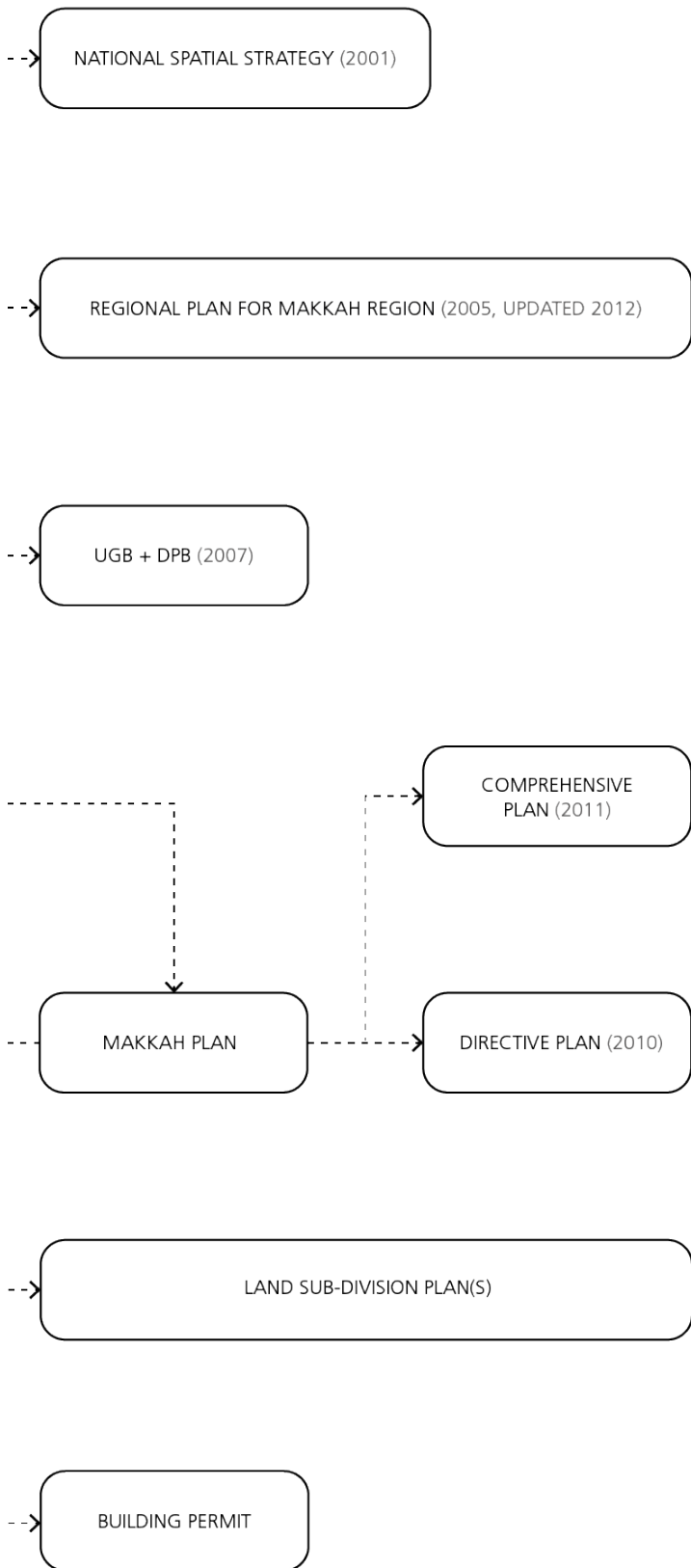


Fig. 16. FSCP simplified representation of hierarchy of plans and the planning instruments for the city of Makkah



The Local Plan is focused on the following:

- Detailed land uses through the Urban Atlas, and;
- Detailed building regulations.

Comprehensive Plan of Makkah Al Mukarramah

The Comprehensive Plan was prepared by the Development Commission of Makkah Al Mukarramah & Al Madinah Al Munawarah & Holy Areas High Authority for the development of Makkah,⁹ and approved by the King in 2011. In previous cases, approval was done by the High Commission. More recently a decree was issued defining a new authority named Royal Commission for Makkah and Holy Sites. Similarly, a new regional authority named Makkah Regional Development Authority was established in 2018

Since this plan applies to both the cities of Makkah and Madinah, it was contextualised to provide flexible and integrated solutions, rather than having a comprehensive development outlook. This plan was followed by detailed action plans, some of which have been implemented in the last 3-4 years, particularly those dealing with replacing unplanned settlements in Makkah with mega hotels and administrative buildings, as well as expanding the Holy Mosque in Makkah. These include: Jabal Omar, King Abdulaziz Road and Abraj Al Bait Hills.

In addition to the above technical components of the plan, this plan also has a vision statement that includes predictions of future conditions, core values, action plans and guided priorities. The plan sets strategies and indicators to be measured, such as quality of life,¹⁰ financial,¹¹ housing and infrastructure indicators,¹² and quality of regulatory process.¹³ A separate document, which supplements the Comprehensive Plan, contains statements guiding on how decisions should be made under various situations.¹⁴

Local Plan

The Local Plan, which is also known as the Indicative Plan, is prepared by the Amanah through conducting several workshops with development partners in the region and approved by MoMRA.

This Local plan, which represents the third level of the urban planning system in the KSA, and is largely focused on those areas of a municipality which are contained within the Urban Growth Boundary with a special focus on housing. The Local Plan contains the Urban Atlas which details the allowed land uses for every part of the city. It is complemented by a report on regulations, which contains specifications on the permissible development rights, such as floor area ratio, street dynamics, building heights, areas of special building regulations, etc.

The aim of the Local Plan is to: a) apply urban controls to urban land use and building regulations; b) to provide public services and infrastructure in a cost effective and integrated manner; c) set basic requirements for proposed road networks; and d) help facilitate the development of public and private sector housing.

The Local Plan is prepared by various consultants following the “Booklet of the Terms of Reference for the Preparation of the Local Plan” which is formulated by MoMRA. This Booklet was updated in 2015 and one key technical change is the requirement that the lifespan of new plans should be 14 years (2015-2029). However, this booklet has no legal standing and there is no accompanying legal framework to support the enforcement of the local plans.

The development of the Local Plan is complicated further by the fact that there are parallel structures set up by MoMRA and the Ministry of the Interior. Whilst the legal mandate for planning clearly lies in the Municipalities (under MoMRA), there are jurisdictional overlaps with the Mohafezat (Governorates – sub-regional), and Markaz (Districts), which are set up under the Ministry of Interior. In other words, the Ministry of Interior is the oversight entity for regional project implementation,¹⁵ while MoMRA is the central spatial planning institution, but there is no clear coordination mechanism. This frequently leads to a decision-making impasse which affects the delivery of technical standards within municipalities such as Makkah.

The Makkah Directive Plan was approved in 2010 by the Amanah. This plan is proposing mixed-use development in the city centre surrounding the Haram, with an area of 8.4 square kilometres, while residential is proposed in the periphery of Makkah and beyond the 1450 UGB, with an area of 340 square kilometres. The other challenge is the unplanned settlements. There are more than 65 unplanned areas in Makkah, which represent more than 26% of the total built-up area. These areas accommodate more than 45% of the total Makkah population, and 30% of these areas are built on risky and steep surfaces.

4.2.4 Makkah Urban Growth and Development Protection Boundaries

Legal Framework

In 2008, the Prime Minister issued decree No. 157, which sets the overall regulations for both the Urban Growth Boundary (until 2030) and the Development Protection Boundary. The executive regulations were issued in 2010 by the MoMRA Ministerial Decree No. 11769 followed by the current revision (MoMRA Ministerial Decree No. 66000) which was enacted in 2014.

The growth boundary is intended to control urban expansion and prevent sprawl in the outskirts of cities without adequate urban infrastructure, whereas the development protection boundary sets a long-term plan for future development of cities beyond the 2030 urban growth boundary. The 2014 Decree stipulates several general development principles including:

- Strategic development projects that are part of the spatial strategies, including major road and railway networks passing through private lands, should be prioritised over any other development projects;

- Development projects outside of the boundary are only permitted with the approval of MoMRA; and
- Large-scale development projects should follow specified detailed standards.

Legally, the area between the Development Protection Boundary and the 2030 Urban Growth Boundary is protected and not earmarked for development but the law also outlines mechanisms for building mega or national-regional economic projects therein. For instance, in Makkah, mega residential projects have been approved by MoMRA.

Moreover, given the law, certain agencies have rights to lands situated in such areas, where approval of development projects is routinely controlled by specific sets of regulations. Additionally, given the legal flexibility around the definition of “mega” or “strategic” projects, private residential developments exist outside the 2030 UGB. These factors have undermined the functional effectiveness of the regulations, the rule of law as well as compact development of urban areas.

The Law also defines development standards that a developer is obliged to comply with, based on strategic categories of national, regional and local centres, and on the size of the plot. Makkah is categorised as a national growth centre (see figure 17).

Setting the Boundary

The Urban Growth Boundary for Makkah, along with other cities, was set simultaneously by MoMRA, through a

Committee under the Unit of Coordination and Projects. The composition of the committee is not clear but, for instance, it did not involve the municipality of Makkah Region, which is responsible for planning at city level. There is an understanding that the calculations were based on some factors, such as historical growth and expected population growth in the city; however, there are no accurate published criteria on how the size of the boundary was calculated. Spatially, the Committee was not guided by existing infrastructure and services, as the boundary was set symmetrically so that “all sides of the city” can benefit.

Challenges

Although the growth boundary regulations set very clear rules for development not to happen outside the boundaries, there are some exceptions, such as housing projects which undermine the effectiveness of the law. For example, in Makkah, there are some encroachments in the connection and delivery of services (schools and electricity), especially in villages and hamlets, which are approved by the council of the area - an example for this being the model village of Al-Bayda. Other major projects have been earmarked for implementation outside the boundary, but due to financial constraints, they have not been implemented.

Furthermore, the Mashaer zone, which is more than half the size of the built-up area of Makkah accommodates more than 2 million pilgrims annually during the pilgrimage. It has a density of 193 p/ha. The Local Plan (2010) proposes mixed-use

| URBAN BOUNDARY CLASSIFICATION OF LAND SUBDIVISION APPROVALS AND THE URBAN BOUNDARY PHASES | | |
|--|---|---|
| EXECUTIVE REGULATION ISSUED BY THE MINISTERIAL DECREE NO 66,000 IN 20/12/2014 | | |
| 1 ST PHASE (2014-2018) | 2 ND PHASE (2019-2024) | 3 RD PHASE (2025-2030) |
| NATIONAL GROWTH CENTRES (MAKKAH, RIYADH, MADINAH, JEDDAH AND DAMMAM) | | |
| MORE THAN 500,000 SQM | | |
| <ul style="list-style-type: none"> - Tarmacking of internal roads - Water, sanitation and electricity - Median light poles - Storm water infrastructure | <ul style="list-style-type: none"> - Tarmacking of internal roads - Water, sanitation and electricity - Median light poles - Storm water infrastructure - Connect to closest main road - Percentage of residential area completed not less than 50% - Provide land for social services (schools, kindergartens, hospitals, etc.) | <ul style="list-style-type: none"> - Tarmacking of internal roads - Water, sanitation and electricity - Median light poles - Storm water infrastructure - Connect to closest main road - Percentage of residential area completed not less than 50% - Provide land for social services (schools, kindergartens, hospitals, etc.) |
| <ul style="list-style-type: none"> - Tarmacking of internal roads - Sanitation and electricity - Provide land for social services (schools, kindergartens, hospitals) | - | - |

Fig. 17. Matrix showing the development options within the phases of the Urban Boundary in the National Growth Centres (including Makkah)

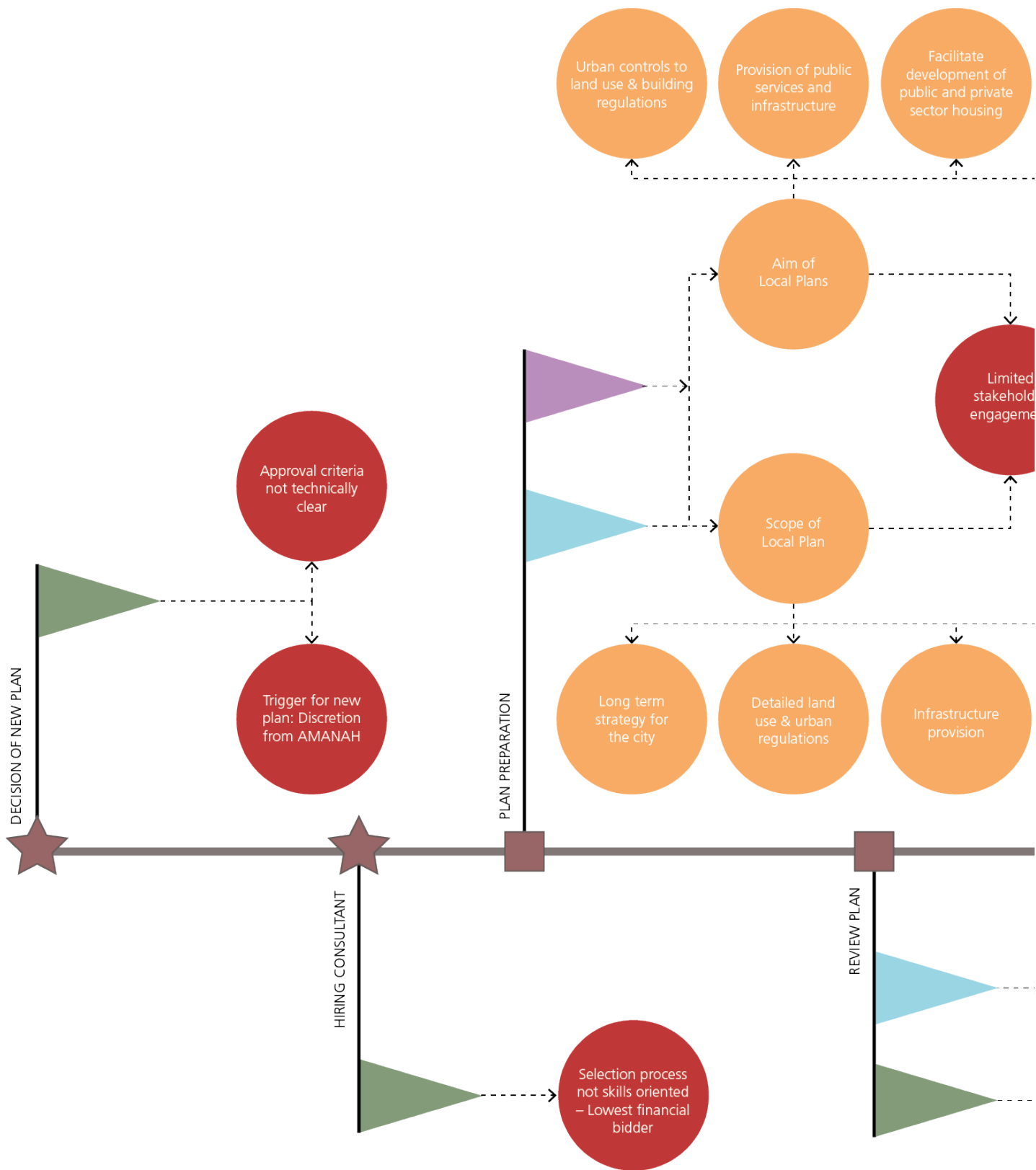
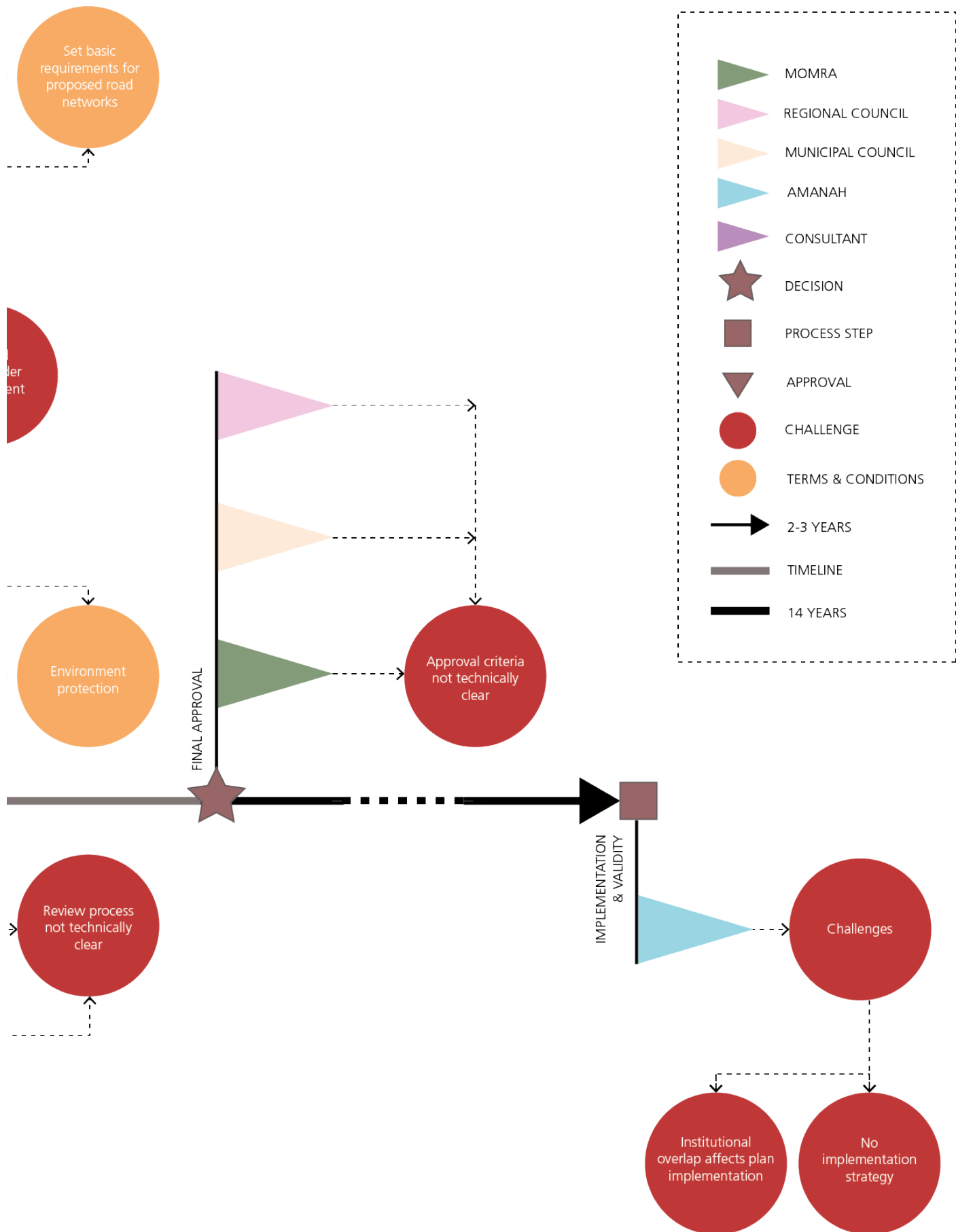


Fig. 18. FSCP simplified representation of Planning Process and Actors involved in the preparation of the Makkah Local Plan



development in the city centre surrounding the Haram with an area of 8.4 square kilometres. Residential neighbourhoods are proposed on the periphery of Makkah and beyond its 2030/1450 UGB with an area of 340 square kilometres, while the current footprint of Makkah is 333 square kilometres. This new development will reduce the density of older central neighbourhoods next to Haram. Moreover, the proposed structural plan for Makkah increases the amount of the built-up area by more than 70%. There is also disparity between the size of the boundary and the demographic dynamics of Makkah based on the Committee's calculations which undermines densification. In other words, based on current population growth projections, the 2030 density will be 25 p/ha, which is well below any recommended target, including the UN-Habitat recommendation of 150 p/ha.

Permitting

Development within the Urban Growth Boundary is closely linked to permitting and development control. The process in Makkah is as follows:

- A developer submits a land subdivision plan, including detailed implementation plans for the instalment of the requisite infrastructure to the Amanah;
- The Amanah will then assess the application in accordance with the provisions of the Law on the Urban Growth Boundary; except those cases defined by MoMRA Ministerial Decree No 17777. This Decree delegates certain roles to the mayors in regards to approving land subdivision, solely in relation to the size of residential projects. The Mayor of Makkah Region is an approval authority under this Law;
- The application is then sent to MoMRA for review in accordance with development standards and applicable building codes, and building permits are either refused or granted by MoMRA;
- A developer whose permit has been refused has two options of appeal: a) recourse to the Amanah and MoMRA calling a re-study of the application; or b) file the case in the relevant jurisdictional administrative court;
- The decision in the above appeal processes is final and binding to all the parties.

White Lands Act

The amount of undeveloped land ("white lands") in Makkah is high; 8.5 hectares for developable lands excluding mountains and areas of natural features (see figure 19). The existence of white lands has been a significant contributor to the growing housing shortage, particularly for the youth as owners choose to hoard property to maximise value rather than to develop it. The government recently issued the White Lands Tax Law¹⁶ that imposes an annual land tax of 2.5% of its value on 'white land', which is defined as vacant land located in 'populated areas,' zoned for residential or for dual residential and commercial use. The Law aims to: a) increase the supply of developed land to better address housing shortages; b) make residential land available at reasonable prices; c) combat

monopolistic practices. The Ministry of Housing, which is the implementing authority, will enforce the Law in phases. At the moment, the Act is operational only in Makkah, Riyadh, Dammam and Jeddah (see figure 19)..

4.2.5 Land Subdivision Plans

The Land Subdivision Plans are the basic building blocks for KSA cities' growth and development. The Mayor of the Makkah Region has the power to approve the land subdivision in accordance with the following criteria (Ministerial Decree No. 17777 of 2010):

- The land must be within the approved urban boundaries;
- The land use specified for the land is consistent with the instructions and regulations governing it;
- The subdivision will not result in cancellation or modification of an approved regulation, planning or authorised land use; and

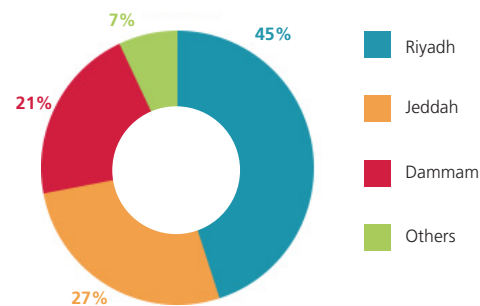


Fig. 19. Percentage of white lands after implementation of the first phase of the White Lands Law

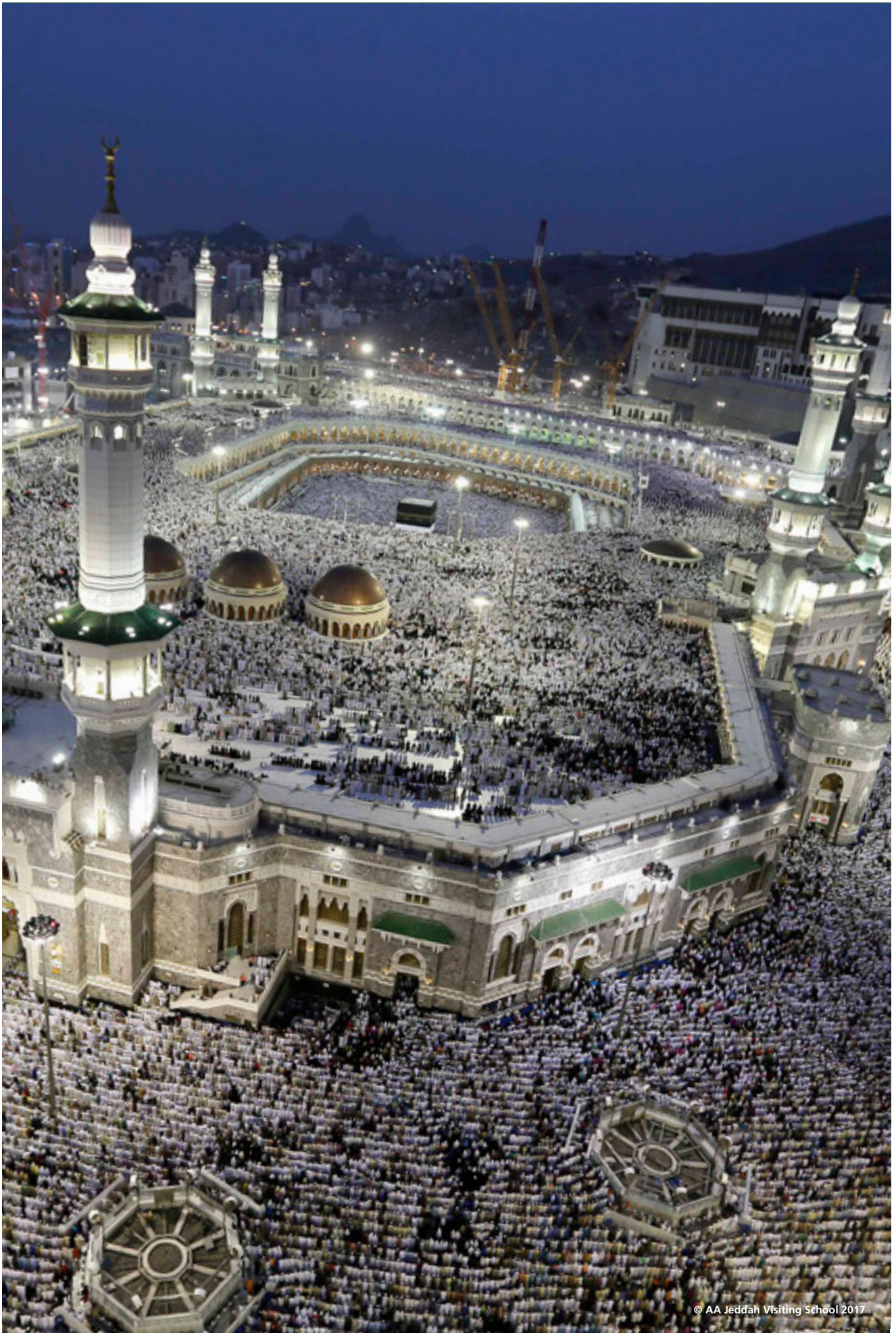
- All necessary planning procedures have been completed and the Deputy Ministry for Town Planning (DMTP) has been issued with a certified copy of the plan after its approval.

The Amanah has approved 15 residential land subdivisions between January to December 2017.¹⁷

4.3 The Institutional Context

4.3.1 Urban institutions in KSA

Makkah's growth and development pattern is impacted by the centralised planning institutional framework of the KSA, under the Ministry of Municipal and Rural Affairs (MoMRA). MoMRA is entrusted with the task of conducting urban planning of the Kingdom's cities, including providing the necessary roads and fixtures, maintenance and cleanliness of the environment, as well as of licensing all types of construction activity.¹⁸ The Deputy Ministry of Town Planning under MoMRA and its departments, such as Local Planning, Studies & Research, Projects Coordination and Urban Planning & Design, is mandated to coordinate with "concerned bodies" in charge of planning, to achieve comprehensive urban



© AA Jeddah Visiting School 2017

View of the Great Mosque during Hajj (Maghrib prayer time)

development.¹⁹ In practice, there is little coordination between these departments and the Amanah, and this affects service delivery and project implementation.

4.3.2 Regional context: Makkah Region

According to the Ministry of Interior administrative classification, the Makkah Region is divided into 17 governorates, 36 centres (class A) and 77 centres (class B). Makkah, being the regional capital, is not included in this classification, instead is governed through a “municipality” (Amanah), headed by a Mayor. This delineation is provided for by MoMRA, with Makkah’s actual status being a 1st class Amanah.²⁰ Given this structure, the Amanah is allocated funds by MoMRA, for development action and municipal services through an annual line item budgeting,²¹ which is the sole fiscal means available to Makkah.²² There are additional institutions in the Makkah Region that manage and regulate the development process. The newly established Regional Development Authority and the Amarah of the region, headed by the Regional Prince who, pursuant to the Regional Law,²³ reports to the Ministry of Interior.

The Regional Council²⁴ is based in the Amarah, and is required to:²⁵

- Identify the needs of the region and propose their inclusion in the National Development Plan;
- Identify beneficial projects for the region, and submit these as activities requiring funding. These requests are vetted, and viable projects are selected for funding. Funding is provided as part of the National Development Plan and yearly budget of the country, which is the sole means available to municipalities;
- Study the organisational arrangement of the regional administrative centres, follow up implementation of any modifications; and
- Implement the provisions of the development and budget plan, and carry out the needed coordination.

The Municipal Council, also located in the Amanah, with two-thirds of its members elected by citizen’s votes, while the rest are appointed by the MoMRA, supervises the activities of the Amanah and municipalities, to make sure they conform to the Local Plan, as well as meet the current needs of the region. It approves:

- The municipal budget sourced from the cash allocation from national government. This is constantly subject to revision as it is based on the agreed priorities between the Council and the Mayor;
- Examines the residential plans focusing on whether any procedural violation occurred;

- The scope of municipal services; and
- Expropriation projects based on the priorities of the Mayor.

There are additional public institutions and agencies that indirectly influence the regional governance framework of Makkah:

- The Ministry of Finance, which is concerned with funding projects located in the Holy Mosque, as well as mega projects such as the Jebel Ali development project;
- The Custodian of the Two Holy Mosques Institution for Hajj and Umrah, which is considered a leading scientific consultation reference on planning and design. It has various departments and units, among them being the urban planning department, which conducts planning studies at the district to city level, addressing land uses, spatial organisation of activities, and urban designing in Makkah, Madinah, and the Holy Places;
- The Development of Makkah Region Authority, which was established in 2000 (Royal Order No.1202), has the following mandate:
 - i. Set and update structure plans for Makkah with specific concern to the central zone where the Holy mosque is located. The authority is required to study and implement the plan, including coordination with relevant governmental agencies. It is also required to set the building regulations for any development or regeneration project that takes place, including overseeing of all investments and PPPs for these projects;
 - ii. Implementation of the Makkah Law for unplanned settlements, including the process of expropriation of lands and compensation fees, pursuant to the Law on Expropriation;
 - iii. Implementation of the Comprehensive Plan, as well as the strategic and developmental projects, at the levels of Makkah Al Mukarramah. Since 2007, its geographical mandate has expanded to cover the entire region, as it was limited in scope to the area around the Holy Mosque.

4.3.3 Local context: Makkah

Makkah City is managed by the Amanah, which is headed by a Mayor. The Mayor is appointed by the Minister of MoMRA, and the rest of the Amanah’s executive members are appointed by the Civil Service Bureau based on their professional qualifications.

Makkah’s Urban Planning Department (DUPD),²⁶ ensures compliance with MoMRA’s outline for the Kingdom’s cities, rural areas, streets, and construction designs. DUPD has roughly 100 planners and architects, and other supporting staff,²⁷ distributed in four units: a) city planning department; b) buildings and engineering offices; c) survey and GIS; and d)

public good projects. However, it is difficult to ascertain the role and functions of these units, as well as the manner in which these units link with other authorities, since the internal structure constantly changes with no technical accountability. The Amanah established a Local Urban Observatory, which is monitored by the National Urban Observatory.²⁸ This observatory supports DUDP by measuring, every three years, the progress of:

- Achieving Vision 2030;
- Achieving Goal 11 of the SDGs; and
- City Prosperity Index indicators and other contextualised urban indicators.

The Deputyship of Town Planning under MoMRA is responsible for the implementation of two initiatives related to the National Transformation Programme: a) the preparation of the Local Plan; b) the provision of technical support to the drafting process of the Planning Act as well as c) undertaking studies on roads and parking spaces, in addition to many other initiatives. The private sector also plays a vital role in Makkah's land development projects through the Al-Balad Al-Ameen Company, which acts as an arm of the Amanah, in relation to development projects. It creates partnerships with the private sector to undertake development in some areas. It is normally the implementing institution of the by-law for the development

of unplanned areas in Makkah.²⁹ Moreover, through the Ministry of Finance projects and PPP arrangements, many real estate projects are taking place, particularly in those areas that were originally unplanned settlements, on the hills surrounding the Holy Mosque. This has engendered indiscriminate land development, and land speculation in the core areas of the city.

4.3.4 Legal and institutional implications for Makkah

Most of the technical decisions and approvals in the local governance (Amanah) including planning decisions, are made on a discretionary basis based on the priorities set for the city. Therefore, the system lacks technical accountability, predictability, and practical clarity.

4.4 Financial Context

The region of Makkah is in the Central West region of the Kingdom of Saudi Arabia. Makkah is an important economic region with a large tourism industry, attracting millions of pilgrims every year.³⁰ King Abdullah Economic City and Jeddah are the region's main economic hubs, with Jeddah being the largest harbour on the Red Sea.³¹ Jeddah and Makkah are the two largest cities in the region of Makkah. The region's primary industries are: (1) refined oil and related products, (2) food and



View of Makkah from the mountains located in the North

beverage products, and (3) building materials attracting more than 50% of the region's industrial investments.³²

In order to foster local economic development, job creation and innovation in Makkah, the Government is working to identify strategic economic sectors.³³ Economic diversification in Makkah is considered key to achieving both the regional and the national economic goals of the 2030 Vision.

Consequently, the development of public infrastructure (e.g., transportation, and water treatment facilities), serving Makkah's key economic sectors (e.g., industry, mining, transportation, and tourism), is a priority for the Government in its effort to increase market access, to spur competition, to harness the productive capacity of the region and its contribution to the national economy.

The Government's strategy to reach its economic goals includes a renewed commitment in providing access to quality education, health services, and affordable housing in line with the needs of the population, which is growing at a rate of 3.14% faster than the national average rate of 2.4%.³⁴ By strengthening the feedback loop between: (1) regional and local needs, (2) education and training, and (3) the local economy, municipal governments promote growth in human capital and generate better market conditions

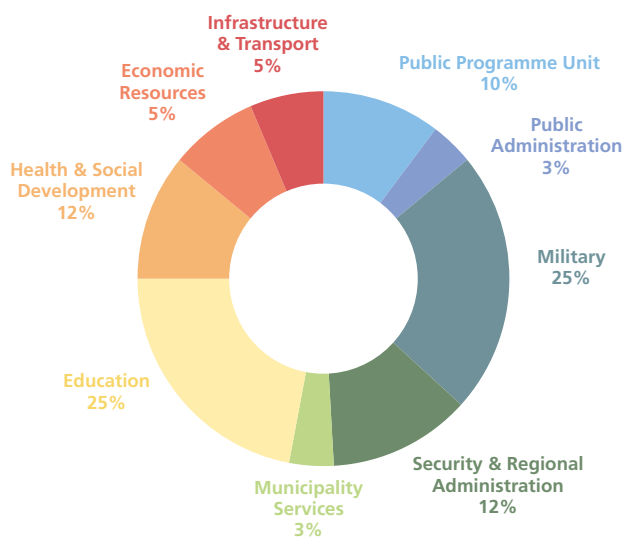
that are conducive to research, innovation, and economic diversification.³⁵

4.4.1 Financial system

Sustainable urban and local economic development requires a sustainable and resilient municipal public financial management system. Currently, Makkah's public financial system is led by the National Development Plan.

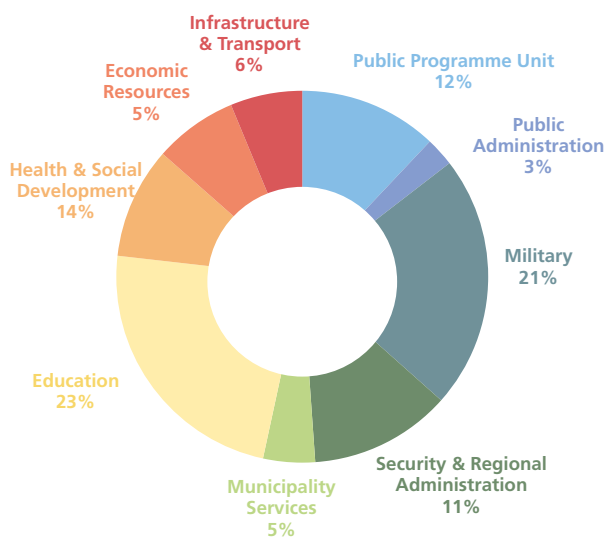
This system is highly centralised and depends on intergovernmental transfers, (vis-à-vis line-item budgeting in the National Development Plan), to fund local development activities and projects. In 2017, the central Government allocated 5% of the total budget to municipal services, which also covered projects and programs managed by the Ministry of Municipal and Rural Affairs, (see figure 20 and figure 21).

The Ministry of Municipality and Rural Affairs, via Amanahs,³⁶ is responsible for financing activities categorised as "municipal services," such as urban planning, building licensing, sanitation, and road maintenance. In addition to MoMRA, several other Government ministries and entities, such as the Emir and regional councils, fund and implement projects at the municipal level, (e.g., the Ministry of Education provides direct funding for city schools).



Source: Bhatia, R. (2017). Saudi Arabia Budget 2017. The Gulf's International Bank.

Fig. 20. Saudi Arabia national expenditure by sector, 2016



Source: Bhatia, R. (2017). Saudi Arabia Budget 2017. The Gulf's International Bank.

Fig. 21. Saudi Arabia national expenditure by sector, 2017

4.4.2 Municipal revenue

Currently, Amanahs have few sources of revenue and limited authority to collect fees. Recently, MoMRA introduced municipal fees, which expanded the own-source revenue base, but local revenues continue to be insufficient. Consequently, Amanahs continue to be reliant on support from the central budget.

Intergovernmental transfers from the Ministry of Finance (MoF) are based on yearly budget proposals submitted by the various ministries. In MoMRA, the budget drafting process tends to be influenced by municipal needs and priorities.

Municipal governments submit project proposals for the next budgetary cycle, which subsequently, are submitted to MoMRA's leadership for final approval. The projects that are approved are included in the MoF's budget review and submitted for approval to receive funding.

4.4.3 Financing municipal operating costs

In 2016, Makkah collected SAR 357 million in own-source

| Budget Category | SAR (thousands) |
|--|------------------|
| Salaries | 358,000 |
| Operation Expenses | 73,200 |
| Operation and Maintenance Programmes and Contracts | 689,950 |
| Projects | 1,307,110 |
| Total Budget | 2,425,260 |

Source: Ministry of Finance, Saudi Arabia (2016).

Fig. 22. Amanah Budget, Makkah (2016)

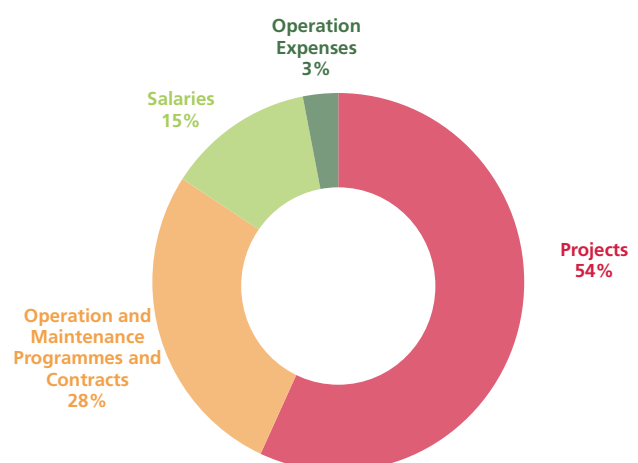
revenue or 13% of the city's budget.³⁷ In order to reduce the level of dependency on transfers from the central Government, the National Transformation Programme (NTP) directed the local Government to establish sound fiscal policies through the introduction of new financing instruments.³⁸

4.4.4 Capital financing for urban development of Makkah

The demand for capital to finance physical capital and greenfield development projects in emerging countries is becoming a priority, especially in cities like Makkah. This is strategic for the city to create favourable conditions to increase urban productivity, attract private companies and human capital, and foster innovation.

In these terms, Makkah economy will have a direct benefit from new capital financing options, experiencing economic returns for key sectors like, tourism, mobility and transportation, real estate, wholesale and retail. Besides, they present great chance to create employment and boost foreign direct investment (FDI) in new industries such as ICT.

To fill the financing gap and address these new development challenges, capital market development and new financing options available to countries like Saudi Arabia have been rapidly expanding as a priority.



Source: Ministry of Finance, Saudi Arabia (2016).

Fig. 23. Amanah budget breakdown (2016)

Recent reforms are aiming to improve the Saudi capital market through increased market capitalisation. For example, the Capital Market Law, the Securities and Exchange Commission, and a privately-owned Stock Exchange were recently launched in Saudi Arabia with the goal of improving the domestic capital market.

Between 2011 and 2016, Saudi equities increased in value from just over 50% of GDP to almost 70% of GDP. Today, Tadawul is the sole Saudi stock exchange market and the largest equities exchange market in the Arab world.³⁹ In addition to Tadawul, Saudi Arabia introduced Nomu, an equity market for small and medium-sized enterprises (SMEs). With fewer listing requirements, Nomu is a good option for SMEs that are interested in going public.

In addition to providing traditional banking services, Saudi Arabia's domestic banks went through a series of mergers and acquisitions, diversified their assets, and began to offer both conventional and Islamic investment products to a diversified investor base.⁴⁰ The Saudi Arabian capital market is becoming an example of efficient capital allocation driven by strategic reforms and increased market capitalisation.⁴¹

Regarding Saudi Arabia's debt market, the government began issuing bonds for debt financing in 1988. In the last 15 years, the debt market underwent a series of reforms, which changed the process for issuing bonds, pricing bonds, and setting bond maturity terms.

One major purchaser of Government bonds is the group, Investors in Government Development Bonds (GDBs), which is made up of domestic financial institutions, banks, and foreign investors.⁴² GDBs are Zakat deductible for domestic investors and exempt from tax withholdings on income for foreign investors.

This approach to creating the competitive and attractive conditions for capital and equity investors is expected to have wide-ranging impacts on the local economies of cities like Makkah in the future, diversifying capital sources to fund growing needs of residents and tourists, and making the city more productive, efficient, and sustainable.

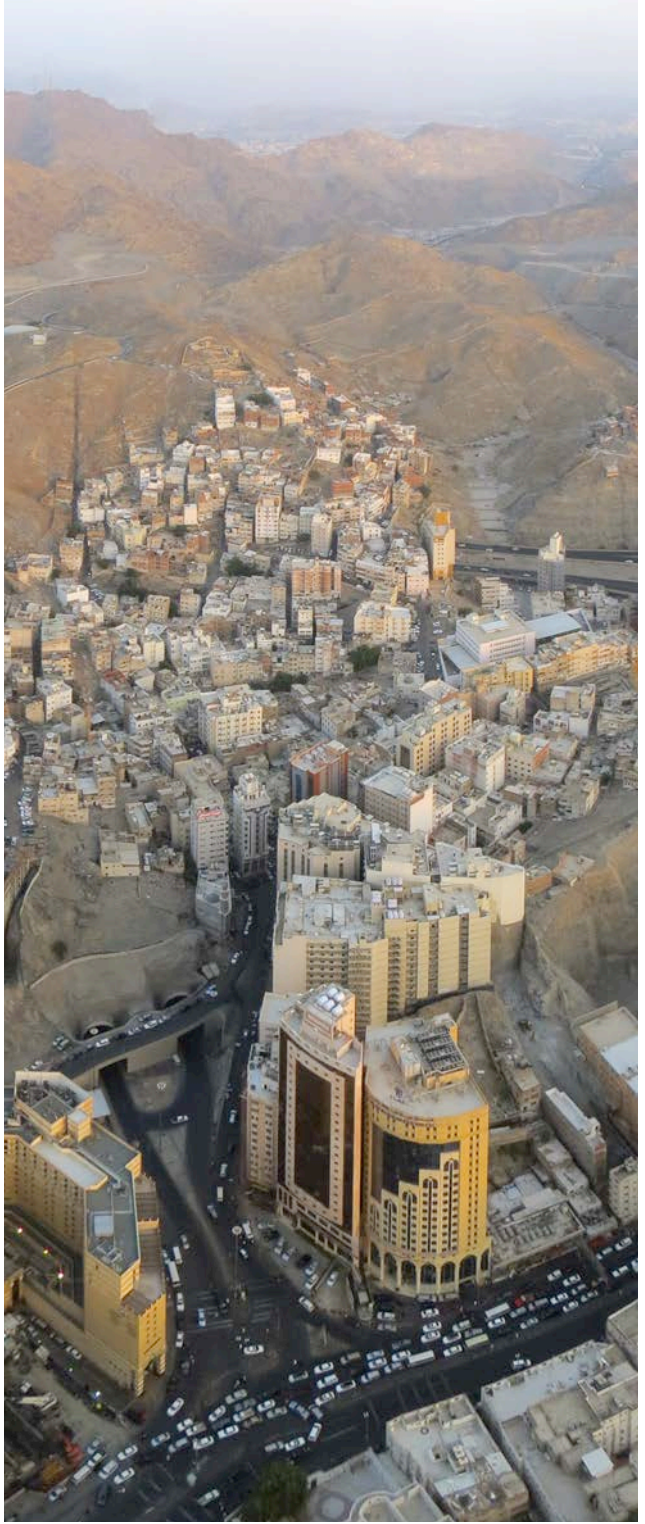


Model of Makkah City located in the Amanah's building

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4

THE CURRENT CITY





5.1 Urbanisation Patterns

5.1.1 The city's development patterns

The Holy City of Makkah is the administrative capital of Makkah Region, and the spiritual centre for more than one-fifth of the global population who shares the aspiration to come to Makkah to complete the Hajj journey. Makkah is Islam's holiest city, and the birthplace of the Prophet Muhammad, attracting millions for the annual Hajj (pilgrimage). The full official name is Makkah Al-Mukarramah, which means "Makkah the Honored," and allows only muslims within it.

The city is located at 277 metres above sea level, lying in a valley region within a mountainous corridor on the Western slopes of the Sarawat Mountains. This mountain range runs parallel to the Western coast of the Arabian Peninsula and divides the municipal areas of Makkah and Taif. Makkah is 80 kilometres East of Jeddah, which has historically been the gateway for millions of pilgrims leading to Makkah.

The topographical corridor in which the city has grown since the 5th Century is known as the "Hollow of Makkah," which is located at the conjunction of the valleys of Al Taneem, Bakkah and Abqar. This mountainous location has defined the modern expansion of the city, which started growing from the central area of Masjid Al-Haram, whose elevation is lower than most of the city. Masjid Al-Haram, the Great Mosque, surrounds the Kaaba, the cloth-covered cubic structure that's Islam's most sacred shrine.

Makkah's geographic location and topographic characters played a strong role in shaping the city's urbanisation, as the surrounding mountains historically constrained development growth, and concentrated it around the Haram area. Most recently, development has extended across the mountains, due to increasing population levels, and made access to it possible through the improved road networks and modern methods of transportation. Equally impactful as a driver of growth over the years, Makkah has experienced a massive increase in the number of pilgrims performing Hajj and Umrah.

Prior to the year 923H (1518), development was concentrated around the Haram, while between 923H-1344H (1518-1925), it started to expand to the Northwest and Southwest of the Haram, with some development taking place Westward and also some minor development in the Northeast. In the following period, between 1344H-1375H (1926-1956), urban growth kept expanding outside the Haram, occupying even more terrain to the Northwest, and along the expanding road networks, and wherever any flatter areas allowed for it. For the following 20 years (1375-1391H), development kept expanding to the Southwest and Northeast through pockets of growth, along with new neighbourhoods to the West and Northwest. Similarly, between 1391H-1403H (1972-1983), considerable developments took place Northward along Madinah Road,

POPULATION

 **2,017,793** + Floating population

FLOATING POPULATION PER YEAR (religious tourism)

 **2,352,122** Hajj
 **6,750,000** Umrah (International)
 **6,980,843** Umrah (Saudi)

POPULATION DENSITY on built-up area

 **60.49** p/ha

AGE PROFILE

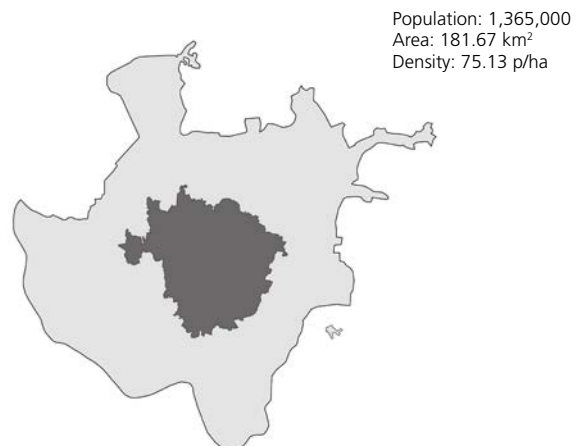
 **53.6% < 30**

POPULATION GROWTH RATE

 **3.2 %**

3,038,873 Expected population by 2030

MAKKAH CITY COMPARED TO MILAN MUNICIPALITY



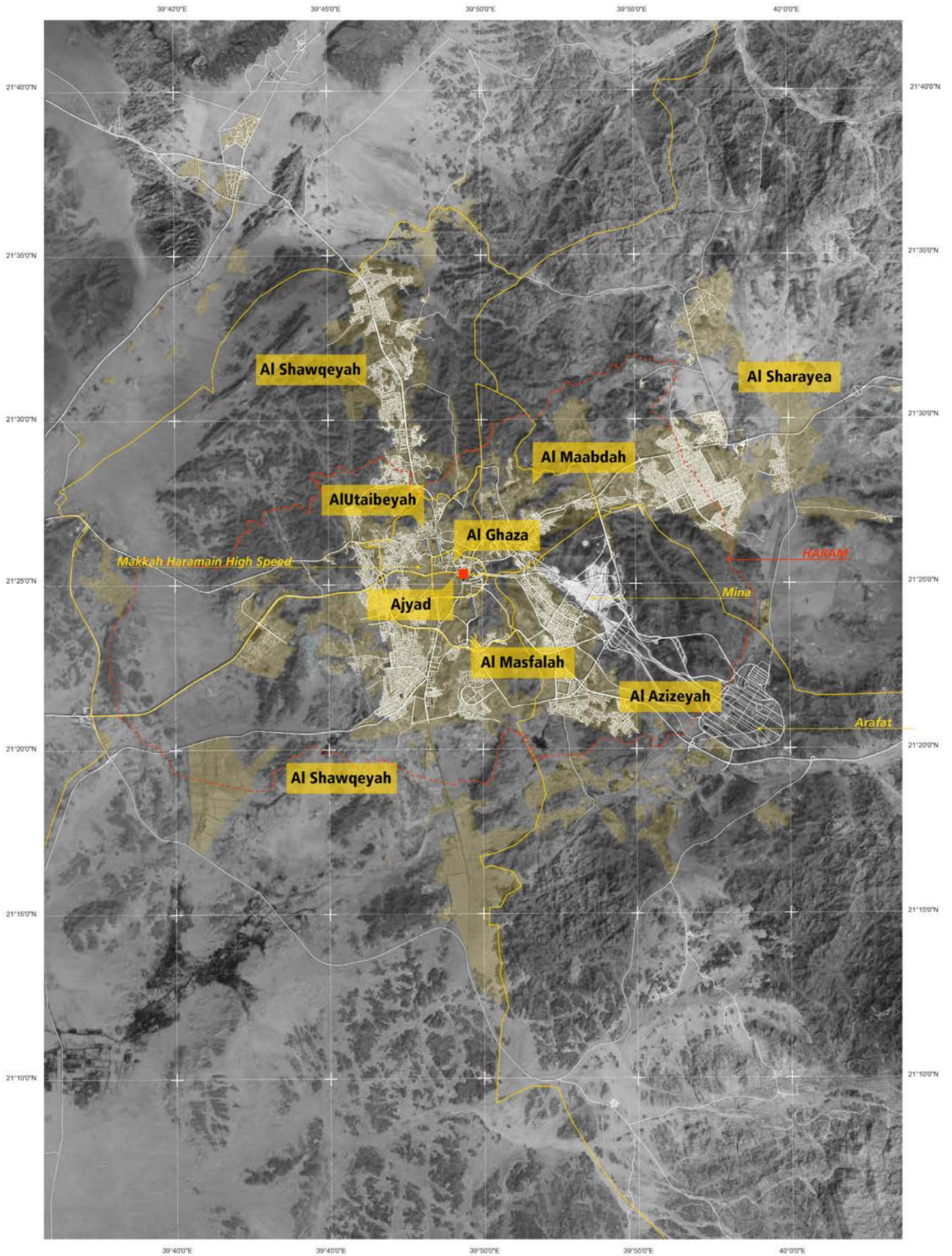
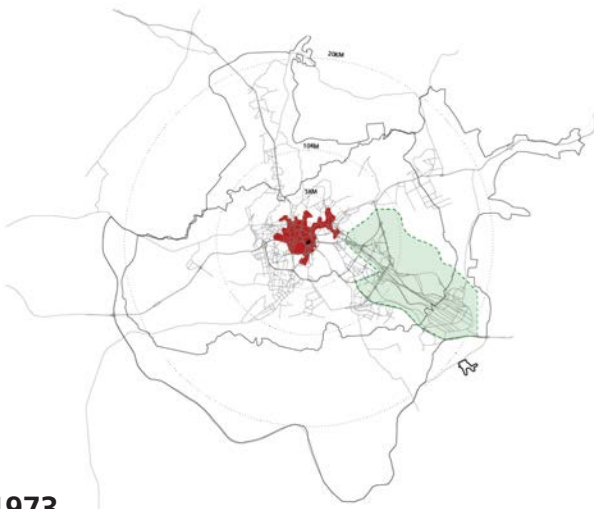
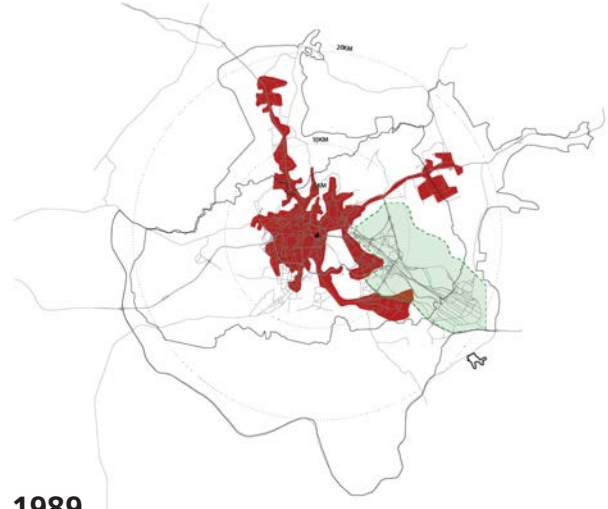


Fig. 24. Boundaries, neighbourhoods and key infrastructure



1973

Area: 1,700 ha
Population: 369,395



1989

Area: 10,000 ha
Population: 82,2740

Square metre
per capita

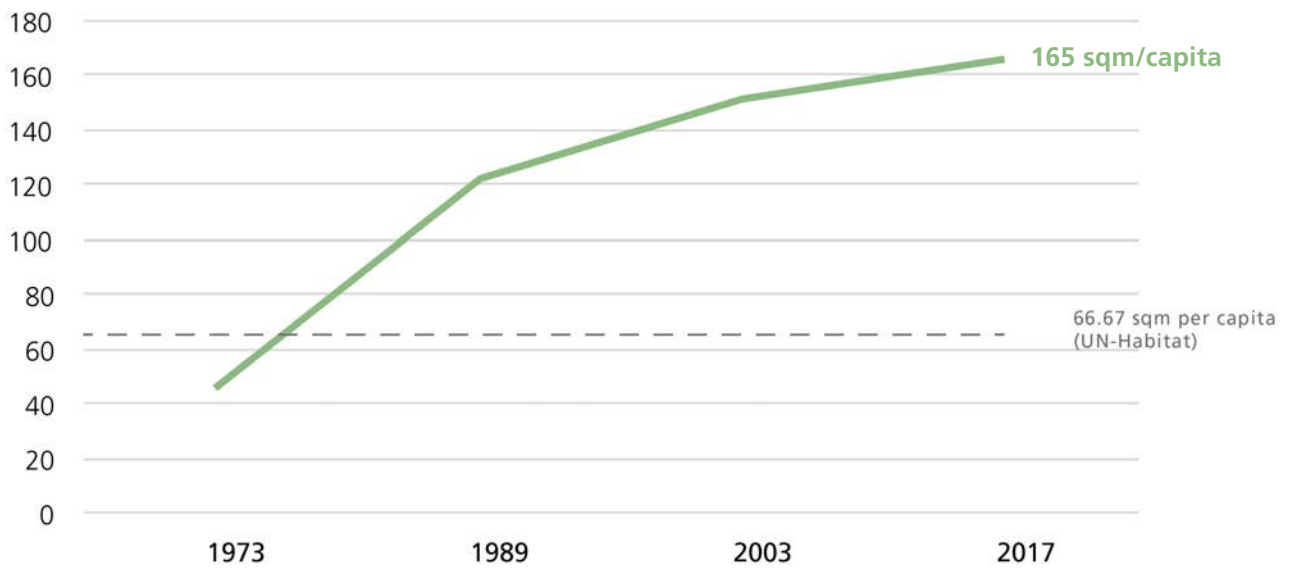


Fig. 25. Land allocated per capita

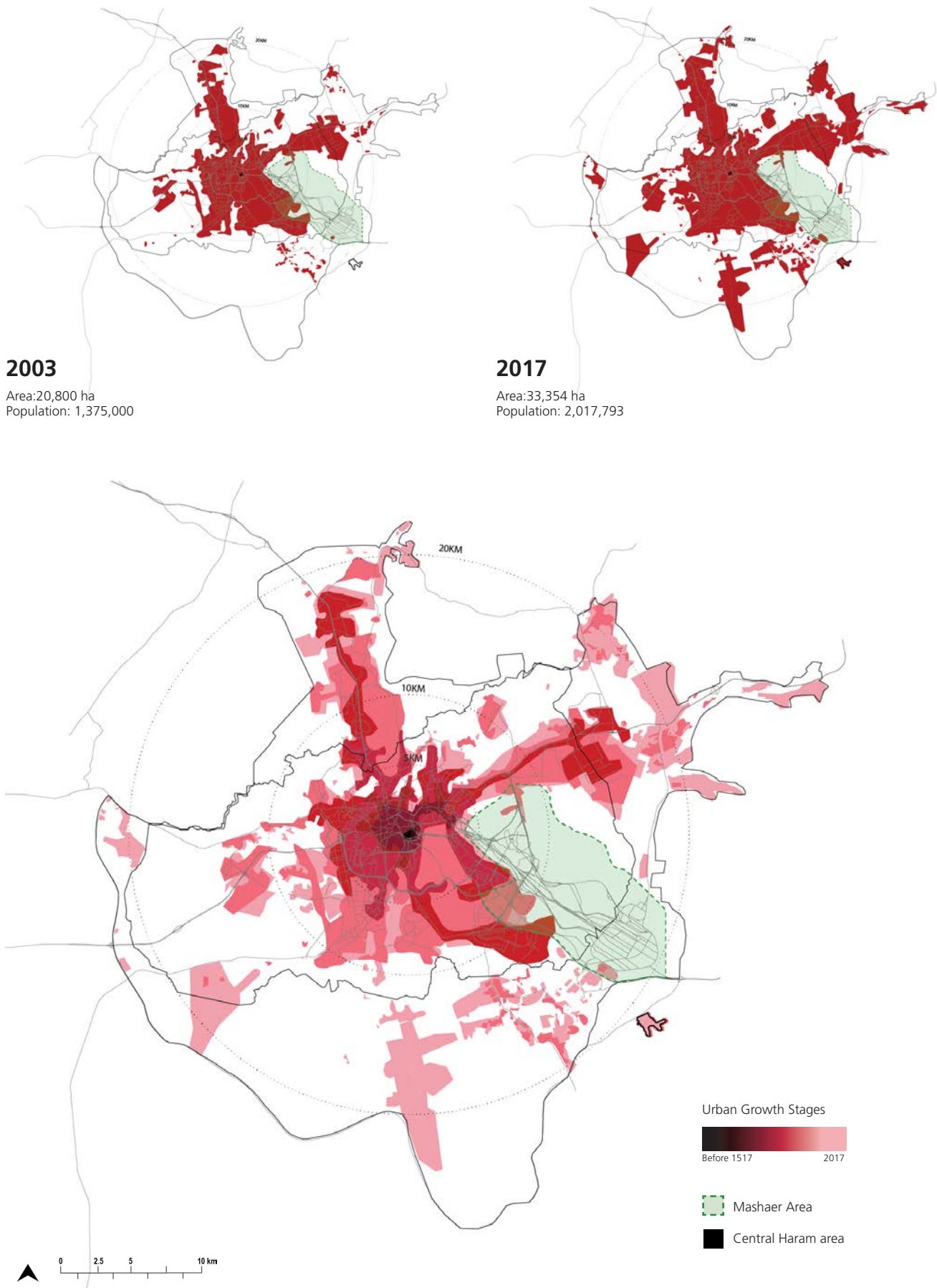


Fig. 26. Urban growth stages



and intense growth took place to the Southeast, South, and Southwest of the city along newly enhanced major roads. This signaled a shift in the development patterns, as well as substantial changes in building typologies and urban form, due to the development of high-rise buildings, dedicated to housing pilgrims around the Haram and elsewhere across the city. A series of neighbourhood renewal operations also began to take place in the areas surrounding the Haram, as older buildings were demolished and replaced with newer and taller buildings.

In the period between 1403H (1983) and 1410H (1990), urban expansion was once again characterised by outward growth along the main roads departing from the Haram. Most of this growth occurred along Madinah Road to the North, as well as to the East along the Makkah Al Sai'i Road, and towards the Southeast along the Al Taif Road, where development was facilitated by new tunnels connecting the new growth areas to the Central Area. Most recent urbanisation patterns (1410H-1424H), show expansion of the city to the West, South, and Southeast. Interestingly though, elsewhere across the city, development focused on landfilling of the previously left vacant land, which represents an interesting phenomenon compared to other Saudi cities. However, this growth phase was also characterised by the emergence of "leapfrog" pockets of urbanisation, detached from the urban fabric toward the North, East, and South of the city, increasing sprawl and counteracting the densification efforts over available vacant land.

5.1.2 Administrative boundaries

Makkah has a unique legal and administrative structure within the Kingdom of Saudi Arabia. The city is not only the regional capital of Makkah Region, but it is also hosts three different administrative authorities: the City Government (under the control of the Mayor of the city), the Mashaer (under the control of the Governor of Makkah Region, on behalf of the Custodian of the Two Holy Mosque and the King of Saudi Arabia), and the DCOMMM, (Development Commission of Makkah Al-Mukarama, Al-Madinah Al-Munawara and Al-Mashaer Al-Muqaddasa, which was formed in 2007 by Royal Order No. A/204).

DCOMMM's mandate is to coordinate and direct the planning system in an integrated way for the entire Holy Region. DCOMMM's operates under the supervision of MoMRA, and it aims to support master planning initiatives and manage future growth in the Holy region, according to the forecasted increase of pilgrims in the area. In addition to the aforementioned authorities, the Ministry of Hajj and Umrah is also playing a pivotal role in coordination regarding religious tourism, and admission to the country for religious purposes.⁴³ Its duties of coordination with the government and local authorities are to facilitate observance of pilgrimage, control and regulate services through the development of systems, use of technology, increasing the effectiveness of staff to serve pilgrims, and performance of infrastructure works with a core focus on offering religious hospitality in compliance with the international standards.

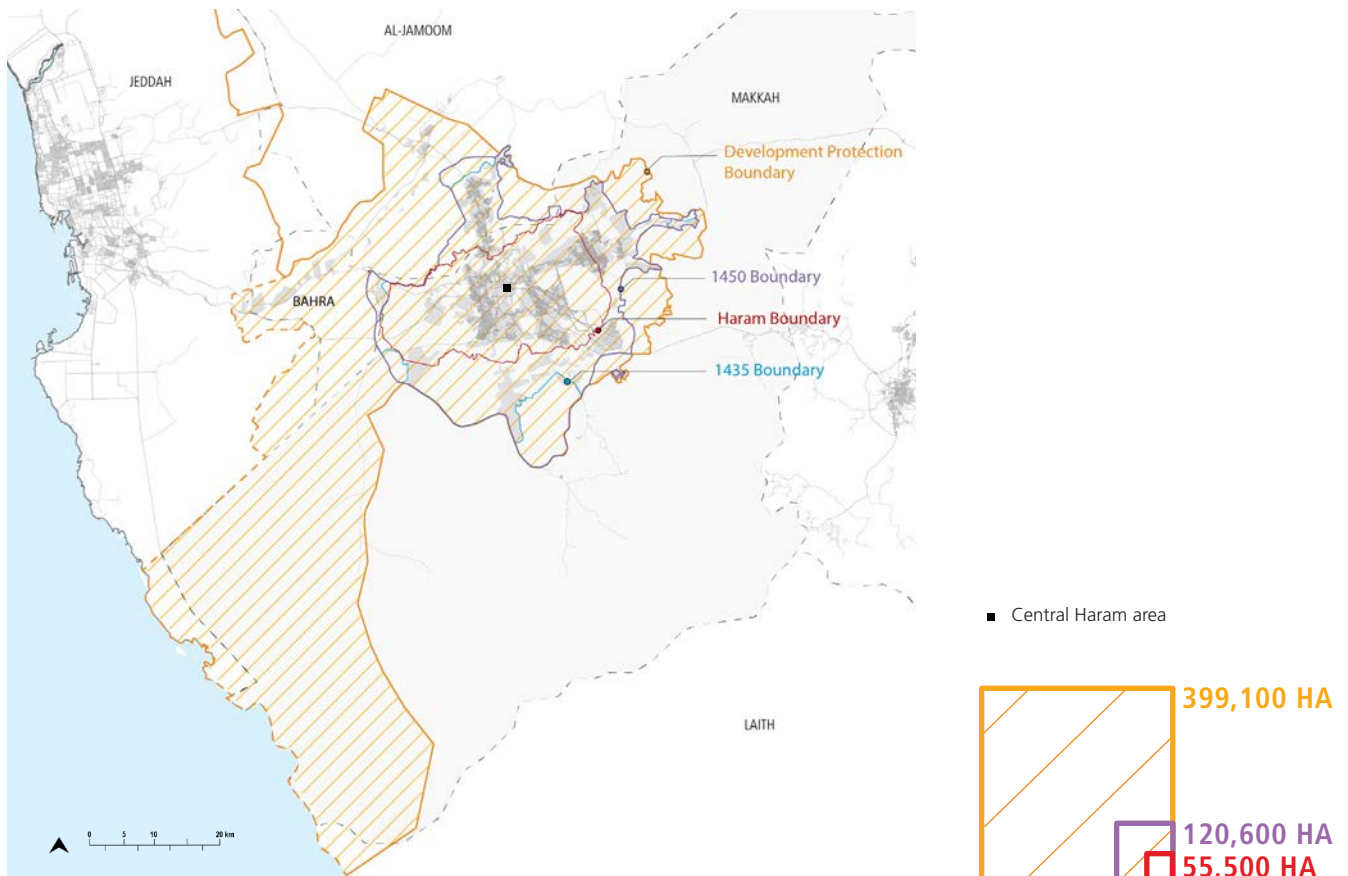
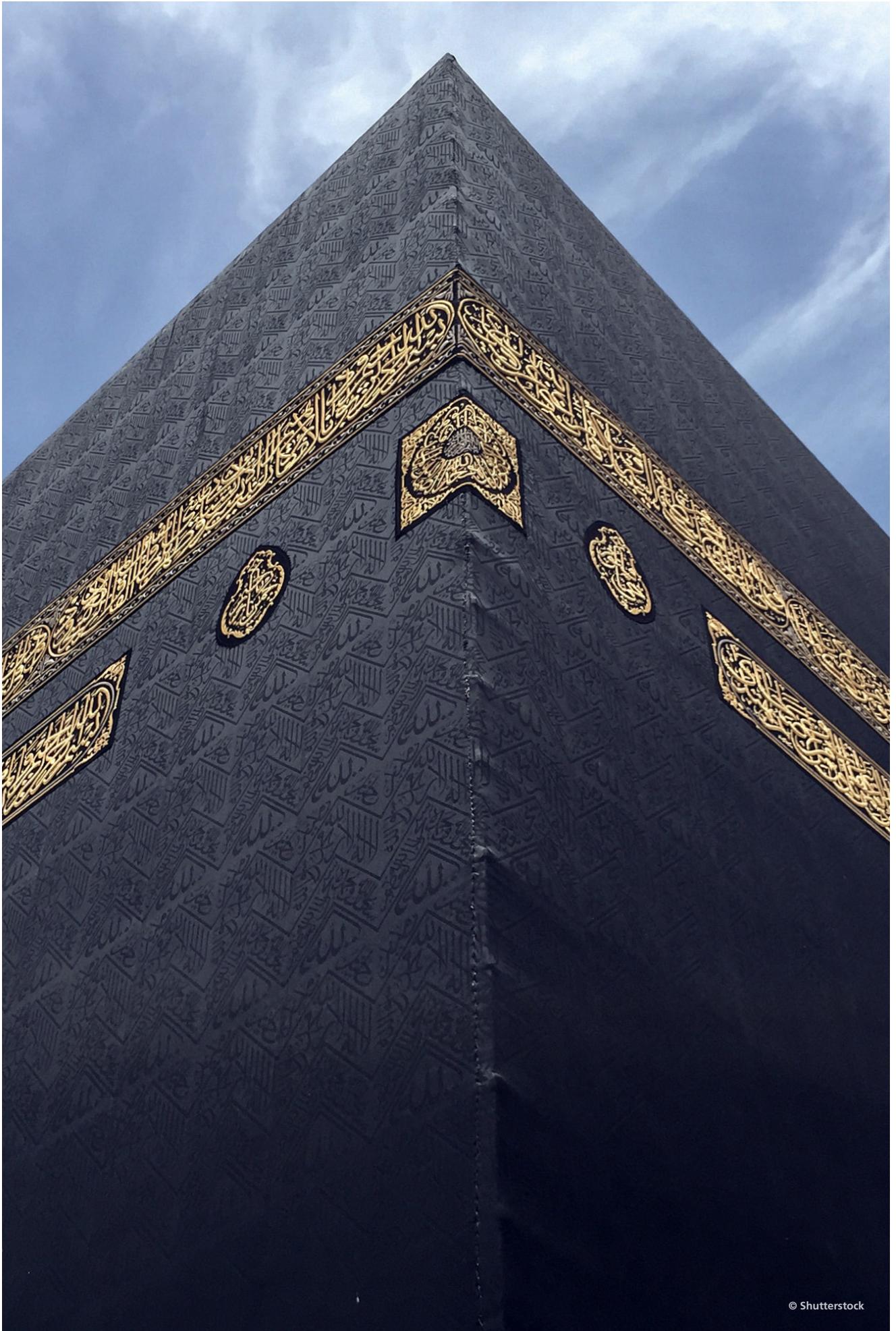


Fig. 27. Administrative boundaries



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The Holy Kaaba



Based on the 2016 regional boundaries reform described in chapter 2.2.1, the changes in the Makkah Governorate boundaries specifically affected the territories between Jeddah and Makkah. In fact, the governorate of Bahra was created in the middle of the two main cities of Makkah Region. However, this additional administrative boundary has not impacted the role of the two main Amanah's of Jeddah and Makkah, since their legal ranking, mainly based on population number, is higher than the surrounding smaller municipalities.

The Development Protection Boundary is shared between Jeddah and Makkah, but the area in which the Amanah of Makkah can take institutional action is only the one pertaining to the former boundaries of the governorate, (including the recently formed Bahra Governorate). The Development Protection Boundary not only plays a legal role concerning the attribution of administrative power over smaller rural areas to a specific Amanah, but it should also work as a limit to the future urban expansion of the related city. In Makkah, the current DPB area is 3,991 square kilometres, which means that at the current growth rate, it would take more than 100 years to fill this area at the UN-Habitat recommended density standards, (150 p/ha).

Considering the 1450 UGB, which establishes a limit of urban extension based on a specific range of time (1450H-2029), the area that could host development within this range of time amounts to 1,206 square kilometres. Within the 1450 UGB, the city has set a 1435 UGB (2014), as well as the Haram boundary, where the latter indicates the area of the city that cannot be accessed by non-Muslims.

5.1.3 Urban density

The city of Makkah hosts a permanent population of 2,017,793,⁴⁴ on a built-up area that covers 33,360 hectares. The city, extending from the central Mosque area into the surrounding valleys, has a population density of 60.49 people/Ha. The age-related demographic distribution pattern of Makkah shows a high percentage of residents below 30 years old age, (50 % of the population).

According to the last Saudi Arabian census undertaken in 2010 (1429H), the stable population in Makkah was 1.5 million and a growth rate of about 3.2%. By 2030, a population of three million people is expected to live in the Holy city.

The city is subject to a significant fluctuation of residents because of the unique religious dynamic that occurs in the Holy City. According to the 1438H Hajj Annual Bulletin released by the General Authority for Statistics, Makkah received 2,352,122 pilgrims during Hajj and more than 12 million visitors over the entire year for the minor pilgrimage of Umrah (6,750,000 Internationals and 6,980,843 Saudis).⁴⁵ In comparison to similar cities, which have followed a circular development pattern from the city centre (e.g., Milan in Italy),

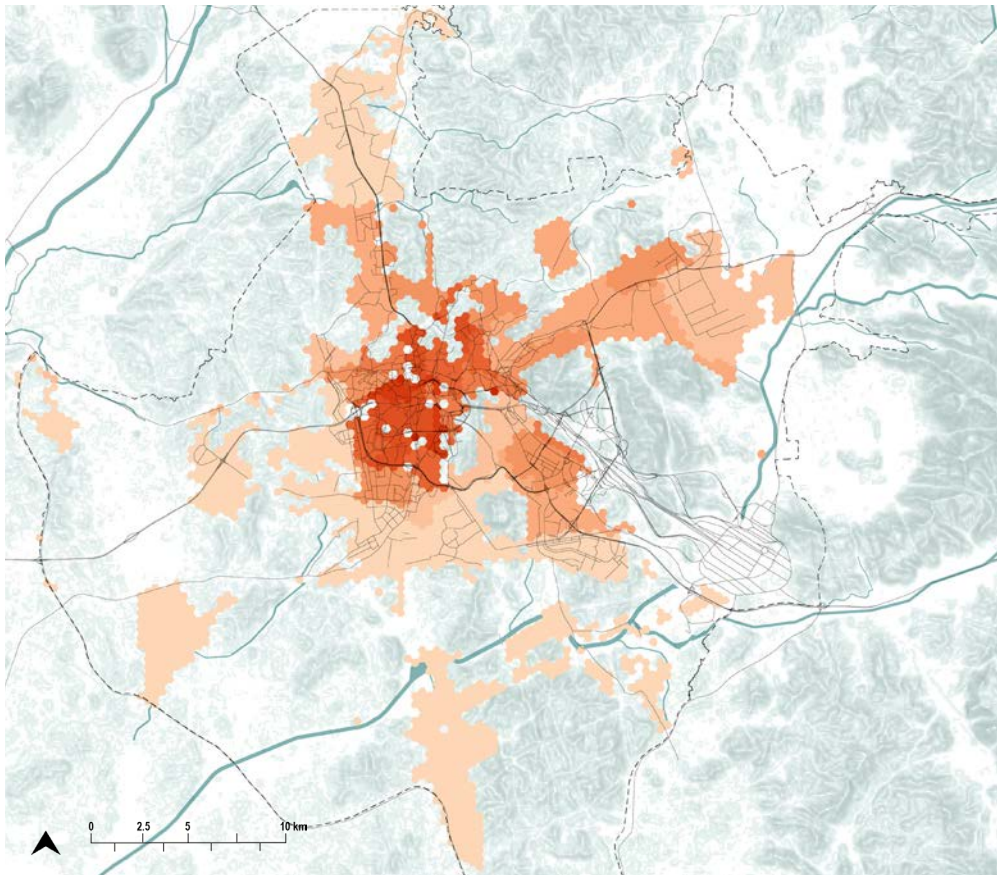
the population density of Makkah is lower than in Milan, even though the population is almost twice the population of the Italian city.

Overall, since 1989, the Makkah urban area has increased by more than 300% while, in the same period, its population has grown by only 150%. At the same time, the number of pilgrims coming to the Holy City for Umrah and Hajj has increased exponentially over the years, and it will keep increasing in alignment with Vision 2030. In addition, the Ministry of Hajj and Umrah, in agreement with the Governor of Makkah Region, aims at hosting more and more pilgrims over the entire year, trying to deseasonalise the pilgrimage, in order to reduce congestion over the Hajj period. The graph below shows that the number of pilgrims practicing Umrah has increased by 1250% since 1989. These statistics highlight the government's intention of redistributing the overload of floating populations, linked to religious tourism over the year, rather than concentrating it mostly over the Hajj period.

According to the census, the total population in 2010 was 1,675,368, with a growth rate of 3.2%, and the current permanent population living in Makkah is estimated to be around 2,017,793 inhabitants, mainly located within a 3 kilometres radius from the Great Mosque. This area used to have a higher population density, but recent development, targeting religious tourism close to the Al-Masjid Al-Haram, has caused a radical change in this traditional urban pattern. This has been triggered by the demolishing of vernacular fabric to make room for high and medium rise hotels and other kinds of tourist accommodations. This approach to some extent creates gentrification of the permanent population from the central area around the mosque. It is therefore essential to recognise that the floating population related to religious tourism, profoundly impacts on the city's functioning, as the number of people in the city drastically oscillates according to the Islamic calendar. The total population over the Hajj period reaches 4,369,915, effectively doubling, and bringing the average population density from 60.4 up to 100.7 p/ha. A large number of tourists are usually hosted over three types of accommodation, classified according to size and location:

- International Hotels (mainly located around Al-Masjid Al-Haram);
- Medium / Small facilities (spread in different neighbourhoods of the city); and
- Mina Camp (located in the Mashaer area).

Mina (also known as the Tent City), is a neighbourhood of Makkah covering an area of approximately 20 square kilometres and is situated 5 kilometres East of the city, on the road from Makkah's city centre to the Arafat Hill. Here, over 100,000 air-conditioned tents that can house over 3 million people, provides temporary accommodation to those pilgrims visiting the Holy City.

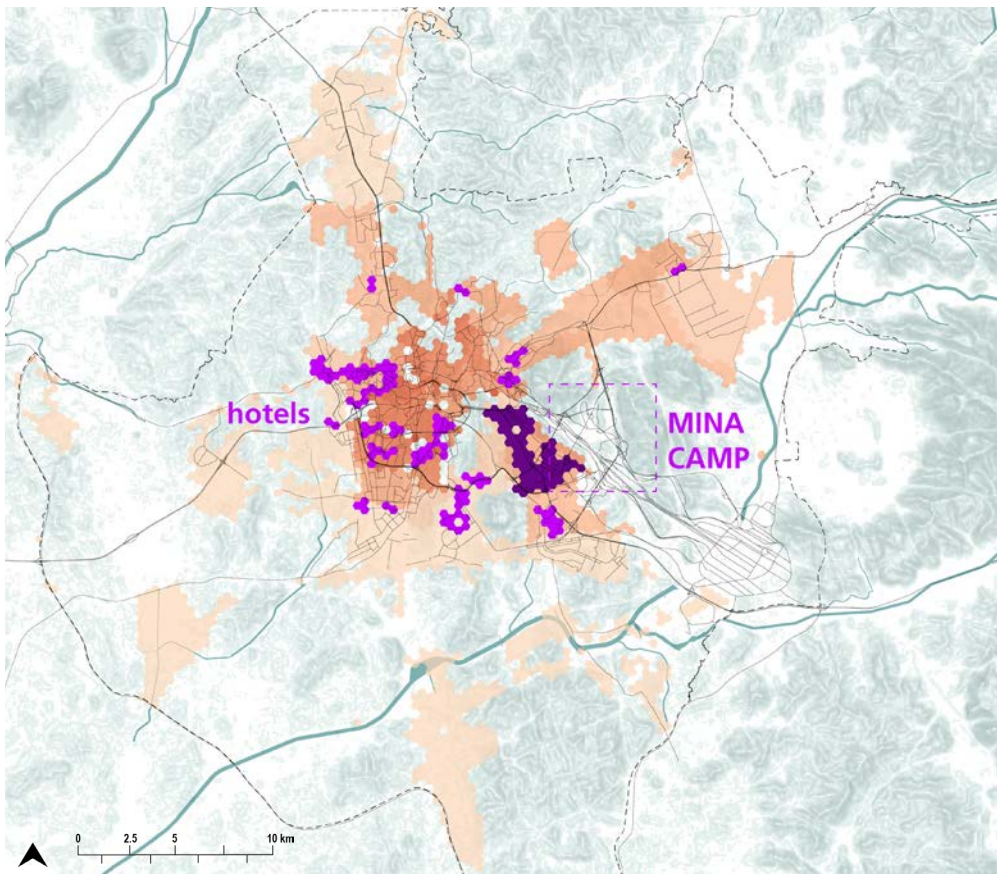


Residents:
2,017,793

Average population density:
60.49 p/ha

- 1 - 26.9 p/ha
- 26.9 - 48.5 p/ha
- 48.5 - 56 p/ha
- 56 - 92 p/ha
- 92 - 155 p/ha
- 155 - 230 p/ha
- 230 - 330 p/ha
- 330 - 535 p/ha
- 535 - 841 p/ha

Fig. 28. Current distribution of population density



Residents + Hajj pilgrims:
4,369,915

Average population density during Hajj:
100.7 p/ha

- 1 - 26.9 p/ha
- 26.9 - 48.5 p/ha
- 48.5 - 56 p/ha
- 56 - 92 p/ha
- 92 - 155 p/ha
- 155 - 230 p/ha
- 230 - 330 p/ha
- 330 - 535 p/ha
- 535 - 841 p/ha

Fig. 29. Distribution of permanent and floating population



Needless to say, these dynamics related to the fluctuating population, put Makkah's urban and regional infrastructure under an impressive logistical dilemma. Due to the increased pressure on its operational capacity - linked to the oscillating demand for services- roads, power supply systems, water, and food distribution systems, are often pushed to the limits of their possibilities, outstretching structural capacity in the systemic functionality of the city.

5.1.4 Land use and vacant land

Makkah's identity is deeply linked to its role as a holy destination of pilgrimage. This, however, should not mean that the city does not cater and does not function for the two million people permanently residing there. Based on the current plan, Makkah's land use is considerably monofunctional. Residential land use currently occupies more than 50% of the built-up area of the city, whereas a lack of mixed-use is quite apparent. There are extended areas of only residential land use, with no proximity to shops and commercial facilities. However, there are small mixed-use plots located along the main axes leading to the central mosque. One of the reasons behind a diffused lack of mixed land use is the re-organisation of the current urban layout. Vernacular districts, originally formed by 2-3 storeys buildings with diffused mixed-use at the ground level, are being substituted by residential-only condominiums and high-rise buildings. The newest residential developments, completed in the past few years on the Northwestern side of the city, are located on the highway connecting Makkah to Riyadh. They

are characterised by a quite a low population density, therefore pushing the city towards a car-oriented and sprawling urban pattern. Shopping malls have also been erected along the main highways and ring roads across the city, contributing to the car-oriented development. The main public facilities (schools, mosques, and government buildings), are located along the two ring roads that are still under construction. Industrial land use, directly linked to the mining sector, is situated on the Southern side of the city, forming an industrial district.

In addition, the lack of public spaces and recreational land use along the natural axis, sets clear priorities for the future vision of the city, especially from the perspective of permanent residents. An accurate assessment of vacant land in the city centre may possibly provide a solution for this issue. According to the structural and land use plans for the city of Makkah, prepared by "AFM Consultants" in 2006 and described in more detail in paragraph 4.2.7, new satellite neighbourhoods have been planned right outside the 1450H boundary. The plan for this new development on the Western side of the city foresees both new residential and new industrial areas. This would work as an additional industrial neighbourhood, complementing the existing one on the Southern edge of the city. This new city expansion on the Southwest edge of the city, would also host academic facilities. Other two indications from the 2006 proposal, seem to be valid options for improving Makkah:

- Enrichment of mixed-use in the Haram area, which feasibility should be verified and enforced according to

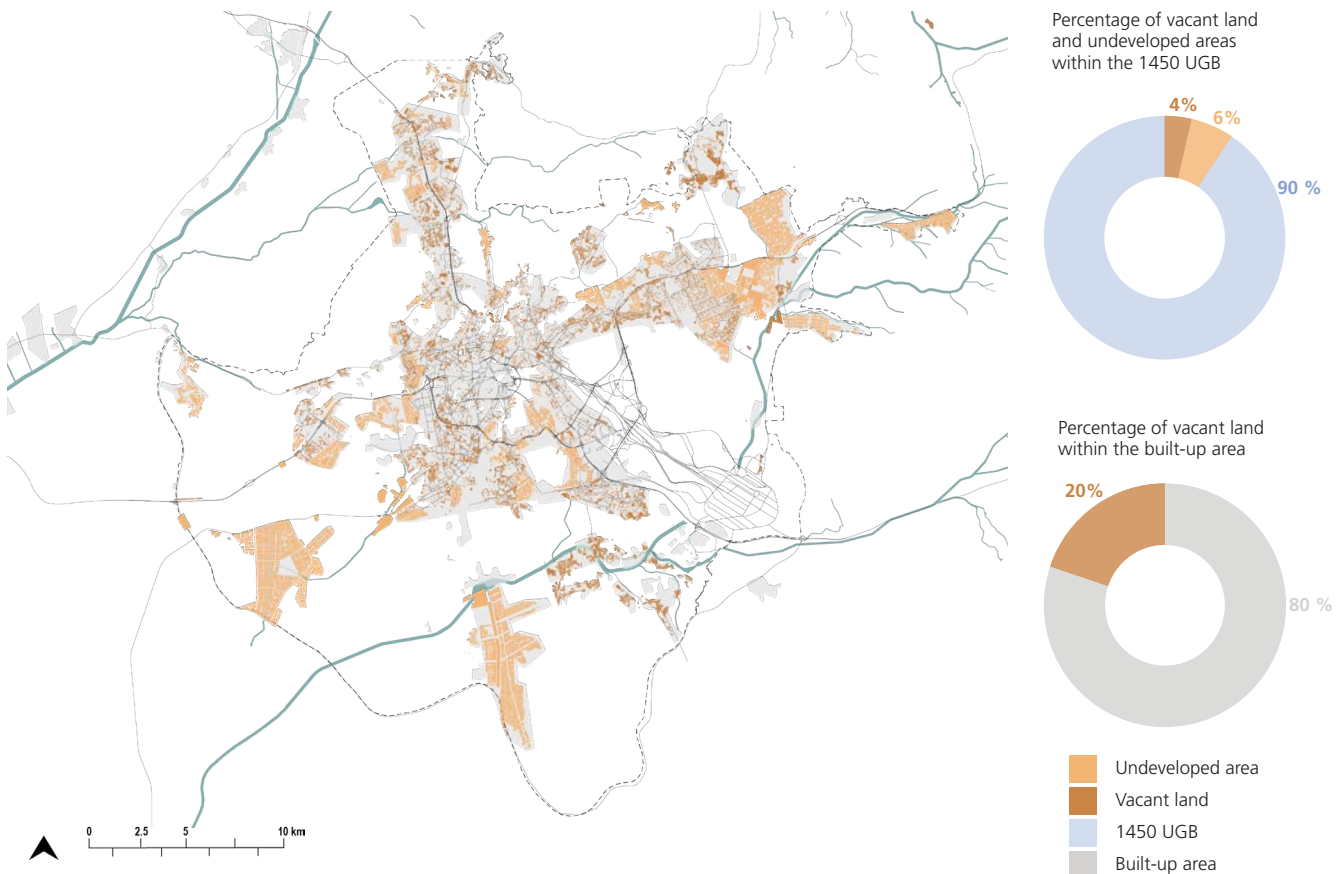


Fig. 30. Vacant land and undeveloped area

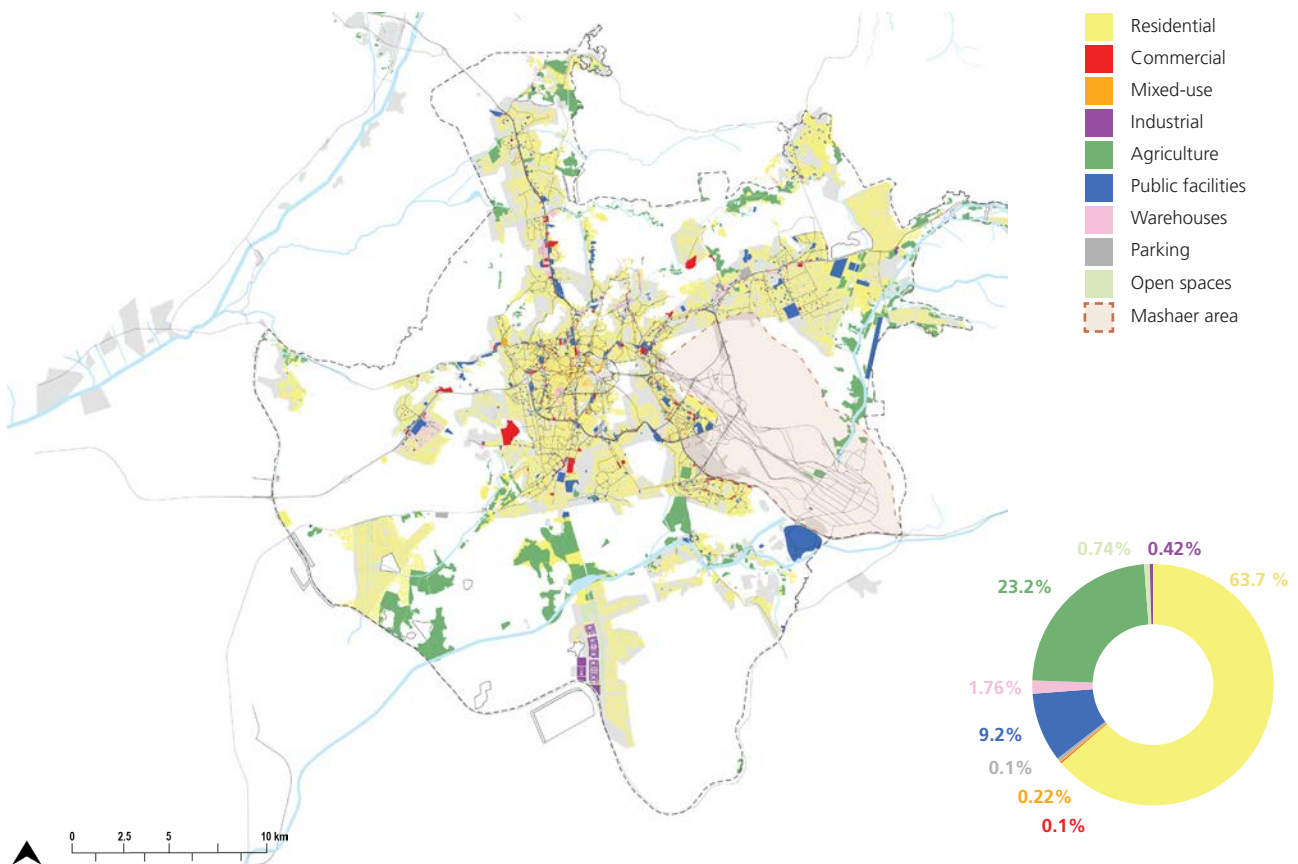


Fig. 31. Existing land use

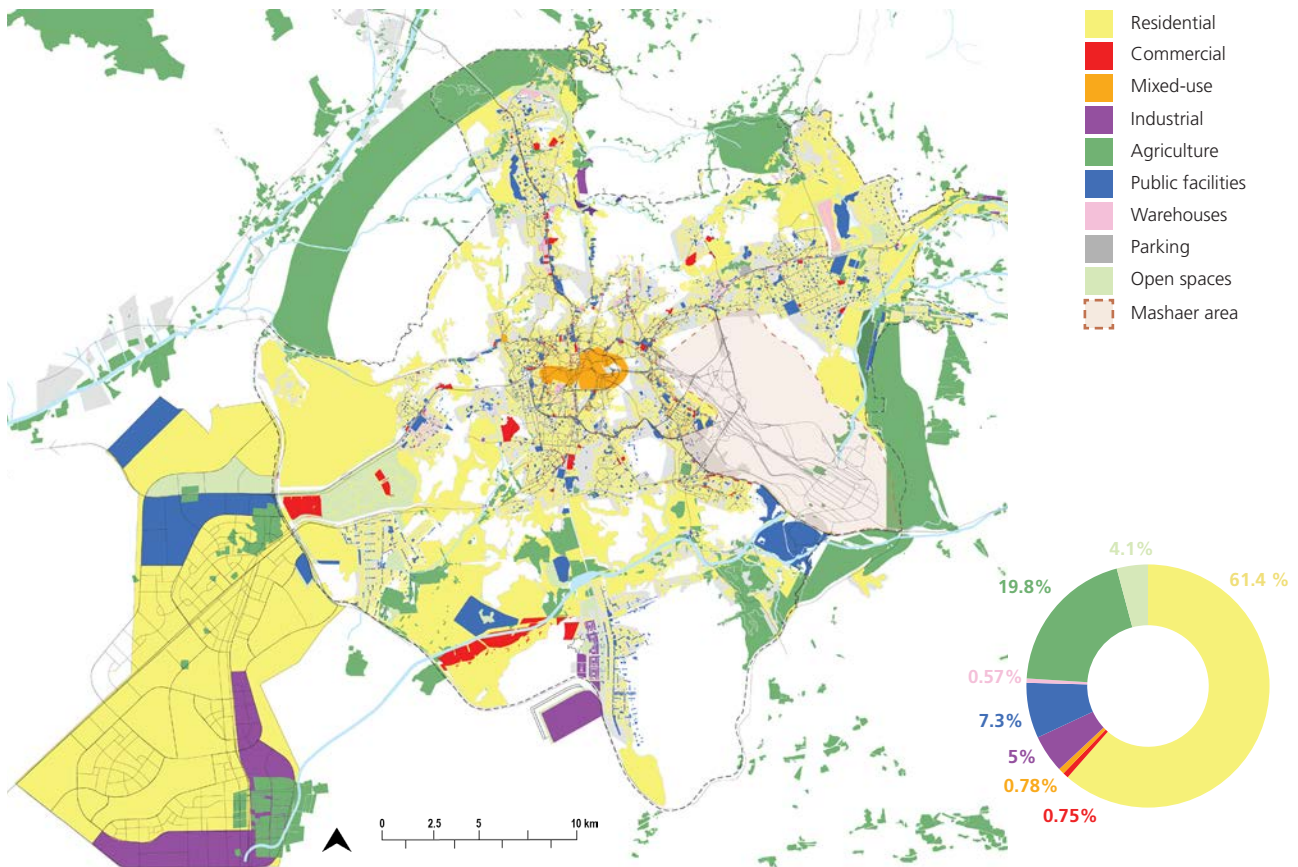


Fig. 32. Proposed land use by the Makkah Plan (2011)



more detailed building codes, promoting small mixed-uses in existing vernacular neighbourhoods; and

- Development of a natural boundary and extended natural reserves surrounding the city.

5.2 Structuring Elements

5.2.1 Major infrastructure and economic nodes

The infrastructure system for the Holy city could be defined as the most advanced in the country. Makkah is currently the only city with a functioning public metro system, even though it is operating exclusively for religious purposes. The Al Mashaaer Al Mugaddassah Metro line, is 19 Km long, with nine stops, serving the pilgrims moving across the Mashaer area, from the Mina camps to the Arafat mountain. The primary road structure is made up of a highways system, organised in three concentric ring roads around Al-Masjid Al-Haram, from which six main radial axes depart from:

- The new highway from Jeddah;
- The old road from Jeddah;
- The highway from Taif;
- The highway to Riyadh;
- The highway to Laith; and
- The highway to Madinah.

The new highway, connecting the Jeddah International Airport to the Holy City, is the most congested in the Kingdom, because of the number of buses on it, which mainly transport pilgrims who are traveling to Makkah from Jeddah Airport. Currently, 94% of international pilgrims land in Jeddah and travel to Makkah, either by bus or train. In addition, 36.3% of the national pilgrims use this highway, during Umrah or Hajj.

The new Al-Haramain high-speed train, also known as the "Western Railway" or "Makkah–Medina high-speed railway," has been recently inaugurated, and it will play a key role in relieving part of the traffic volume on wheels, moving it to rail tracks. Al Haramain is a 453 Km high-speed intercity rail transport system, partially still under construction. Once completed, it will link the cities of Madinah and Makkah, passing through the King Abdullah Economic City, and the King Abdulaziz International Airport in Jeddah (KAIA), through 449.2 kilometres of the main line and a 3.75-kilometre branch connection to the Jeddah airport. The network will also be connected to the existing national rail transport system in Jeddah. Also contributing to the future re-distribution of incoming pilgrims and the overall accessibility to the city will be the foreseen new international airport in Taif. This new infrastructure will grant strategic support to the overall logistics for managing pilgrims' access across the region, and intensify the traffic volume on the highway connecting Taif to Makkah. This consideration, brought recently to the planning of a further extension of the Al Haramain train, connecting Taif to the Holy City, with the goal of preventing the above-mentioned traffic intensification.



Pedestrian bridges next to the Mina Camp in Makkah

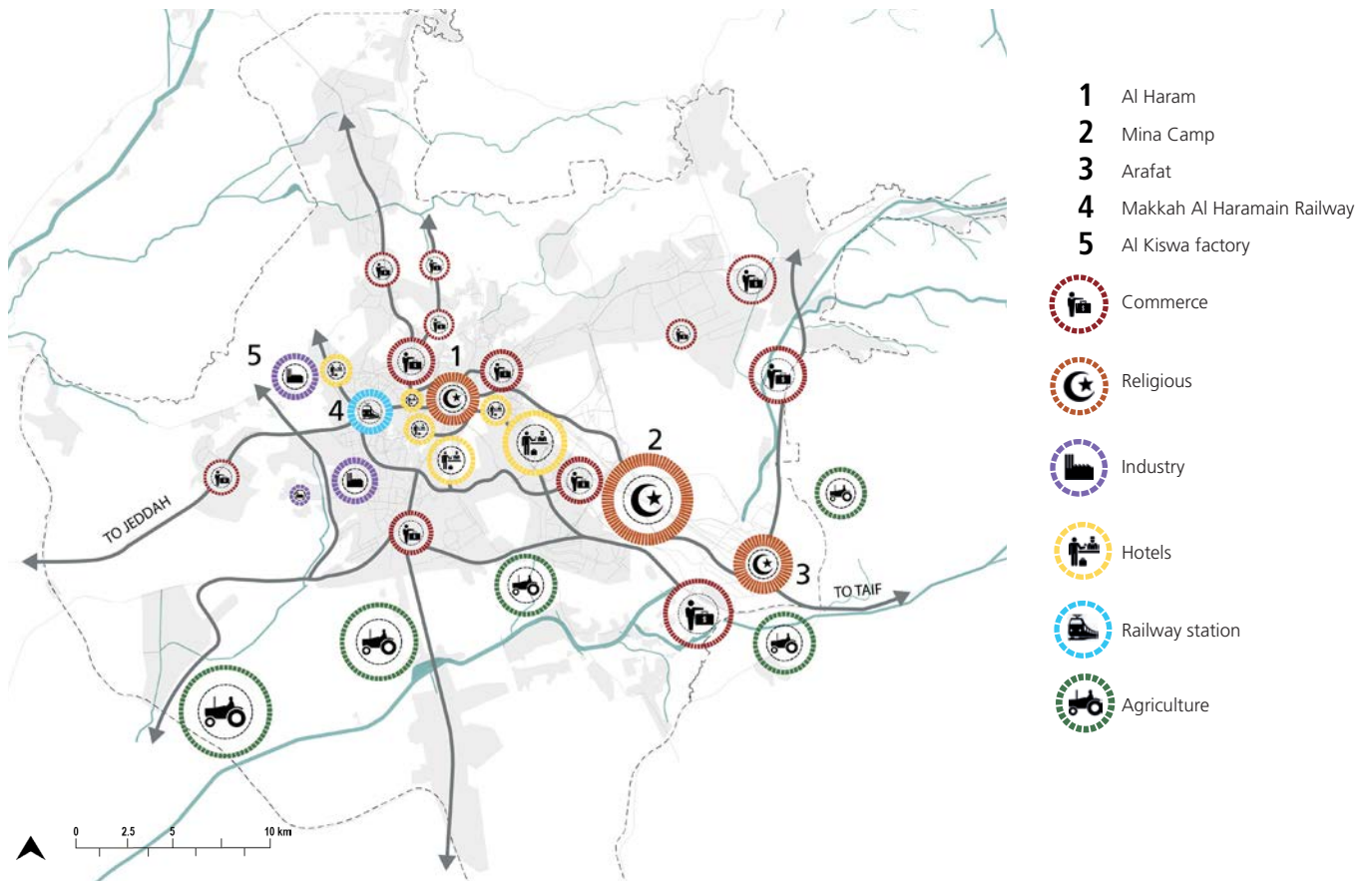


Fig. 33. Economic nodes and network

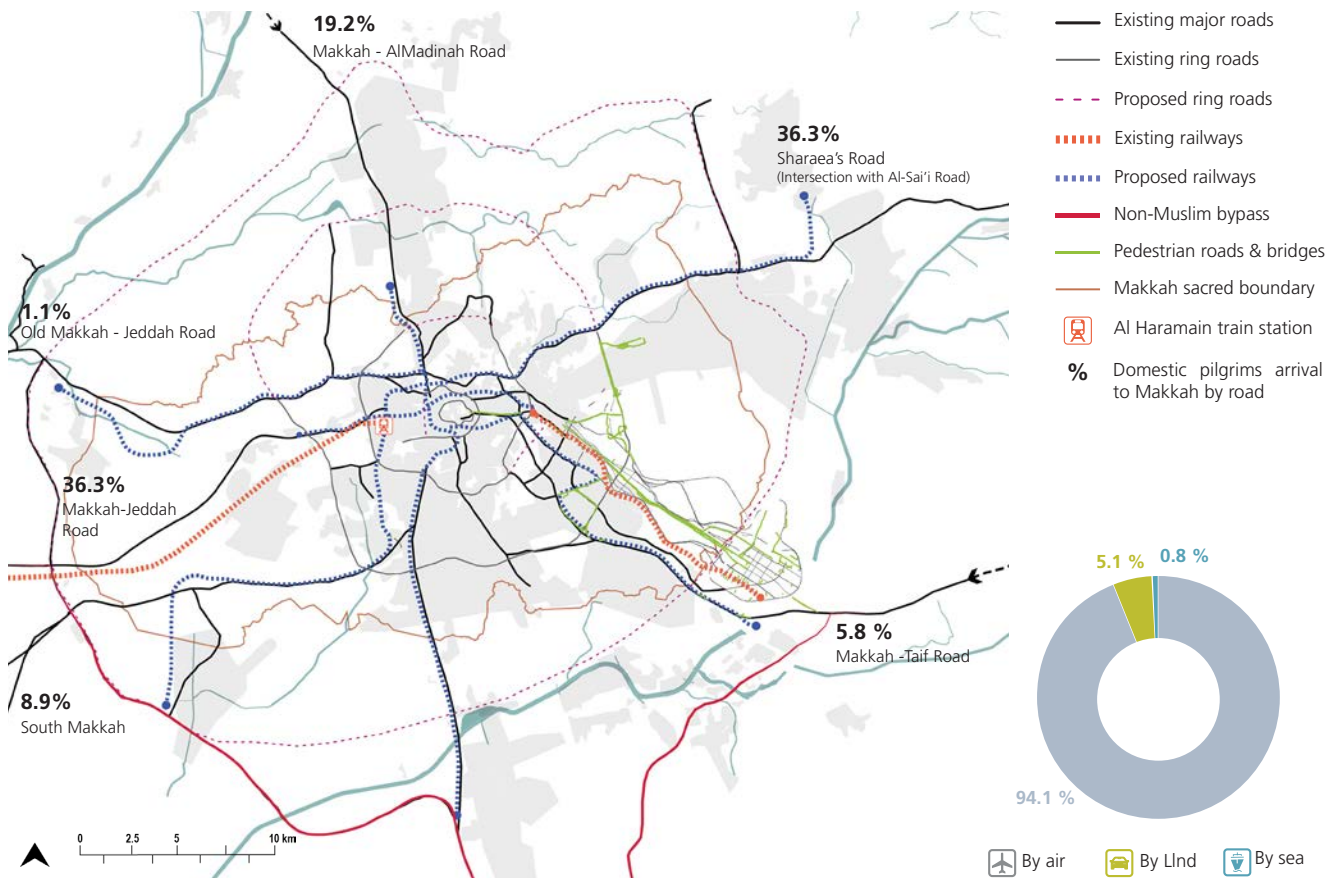


Fig. 34. Existing and proposed transport network



5.2.2 The Haram and Mashaer areas

One-fifth of humankind shares the aspiration to visit Makkah for Hajj, the holy pilgrimage, at least once in their lifetime, if they can afford it. Makkah hosts, within its municipal boundaries, areas with enormous religious significance, which are experiencing unprecedented pressure and demand to accommodate growing numbers of both permanent residents and temporary visitors. Planning has and will continue to play a key role in ensuring the sanctity of these places are maintained and respected while providing a high standard of living for residents and visitors. An understanding of the spatial implications tied to the rituals is, therefore, necessary to build a complete understanding of the diverse city users and their needs.

The very first step of Hajj ritual is entering Ihram - a sacred state - when crossing the outer boundaries of Makkah, known as Miqat. There are different entry points for the Miqat, which traditionally depends on where the pilgrim is coming from (e.g., if the pilgrim is coming from Iraq, the Miqat is located on the Northern side of the city; whereas people from Yemen have their Miqat in the Southern side of the city). After a first visit to the Great Mosque, pilgrims head then out from Makkah, to the sprawling tent-city of Mina (8 kilometres away), by foot along dedicated pilgrim paths, or by buses and cars. The pilgrims spend the day in Mina, departing the next morning at dawn and proceed towards Mount Mercy at Arafat, where the Prophet Muhammad gave his final sermon. Once in Arafat

(14.4 kilometres from Mina), pilgrims spend the day in prayer. On the ninth day, after sunset, pilgrims begin in Muzdalifah, which lays on the route between Mina and Arafat and arrive back in Mina before dawn. At Muzdalifah, pilgrims collect stones and perform the first Rami, where they throw seven pebbles at the largest of three columns, known as Jamarat, symbolizing the stoning of the devil. Subsequently, they must slaughter a sheep, goat, cow or camel, or more likely, pay for it to be done in their names. Many will then proceed to Makkah to perform Tawaf and Sa'ee, this is circling the Kaaba seven times, and walking between the hills of Safa and Marwa, seven times, respectively. The spatial impact of these rituals, performed by hundreds of thousands of people simultaneously, have forced the city and the national government to provide a robust transportation spine, to move pilgrims along the Mashaer area. Also, due to the high volume of people who are moving to this area, the series of accidents and stampedes happened in the past years, raised a flag toward the need for additional planning and design interventions, as well as increasingly bettered logistics, to manage the flow of people.

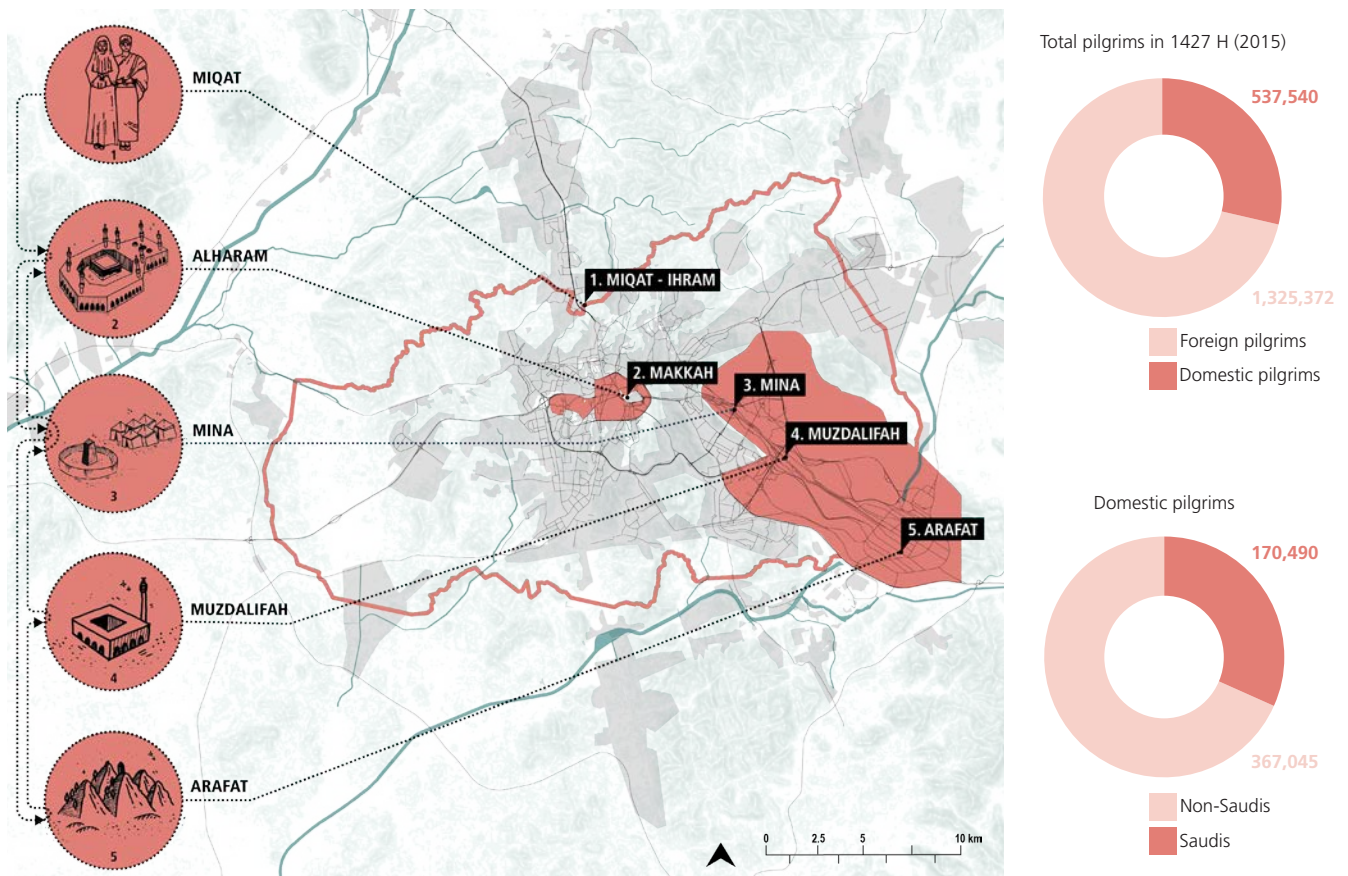
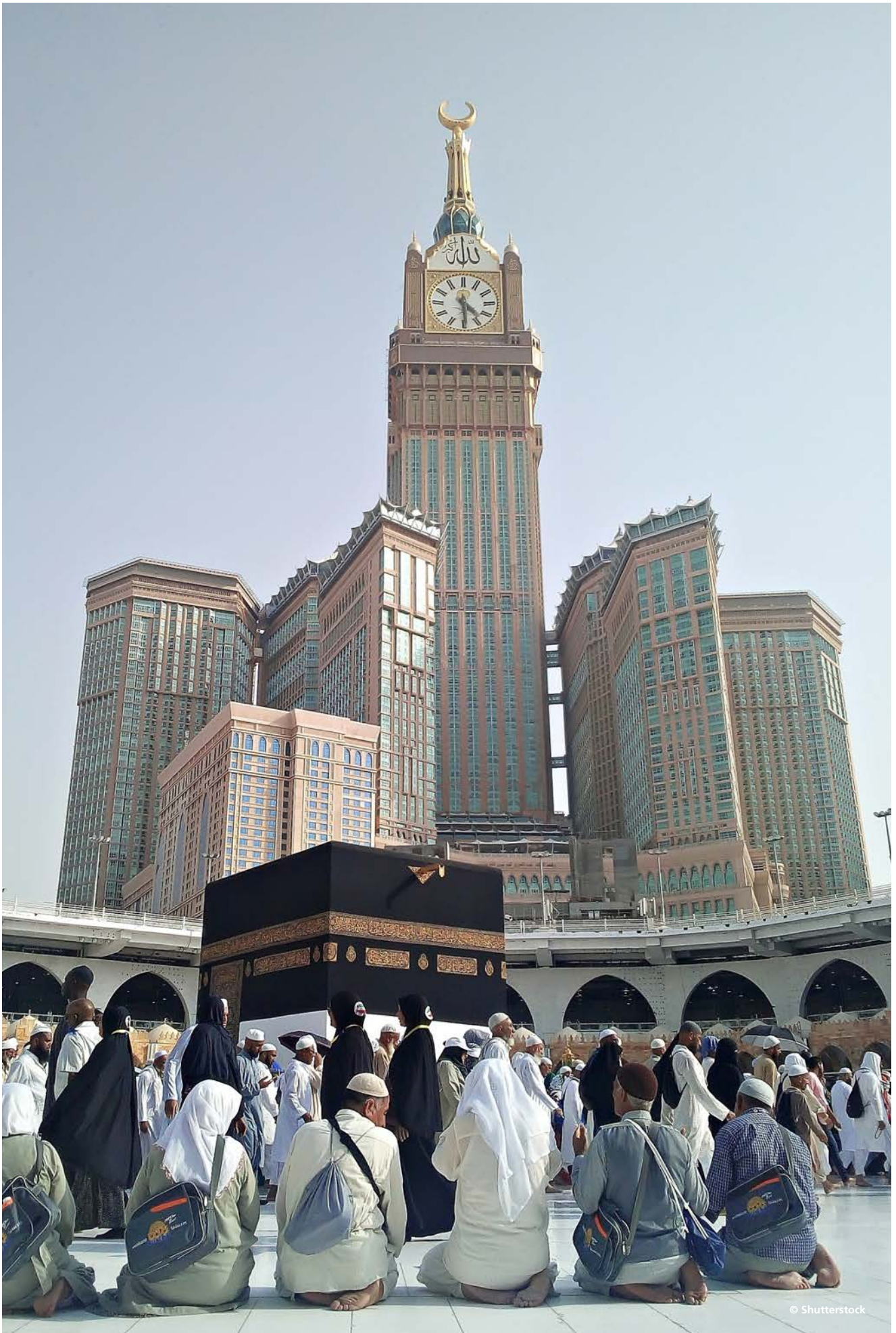


Fig. 35. Pilgrimage flow in the city



Pilgrims praying at Al-Masjid Al-Haram and the recently built Royal Clock Tower, which is the third-tallest building in the world

5.2.3 Unplanned settlements

In recent years, Saudi Arabia has been experiencing large rates of rural-urban migration. According to King Saud University in Riyadh, 74% of people who had been living in rural areas migrated to cities, looking for job opportunities and attractions, that they don't have access to due to the current regional distribution. In line with other main urban centres in Saudi, Makkah is witnessing the appearance of many unplanned areas in the outskirts of the city and on the central mountainous zones. However, because of the current land management system, the categorisation of "unplanned settlements," has been utilized for both historical vernacular neighbourhoods and low-quality unplanned areas recently formed in the outskirts of the city to accommodate low-income residents. This current approach has brought about heavy demolitions, making room for new developments in historical, and/or vernacular areas of the city, since these neighbourhoods are not technically inscribed in any conservation plans. However, the socio-economic and cultural implications of these spatial conditions are significant. As a universal centre of worship, Makkah has always welcomed both the rich and poor over many centuries, but the current development is brutally changing how people experience their pilgrimage and the city as a whole. The growing influx of religious visitors is putting higher pressure on land use and causing a dramatic increase in land value, so much so that the central area has transitioned into a district that is almost exclusively aimed at servicing pilgrims. New high-rise compounds blindly disregard the context,

leaving in their wake, a pronounced social polarisation. The inhabitants of Markazia, an area surrounding the mosque, are being relocated from their neighbourhood and community, to make room for these high-end new developments. In Makkah, there are approximately 65 unplanned settlements spread across 16 primary locations, and consisting of roughly 40% of Makkah's total population. Researchers estimate roughly 1.5 million people living in Makkah unplanned settlements, by 2040. The amount of people living in unplanned areas in Makkah Region is considerably high, due to several historical reasons that are mostly related to Hajj and Umrah. Some of the typical characteristics of these unplanned areas are:

- Lack of basic services and amenities such as water, sanitation, waste collection, storm drainage, street lighting, paved footpaths, and roads for emergency access,
- Poor quality, and often unsafe, living conditions, and
- Lack of public services, such as schools and hospitals within easy reach, and lack of public spaces and safe areas for children to play.

By critically overlaying topographical conditions and urban layout, three key priorities for strategic interventions have been set, in response to the unplanned areas issue:

- Heritage protection of vernacular urban layout with historical value, (mainly for the city centre),
- Building regulation codes to preserve the peculiarity

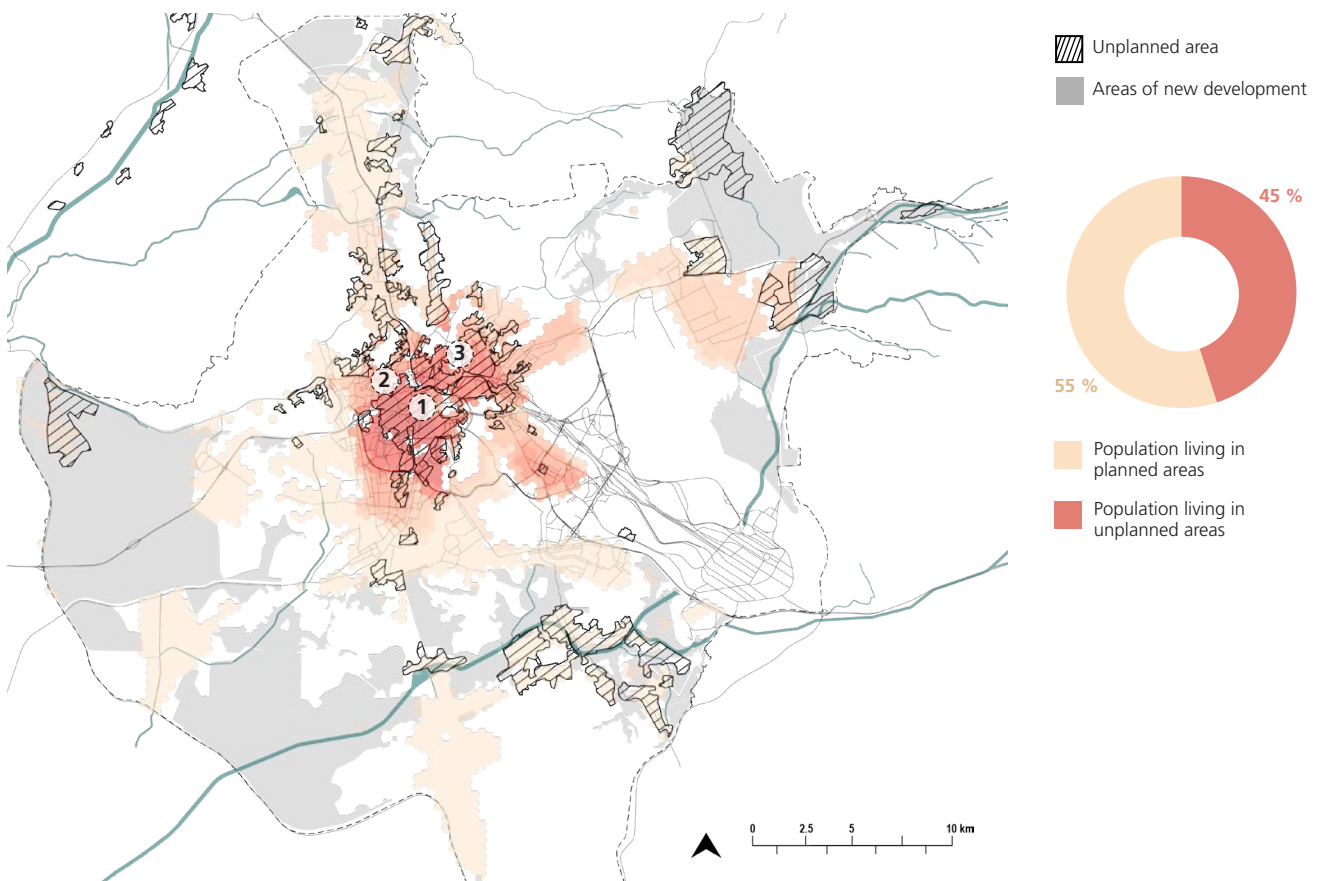


Fig. 36. Distribution of unplanned settlements and their respective population density distribution

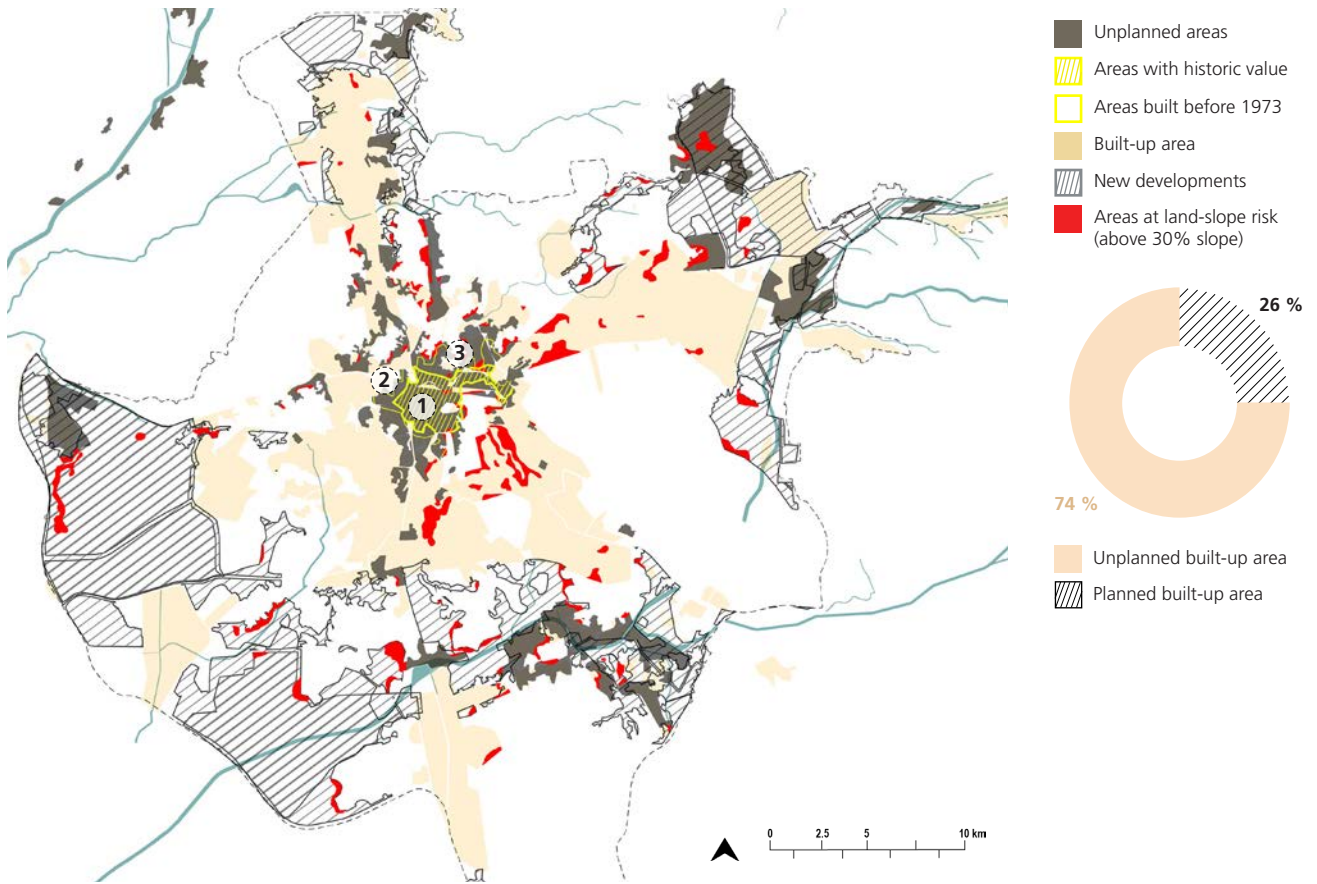


Fig. 37. Unplanned settlements with heritage potential and areas exposed to land-slope risk



1.

Heritage area with traditional historical urban fabric



2.

Area with potential historical value, built before 1973



3.

Unplanned area at risk of landslope



of vernacular urban fabric and streets layouts, within traditional areas of the city, and

- Protection of the natural topography of the city, preserving the iconic mountains of the city by relocating unplanned settlements and guarding against new developments.

Climatic Performance of Vernacular and Unplanned Urban Patterns

The climate across the KSA is arid, which means urban conditions are often very dry and warm, These urban climatic conditions are an important element to be considered in relation to energy consumption, citizen health, and urban form. Urban form, emerging from both streets layout, public space, and buildings typologies, has, therefore, a considerable impact in the way cities in Saudi cope with this hyper-arid climate. Often, vernacular and historic urban patterns, perform better, from an urban microclimate point of view. As such, a series of differences across these kinds of urban patterns were analysed in Makkah. The analysis aims at establishing a direct correlation between the urban layout of various districts and their climatic performance, proving, through a spatial/climatic analysis, how small and shaded streets layout, streets vegetation, albedo, and urban canopy effects, affect real and perceived urban climate across the city of Makkah. The study, based on the Landsat Eight satellite imagery collection from June 2017, refers to the months with the highest recorded temperature values in Saudi Arabia, showing the passive energy performance of the existing urban layout, in the most extreme weather conditions. The effectiveness of each urban pattern is evaluated and assessed in its capacity for mitigation of the UHI

effect, in order to inform principles around good urban form for climate mitigation and adaptation in the Saudi context.

Case 1 - Traditional Arabic urban pattern:

The selected area is an organically shaped vernacular fabric, characterised by a very dense urban form with narrow pedestrian alleys, mostly shaded by the buildings. The satellite image shows how most of the neighbourhood has a temperature that is 2-5 degrees cooler than its surroundings.

Case 2 - Mixed area with new development / unplanned settlements:

The selected area located within the core of the city and the second ring road shows specific climatic performances of the vernacular urban pattern linked to the new urban development zone. The difference of temperature it is utterly apparent, and it comes together with consequences on natural urban ventilation derived by a skyline misalignment of the neighbourhood.

Case 3 - New development in the outskirts of the city:

The selected area is a typical new fringe development, characterised by a loose and low-density urban fabric, with overdimensioned roads. The image clearly shows the overall bad climatic performance of the entire development, and in particular how the overdimensioned streets, having an albedo value that is very low, are dangerously raising the average temperature by at least 3 C°.

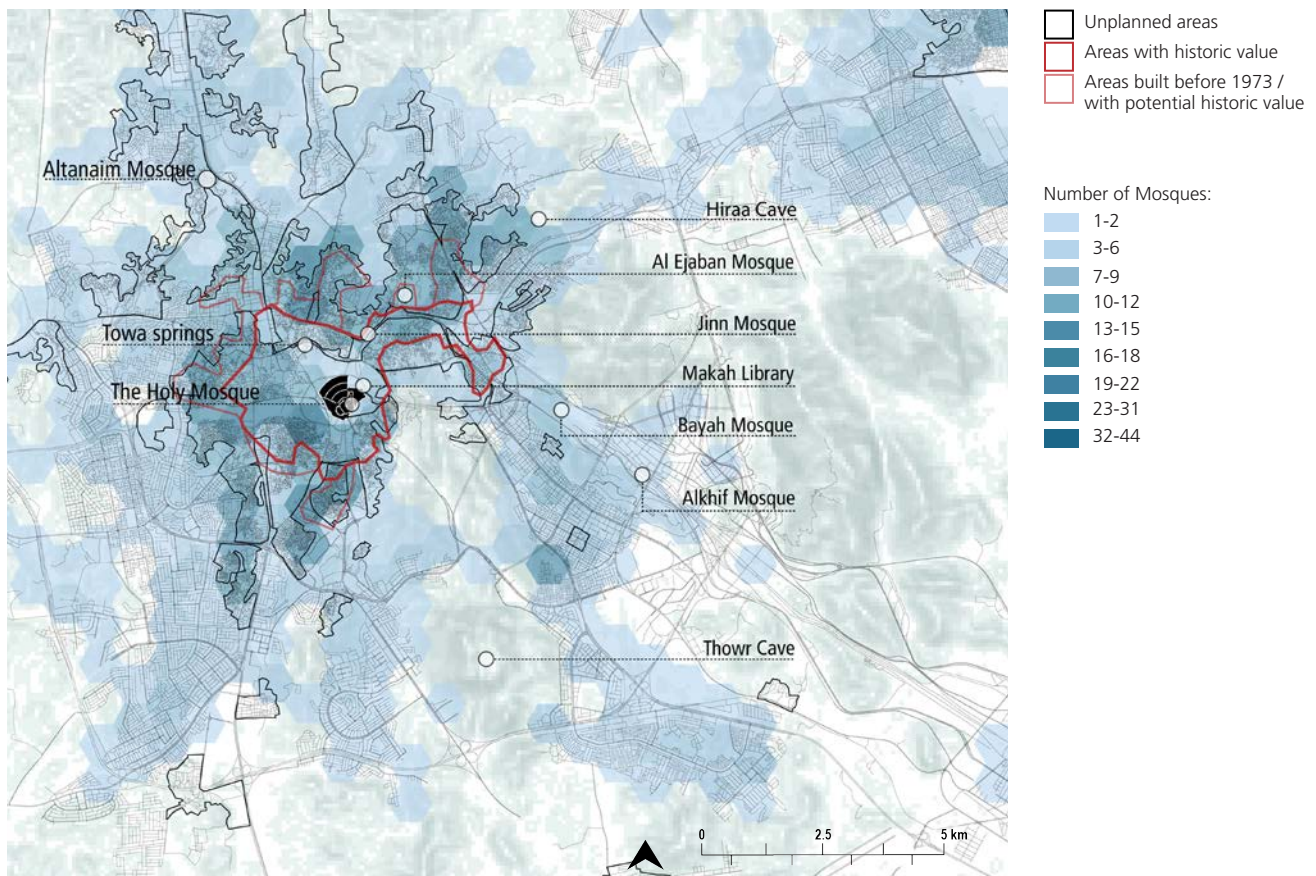


Fig. 38. Distribution of religious facilities (mosques) in the city centre of Makkah

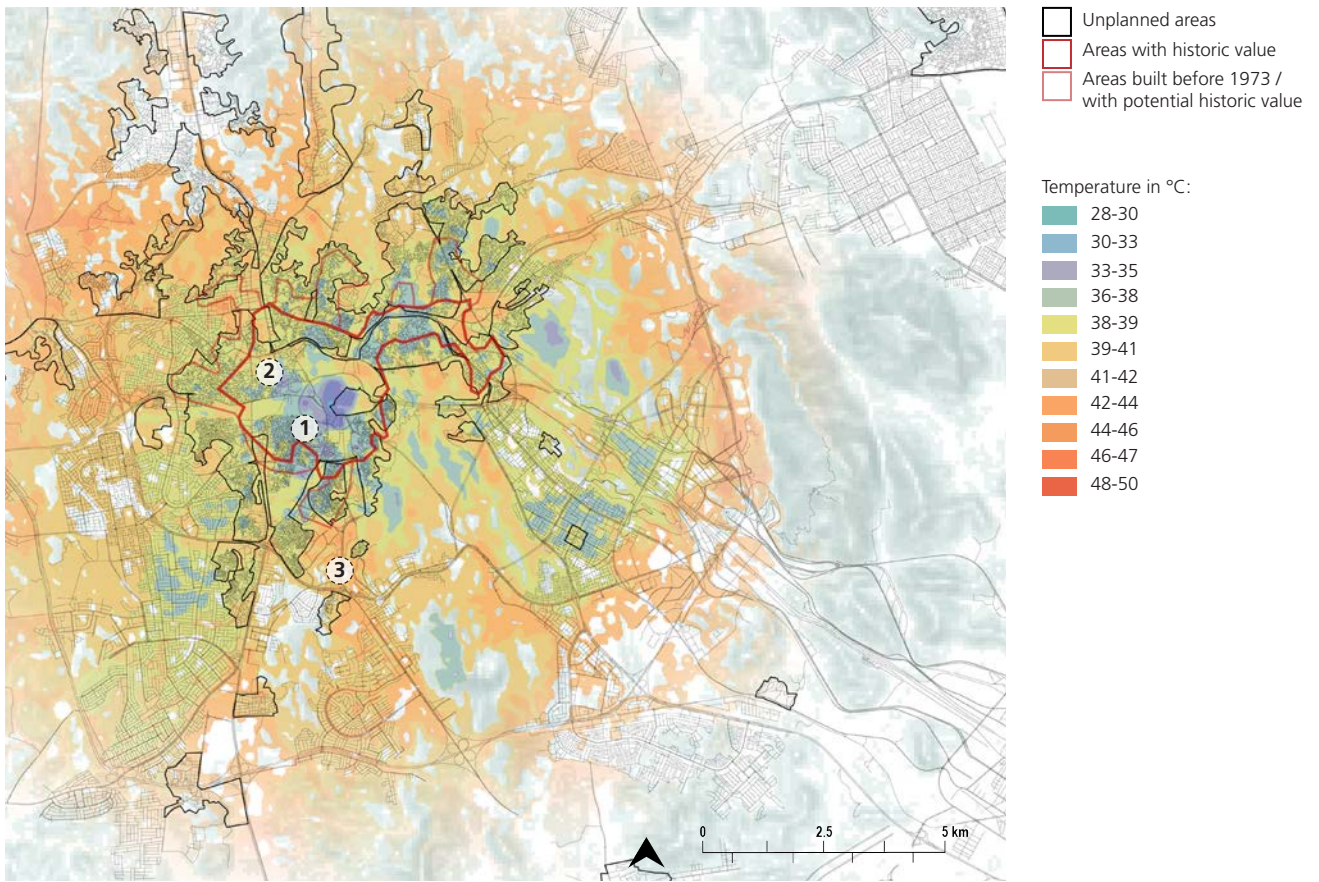
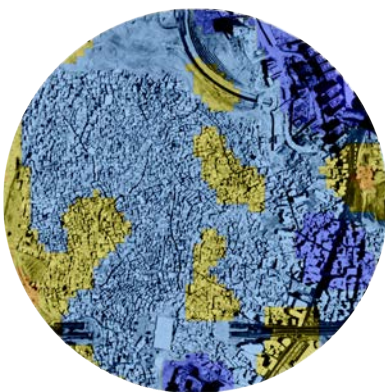


Fig. 39. Urban heat island effect and relation to the existing urban pattern implication on climatic factors



1.

Area with potential historical value, built before 1973



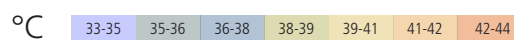
2.

New development in connection with informal settlements



3.

Recent developments built on the outskirts of the city



5.2.4 Accessibility analysis

Makkah, similar to the city of Madinah, developed from a radial urban structure because of the growth pattern irradiating from the centre, where the nucleus of the Holy Mosque is situated. Over time, a series of concentric ring roads were built to facilitate access to the different neighbourhoods of the city, although two of these ring roads have not been completed yet.

The first ring road defines an area within which new developments may not occur, or will be required to follow strict development regulations, as this space is the dedicated access route to the Haram for the pilgrims. According to the Comprehensive Plan for 2012, the first ring road should be used for security and emergency access only, with vehicular traffic restricted to higher-order concentric ring roads that are at a further distance from the Grand Mosque. This restriction also reserves the first ring road for pedestrian use. The primary function of the ring roads is to distribute traffic; however, the small diameter of this road limits its effectiveness in serving this function. Nevertheless, its closure to general purpose traffic will have major implications for reducing traffic congestion, and increasing access to the Holy Sites for pedestrians.⁴⁶

In order to test the overall accessibility to the core area by car, a study of the movement dynamics was performed, assessing the percentage of population within 15/30 and 60 minutes drive, and with no access to the city centre. The considered

core was identified in the neighbourhood on the Western side of the Holy Mosque, as it includes a rich variety of commercial facilities and mixed-use fabric. This was decided on, because on a daily basis, permanent residents do not interact with the religious facilities connected to Hajj and Umrah.

Because of the impact of road traffic conditions, the simulation used a speed that was two-thirds less than the authorized road-arch speed. The result of the accessibility study on private mobility shows that only 2.5% of the permanent population does not have access to the core area of the city, within a 60 minutes drive. 2.5% of the population amounts to about 53,000 people, and it is distributed as follows:

- 4,220 people on the Southeastern edge of the city, next to the new development planned outside the 1450 UGB;
- 3,355 people on the Southern edge of the city, close to the industrial area of the city;
- 2,780 people on the Southwest outskirts of the city, in the proximity of the Arafat Mountain;
- 42,000 people on the Northeastern edge of the city.

Although the neighbourhood is only 20 kilometres from the city core, it appears to be disconnected from the city's commercial and mixed-use areas. This relatively high number highlights the need for better infrastructure and a robust public transportation linkage to the city centre.

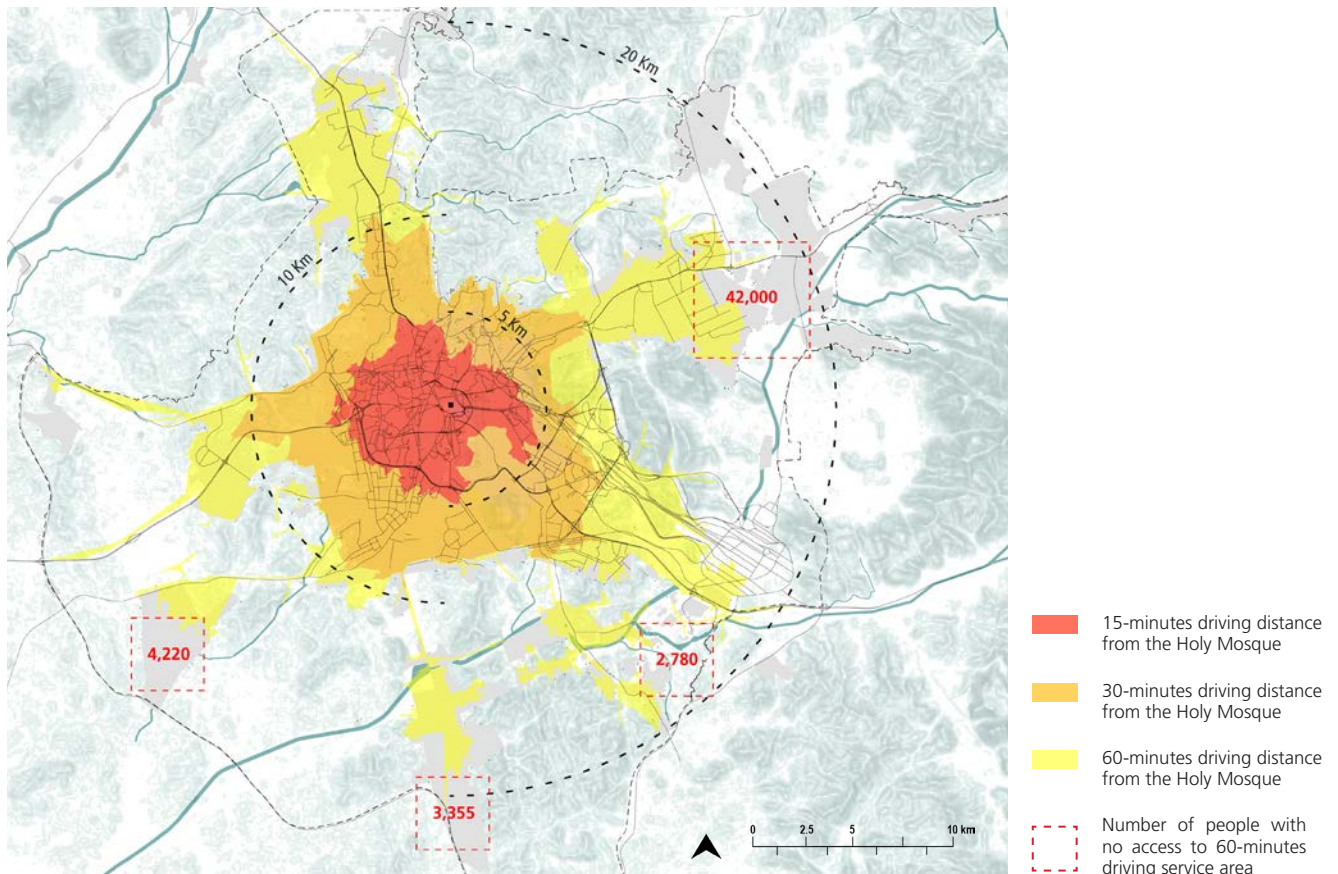


Fig. 40. Accessibility by car to the central area of Makkah



Roads and underground tunnels in the city centre

The hierarchy of roads in Makkah City is very complex, starting with the ring roads system previously illustrated. In addition to that, the city has a high rate of pedestrian roads especially in the Mashaer area, even though the general level of pedestrian accessibility is substantially disconnected from the daily urban functionalities. The amount of vehicular roads per capita is 3.21 metres while pedestrian roads amount to 115 kilometres, which grows to 815 kilometres if the calculation includes the Mashaer area.

Currently, Makkah has only one operational metro line, the Al Mashaer Al Mugaddassah one (translated from Arabic in: Train of Holy Emotions Southern Line). The line opened on November 13th, 2010, in time for the Hajj 1431 - between November 25-29, 2010. It was built separately from the future Makkah metro network. Claimed to have the highest capacity of any metro in the world, it only operates for seven days a year, and has been used as an exclusive shuttle train for pilgrims among holy sites in Makkah, Mount Arafat, Muzdalifah, and Mina, to reduce the congestion caused by thousands of buses and cars during the Hajj. The capacity of the line for the seven days Hajj has to accommodate not only the pilgrims staying in the hotels in Makkah, but also those staying in the Mina camp, which can host up to 3.5 million people during Hajj, as there are more than 100,000 tents, and each tent can host up to 50-70 pilgrims. In addition to the Al Mashaer Al Mugaddassah metro line, Makkah is planning a new comprehensive public transport system. As previously described in chapter 4.1.3, the planning and implementation of the metro system for Makkah is under the control of the city

government and the ministry of transportation. Whereas the existing line in the Mashaer area has been implemented under the supervision and decision of the Ministry of Hajj and Umrah, in agreement with the governor of the Makkah Region.

Another important role for the functional mobility of the city is currently played by taxis, as due to the absence of viable public transport, they provide a valuable service. But with the implementation of a public transit system, as envisaged by the Comprehensive Plan submitted in 2012, the role of taxis may be reconsidered. It is worth considering that a feeder bus system is likely to be difficult to implement in the Saudi context, as fixed routes and schedules may not be sufficiently flexible to match demand and user expectations. In this regard, taxis may be reframed and developed to provide a flexible, scalable, demand-responsive feeder system to a broader public transport network.

Overall, the accessibility of Makkah City can be considered relatively efficient over Umrah months, while reaching critical conditions over Hajj when roads turn into pedestrian axes because of the enormous amount of pilgrims accessing Makkah during that week.



Mina Camp in the Mashaer area during Hajj

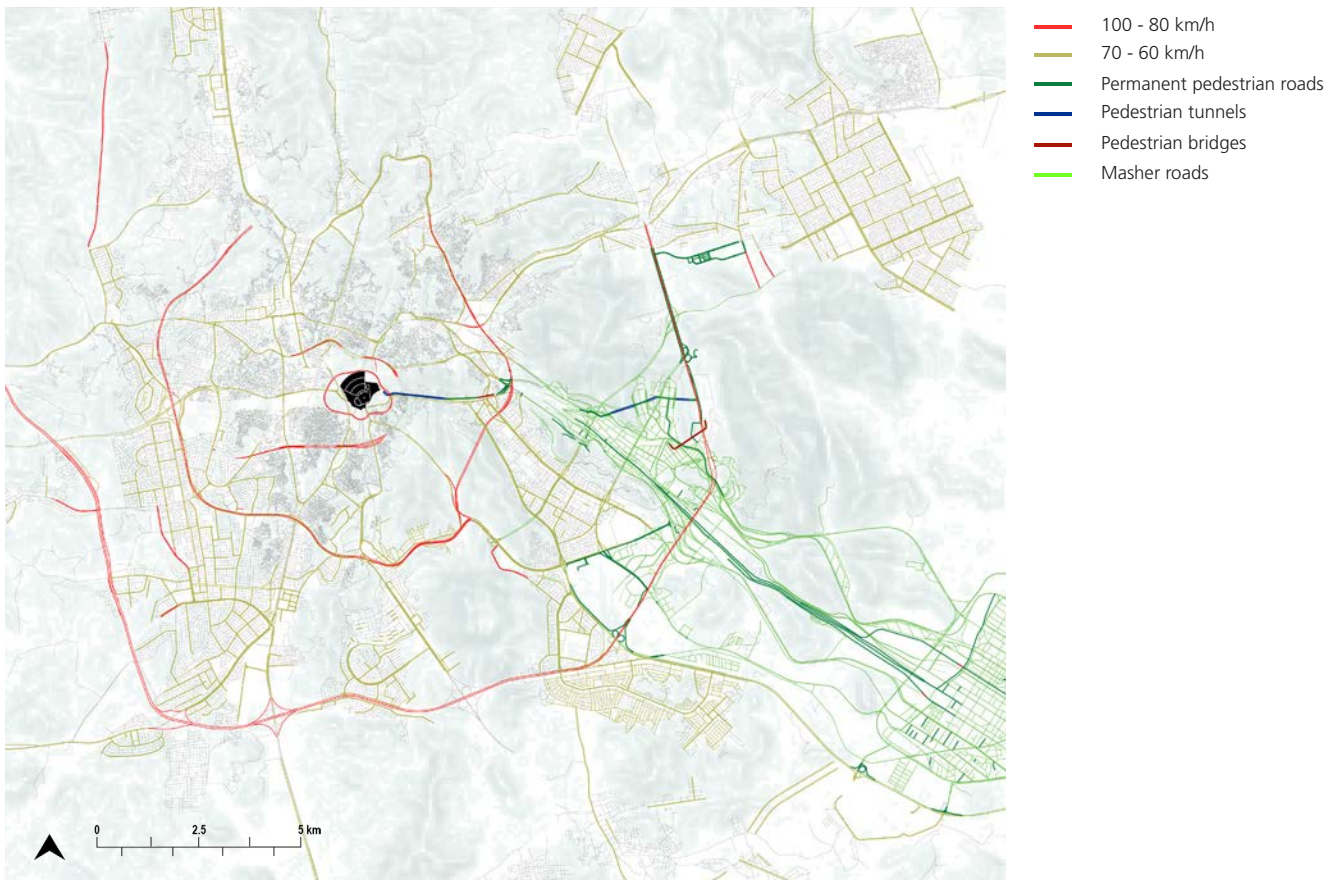


Fig. 41. Hierarchy of the existing street network

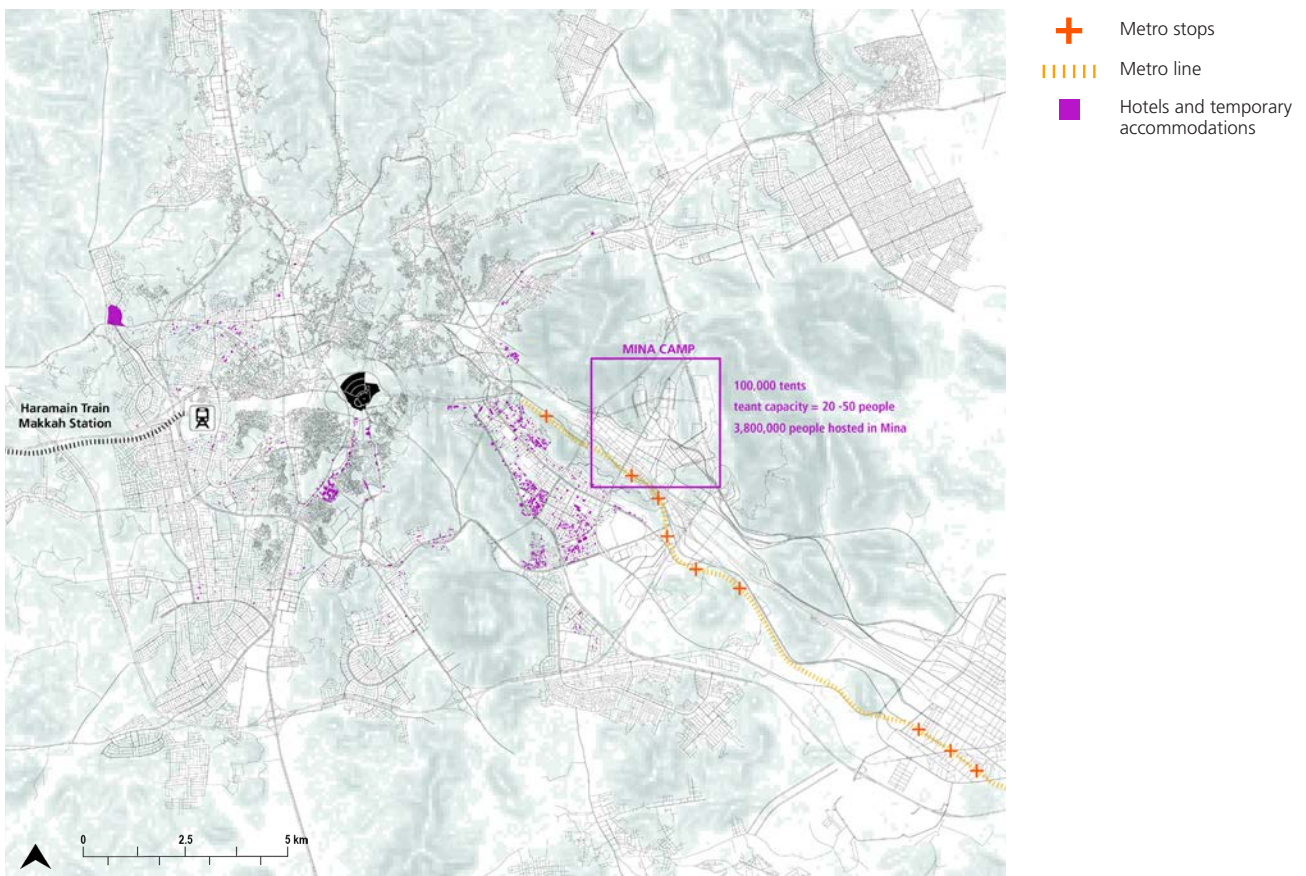
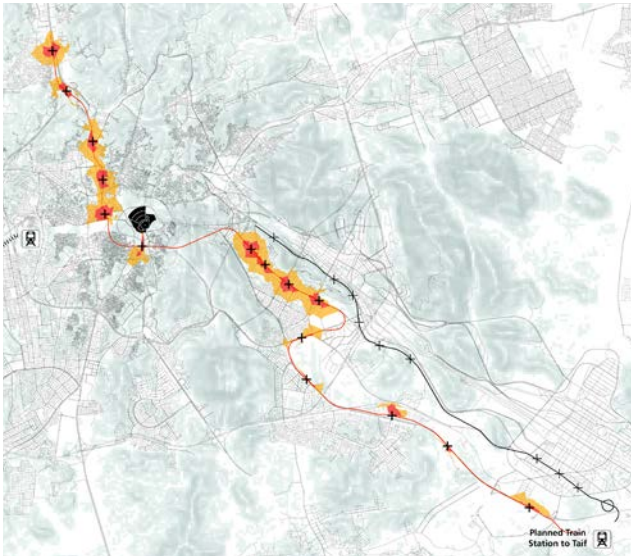


Fig. 42. Existing metro line in the Mashaer area and location of hotel facilities for pilgrims



Metro Line Phase I: 33 km and 15 stops



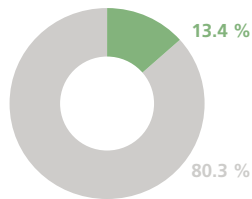
PEOPLE SERVED BY PHASE I

5-minute walking distance

129,129 - 6.3 %

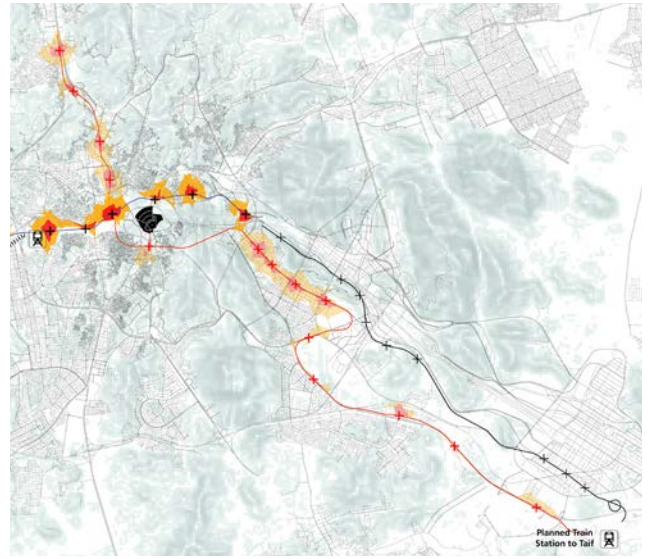
10-minute walking distance

278,402 - 13.4 %



City wide accessibility to metro lines

Metro Line Phase II: 13 km and 7 stops



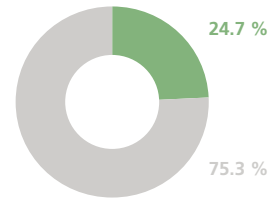
PEOPLE SERVED BY PHASE II

5-minute walking distance

84,225 - 4.2 %

10-minute walking distance

228,008 - 11.3 %



City wide accessibility to metro lines

5.2.5 Assessment of proposed transportation systems

In August 2012, the Saudi government approved US\$ 16.5 billion to build four metro lines (182 kilometres long) for Makkah, to be built over the next ten years. Currently (2018), the implementation of the metro system has yet to start.

Nonetheless, the Al Haramain train station has recently opened to connect Makkah with Jeddah in a less than 1-hour ride. The four new lines will constitute the first step in structuring an extensive public transport network, composed as follows:

- Line I (red): from the North to the South of the city, running around the Southernwest edge of the Holy Mosque. This line will serve 13.4% of the existing population within a ten-minutes walking catchment area;
- Line II (blue): from the Holy Mosque area to the new development expansion zone on the West of the city. This line includes a stop with a relevant Jeddah high-speed train interchange hub. This line will serve 11.3% of the existing population within a ten-minutes walking catchment area;
- Line III (green): from the South-West neighbourhoods to the new district on the North-Eastern part of the city. This metro line will overcome the transportation issue in the Northeastern neighbourhood of the city that is currently isolated, in terms of car accessibility. This line will also be connected to the transportation hub at the Al-Haramain

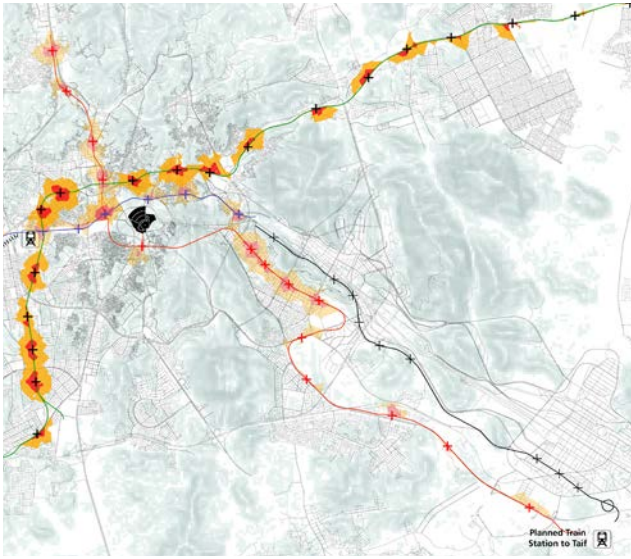
train station. The line will serve 18.5% of the existing population within a ten-minutes walking catchment area;

- Line IV (purple): this line will run on the Western side of the city with the intention of connecting future developments to the city centre. This line is part of a transportation plan strategy, aiming at relocating part of the tourist facilities on the outskirts of the city to alleviate the pressure in the city centre. The line will serve 8.7% of the existing population within a ten-minutes walking catchment area.

The proposed metro lines will constitute a high capacity urban transport system aimed at forming the backbone around which to organise the rest of the public transport network. The Metro Rail network is designed to be the major spines of the system, leveraging on the investment in Metro Rail that was made in Al Mashaer. The pedestrian realm in the central area is generally poor, with the exception of the Plaza areas. During peak times, pedestrians take over the major roadways leading to the Haram, therefore conflicting with cars, buses, and emergency vehicles. The transport concept plan for Makkah includes a new pedestrian boulevard (currently under implementation), that will connect the HST station with the Haram area. The impact of this new project on the existing urban layout has to be carefully treated in order to prevent disruption of the historical urban pattern.



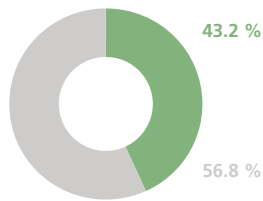
Metro Line Phase III: 53 km and 25 stops



PEOPLE SERVED BY PHASE III

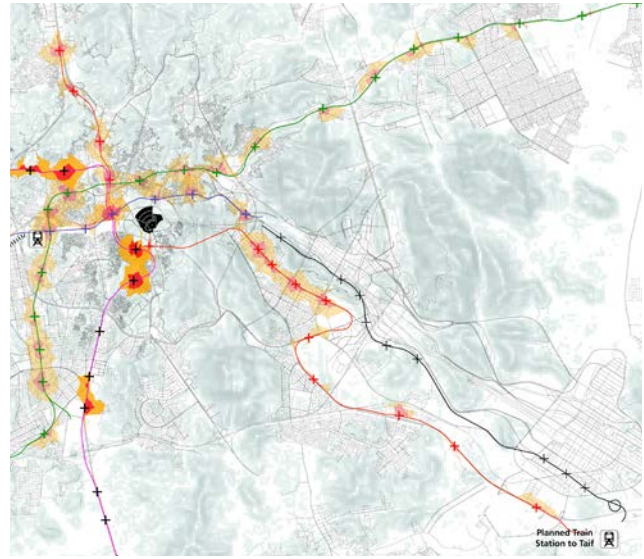
5-minute walking distance
159,576 - 7.9 %

10-minute walking distance
373,709 - 18.5 %



City wide accessibility to metro lines

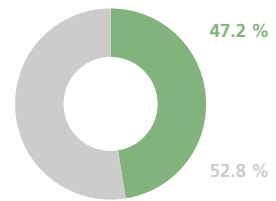
Metro Line Phase IV: 48 km and 24 stops



PEOPLE SERVED BY PHASE IV

5-minute walking distance
95,732 - 4.7 %

10-minute walking distance
176,187 - 8.7 %



City wide accessibility to metro lines

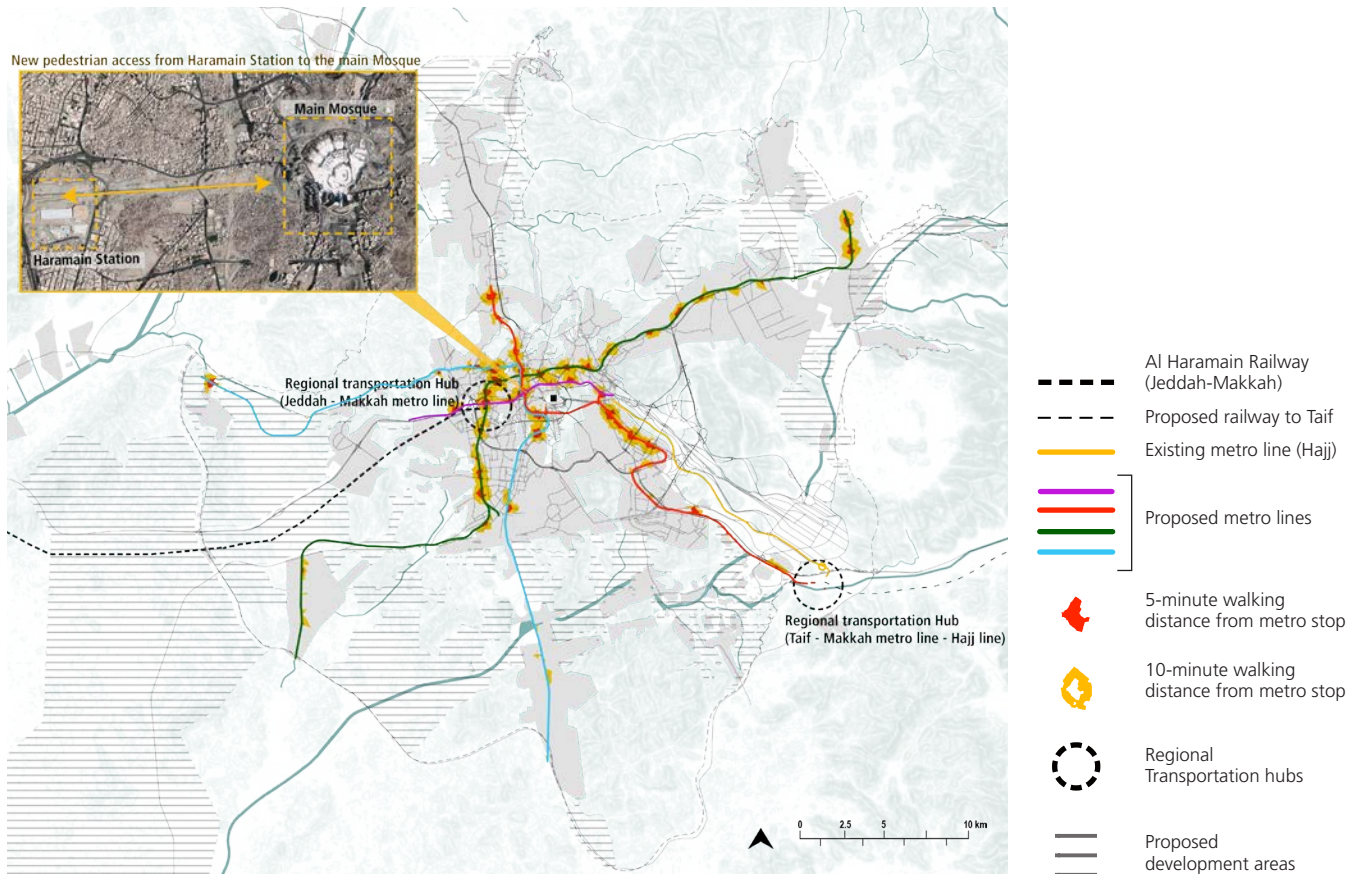


Fig. 43. Proposed metro system and transportation hubs by Amanah



5.2.6 The Comprehensive Plan for Makkah

The most recent planning document produced for Makkah is the Comprehensive Plan (2011), elaborated by the consultants MMM group and Moriyama & Teshima Architects. The document refers, mostly to the plan adopted in 2006 - including the urban expansion plan on the Western side of the city, right outside the 1450 boundary. The first masterplan for the city of the Makkah was carried out by a British firm (Robert Matthew, Johnson-Marshall & Partners), in the early seventies. The plan effectively indicates the design of a transportation system as a priority, however, fails to be prescriptive in preventing the low-density expansion on the outskirts of the city. The MMM plan submitted in 2012, is centred around three key-words: natural, spiritual, and urban. One of its components is the so-called Structure Plan, aimed at bridging the Strategic Vision with the more detailed aspects of a Comprehensive Master Plan. The goal of the MMM Structure Plan is to envision a course for sustainable urban growth. The document was carefully reviewed by UN-Habitat, finding positive inputs and valuable strategic directions, well-aligning with the key principles of the New Urban Agenda. The plan provides regional direction, in line with regional policy and management plans, regulatory guidelines, and broader transportation strategies. In doing so, it reviews land suitability for both new urban growth and intensification of existing fabric, defining specific sites for both approaches through a series of complex parameters. The earlier plans for Makkah, including the one elaborated by Matthews & Partners, specified that an intra-city road

organisation should follow a radial network. However, this radial network has only partially been constructed in Makkah. The MMM 2012 Plan takes the same direction, by progressively reducing road capacity as one approaches the Haram, with the intent to enhance mobility and safety while improving the quality of the urban environment, as well as the experience pilgrims and residents have in the Harams surrounding areas. While the private vehicle still seems to be the major mode of transportation on the outer ring roads, vehicles access becomes more and more restricted at the third and the second ring roads. However, this can only be accomplished by providing attractive alternative options, including efficient public transport and walking. To support the reduction in vehicular capacity, a commensurate increase in public transportation should in fact be provided as one approaches the city centre. Park and ride facilities need to be located at key interchange points at the outer ring roads. Under the same rationale, the plan indicates that the quality of the urban realm and pedestrian facilities should increase when approaching the Haram, starting at the second ring road and enhancing the pedestrian character of the urban environment at the first ring road, whereas a virtually pedestrian-only space needs to characterise the space within the ring road, giving access for civil defense. The 2012 Structural Plan from MMM, also gives clear directions concerning the possibility of promoting affordable housing developments, as well as specific areas of the city equipped with housing facilities for workers related to the Hajj

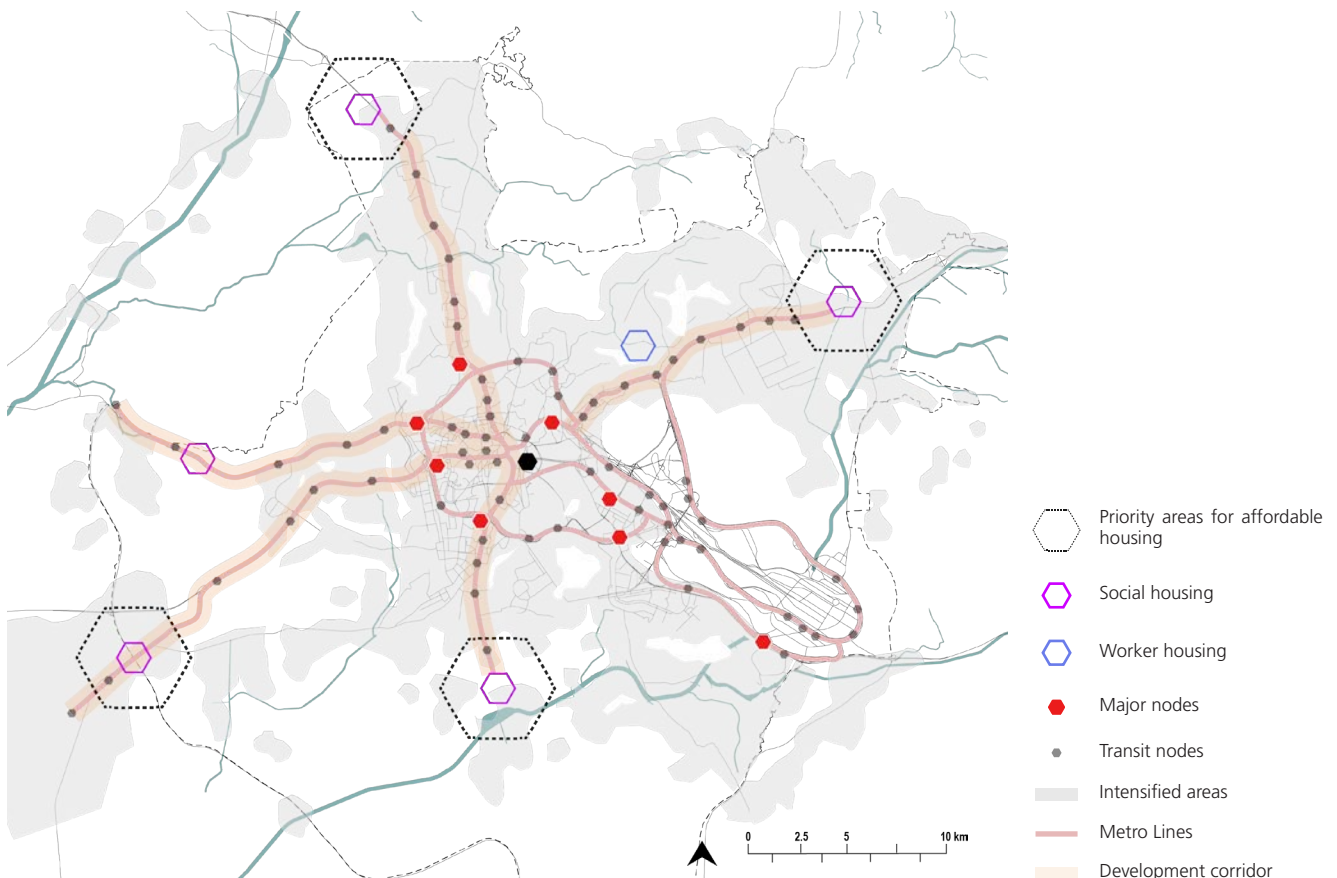


Fig. 44. Comprehensive Plan (2011) for the urban area with the proposed metro system



© Shutterstock

Pilgrim during prayer time on the mountains surrounding the Makkah Clock Tower



functions. A series of nodes were also identified as to structure a hierarchy of intersections, depending on public transport routes and highways intersections. Overall, the MMM 2012 plan moves in the right direction; however, it was never approved, therefore not enforced.

5.3 Urban Density Scenarios

Crosscutting the diagnosis of the current urban conditions and the approved/submitted projects proposals, FSCP operated scenario-analysis for increased urban density, according to various choices.

The scenarios depict three conditions: the current situation, the situation developed in line with the existing approved planning instruments, and a situation where density distribution is allocated following recommendations, based on the UN-Habitat standards.

This UN-Habitat scenario is based on the Five Principles for Sustainable Neighbourhood Planning, which are as follows:

- Adequate space for streets and an efficient street network: The street network should occupy at least 30% of the land and at least 18 kilometres of street length per square kilometres,
- High density: At least 15,000 p/km², that is 150 p/ha or 61 p/acre,
- Mixed land use: At least 40% of floor space should be allocated for economic use in any neighbourhood,
- Social mix: The availability of houses in different price ranges and tenures in any given neighbourhood to accommodate different incomes; 20% to 50% of the residential floor area should be for low-cost housing, and each tenure type should be not more than 50% of the total,
- Limited land use specialisation: This is to limit single function blocks or neighbourhoods; single function blocks should cover less than 10% of any neighbourhood.

Current Condition

The current population in Makkah amounts to 2,017,793 people spread across a built-up area of 43,363 hectares. This generates a population density of 60.49 p/ha, which is less than half the recommended UN-Habitat density of 150 p/ha.

Scenario 1: The Makkah Plan

According to the plan from 2006, the planned built-up area is supposed to increase to 104,709 hectares, hosting a population of 3,038,873 people. Even with the substantial increase in population, the density will decrease to 29.02 p/ha over the built-up area. If we consider the 1450 UGB area, and the new development planned on the Western side of the city, the density value declines to 19.63 p/ha.

These statistics present an analogy to historical changes, as reflected in the work that Robert Matthew did in the seventies

for the first plan for the city of Makkah. He estimated that the number of vehicles in 1971 (9,030 cars), would increase to 65,800 by 1981 (638% growth). This estimation became a reality even before the eighties, showing that the city had kept a sprawling attitude, based on a car-dependent development.

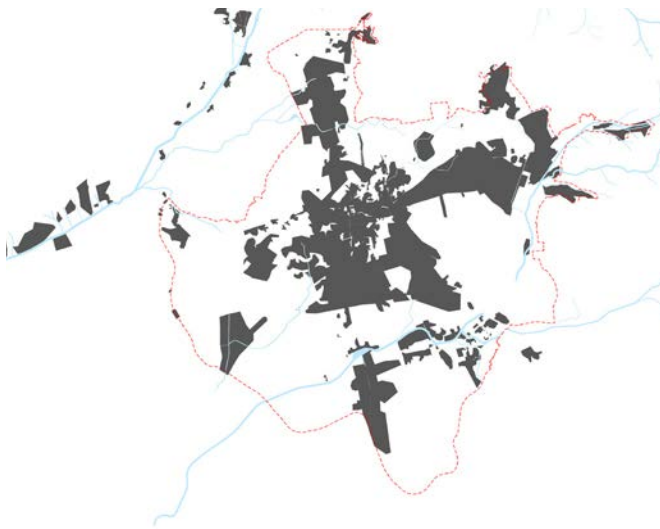
Scenario 3: UN-Habitat Recommendations


The UN-Habitat scenario supports sustainable neighbourhood planning for the Holy City, starting from promoting an increased density, in line with the average UN density of 150 p/ha. Considering the current growth rate, and a consequent increased population of 3,038,873 by 2030, the additional built-up area needed to fulfill the city's future growth at the recommended standards, would only be around 20,200 hectares (one-fifth of the built-up area proposed by the 2006 Makkah Plan).


In comparison with other Saudi cities, Makkah's population density is not considered to be extremely low. However, by applying specific planning policies, and concentrating density around specific areas, the overall population density could noticeably increase, counteracting low-density expansions.




CURRENT CONDITION

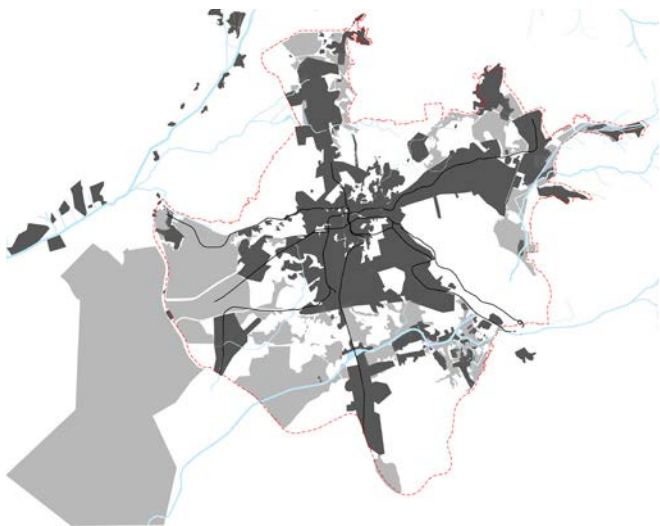


population  **2,017,793**

built-up area  **35,561 ha**

average density on built-up area  **60.49 p/ha**

SCENARIO 1: THE MAKKAH PLAN




population  **3,038,873**


planned built-up area  **104,709 ha**


average density on planned built-up area  **29.02 p/ha**


SCENARIO 2: UN-HABITAT RECOMMENDATIONS



population  **3,038,873**

built-up area needed according to UN-Habitat recommendations  **20,200 ha***

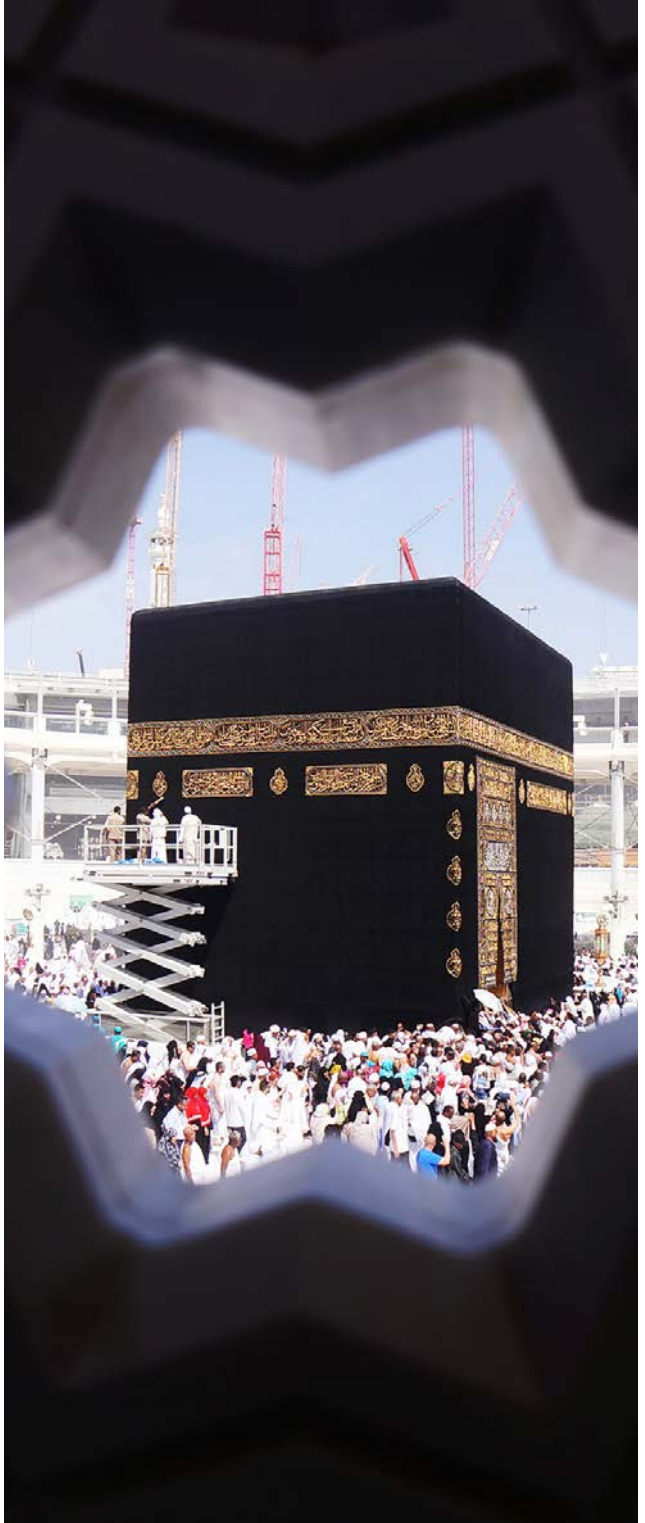
vacant land needed to accommodate population growth  **6,807 ha**

average UN-Habitat recommended density  **150 p/ha**

* 1/5 of the built-up area proposed by the Makkah Plan

5

STRATEGIC DIAGNOSIS



6.1 Identifying and Defining Main Strategic Issues

Resulting from the evidence-based and cross-scalar analysis undertaken, four main issues affecting the urban development of Makkah were identified. These issues represent the strategic framing of a complex diagnosis, synthesised through four conceptual lenses. These lenses, are firstly defined in their conceptual nature and then contextualised by examining how they spatially manifest in Makkah at the different scales.

6.1.1 Unbalanced growth and development patterns

This often happens when a city grows rapidly, presenting a widespread sprawl phenomenon that manifests in inharmoniously balanced developments across its territorial extension. Dysfunctionalities in urban management, both institutionally and experientially, are brought to light. In this scenario, the city demonstrates low-density and does not perform effectively, its services and facilities are not well-balanced in distribution and accessibility, which results in inequitable citizenry experience. This condition additionally makes the provision and maintenance of basic services and transport infrastructure costly and challenging.



[SPRAWL]

6.1.2 Dual City: Pilgrims and residents dynamics

This issue is unique to cities around the world experiencing religious tourism. Cities such as Makkah and Madinah, over the years, have experienced sudden spikes in population density due to the dynamics of religious tourism connected to the Islamic calendar (referring to Hajj and Umrah). Consequently, the rise in property values in the areas proximate to holy sites, the increased requirements for high-performing infrastructures during peak influx periods, and the prevalent focus of investments in religious-related facilities, creates two time-dependent and contrasting urban realities. This dual condition within the same urban environment, creates an invisible but perceptible barrier, on one side of which, permanent residents feel neglected, and on the other, pilgrims do not experience interaction with residents and the more permanent condition of the city. For cities such as these, it becomes critical to create ways to turn this divisive duality into opportunities for peaceful coexistence, intercultural dialogue, and mutual benefits amongst residents and different city users.



[SPATIAL INEQUALITY]

6.1.3 Endangered historic / vernacular urban pattern

Planning regulation systems in Saudi Arabian cities are currently under development within a unified framework. One of the challenges that will need to be addressed concerns the need for a comprehensive set of criteria that distinguish historical vernacular urban patterns from informal, unplanned settlements. In the absence of such a regulatory framework, historical neighbourhoods in Saudi cities are being erased to make space for new developments. Not only does this endanger heritage and disrupt the sense of identity tied to a historically stratified urban environment, but these new developments additionally disrupt the connectivity to the surrounding urban fabric, whilst alienating themselves to the neighbouring building typologies and established patterns. The introduction of appropriate heritage protection rules for articulated portions of the urban patterns, extended to streetscapes and fabric layout, will reduce risk to traditional urban layouts. These traditional layouts are characterised by narrow alleyways, that excel climatically in terms of passive energy performances and function as vibrant public spaces that generate social value.



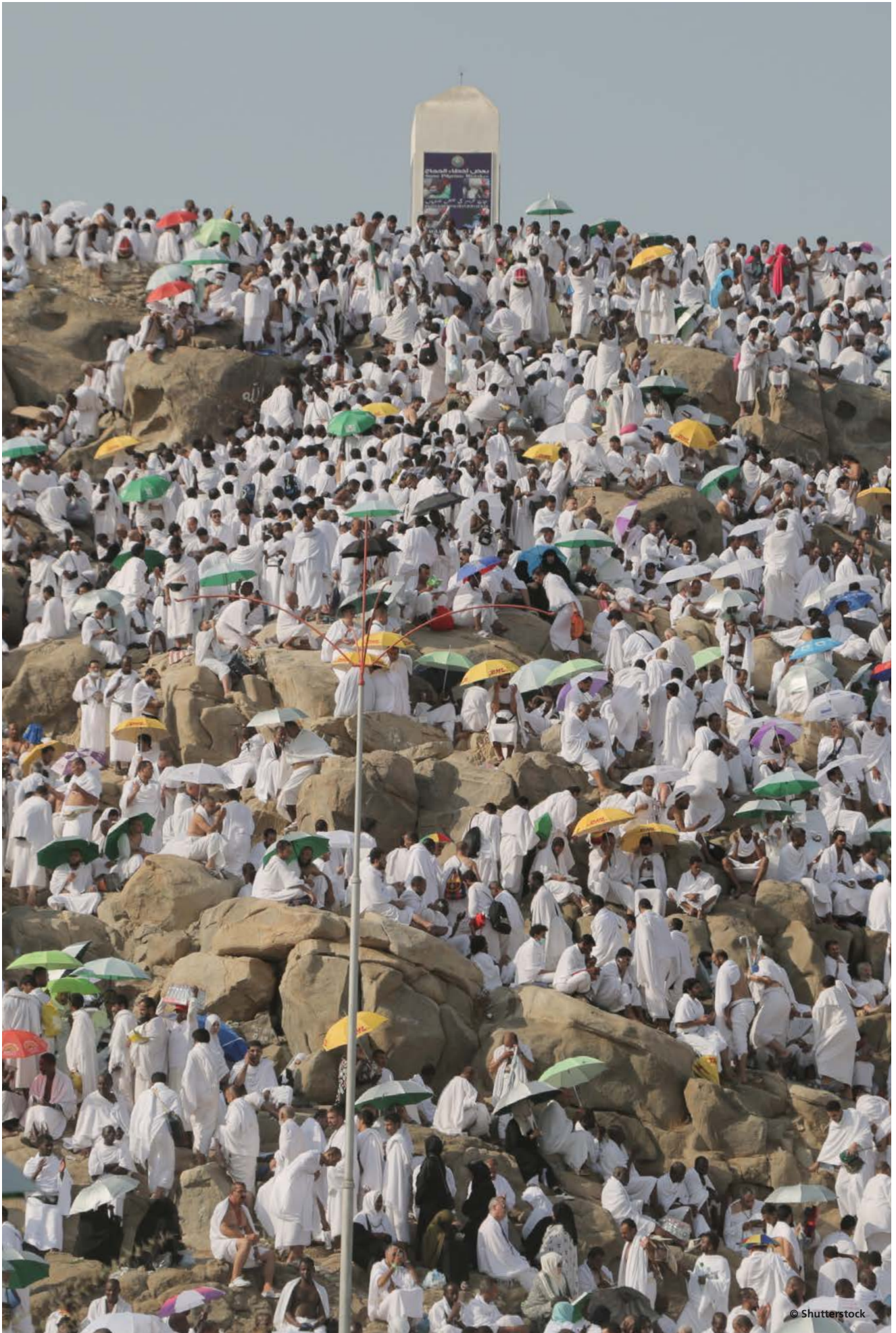
[HERITAGE LOSS]

6.1.4 Socio-ecological and economic imbalance

Each city is formed by complex social, economic and ecological systems. In a sustainable city, the balance between these three interrelated systems is maintained and enhanced over time. If any one system is given continued preference over the others, over time, a structural imbalance will emerge that alters the sustainable trajectory of the city's growth and development. This misalignment generates an issue in terms of water provision and food security, heavily impacting other socio-spatial aspects of the city's health. Segregation between agricultural lands and the urban fabric is a good example of this condition. The city does not interact with green space and is disconnected from farmlands by a strong boundary. A resilient city would integrate its natural and built elements, ensuring their balanced coexistence.



[LACK OF RESILIENCE]



Mount Arafat during the Hajj



6.2 Analysing Makkah's Four Issues in Depth

6.2.1 *Makkah's unbalanced growth and development patterns*

At both the city-region and the metropolitan scale, it is easy to visualise how sprawling development on the Northeast edge of the city, has left patches of vacant and undeveloped land. With the same sprawling approach, the plan from 2006 foresees a new urban expansion area on the Southwest side of the city, right out of the 1450 UGB, that was never implemented. In addition, the overdimensioned Development Protection Boundary, overlapping with the Jeddah municipal boundary, also encourages a sprawled growth pattern, as it is used as a promoter of new developments, rather than as a development protection buffer area. The aim of this boundary should be to keep the city compact and organised, rather than providing a legal and spatial authorisation for sprawled development.

At the urban scale, the population density is 60.49 p/ha, which is not considered a very low value in comparison to other Saudi cities. Nevertheless 60.49 p/ha is equal to less than half the UN-Habitat standard of 150 p/ha, which is one of the key elements supporting sustainable neighbourhood planning and design. As the vacant land within the current urban footprint amounts to approximately 20 % of the total urban area, the city needs to concentrate further development in this areas, through punctual infill and densification strategies, rather than

to promote new developments on the outskirts of the city. At the neighbourhood scale, this reads like a series of excluded (or secluded) patches of urban fabric, often on the outskirts of the denser city, and far from the mixed-use areas. Between the core area of the city (on the Western side of the Great Mosque), and the new developments happening on the North-East and Southern parts of the Haram area, there is an apparent imbalance in land use distribution. Entire neighbourhoods are only residential, and the overall percentage of mixed-use is very low. In the future, the creation of new neighbourhoods will have a critical effect on the finance of the city, which will need to cover initial infrastructure and maintenance costs for new settlements located far away from the city centres.

Urban sprawl causes inefficiency in urban management and a high financial cost for the Government, in terms of delivery of infrastructure and public services. In a sprawled city, the cost of providing access to electricity, sewage and clean water, by the municipality is higher than in a compact city, and maintenance capacity is also affected as infrastructure is more widespread. And the low density of population does not compensate the costs through an ordinary revenue system.



View of construction sites and unplanned settlements in Makkah

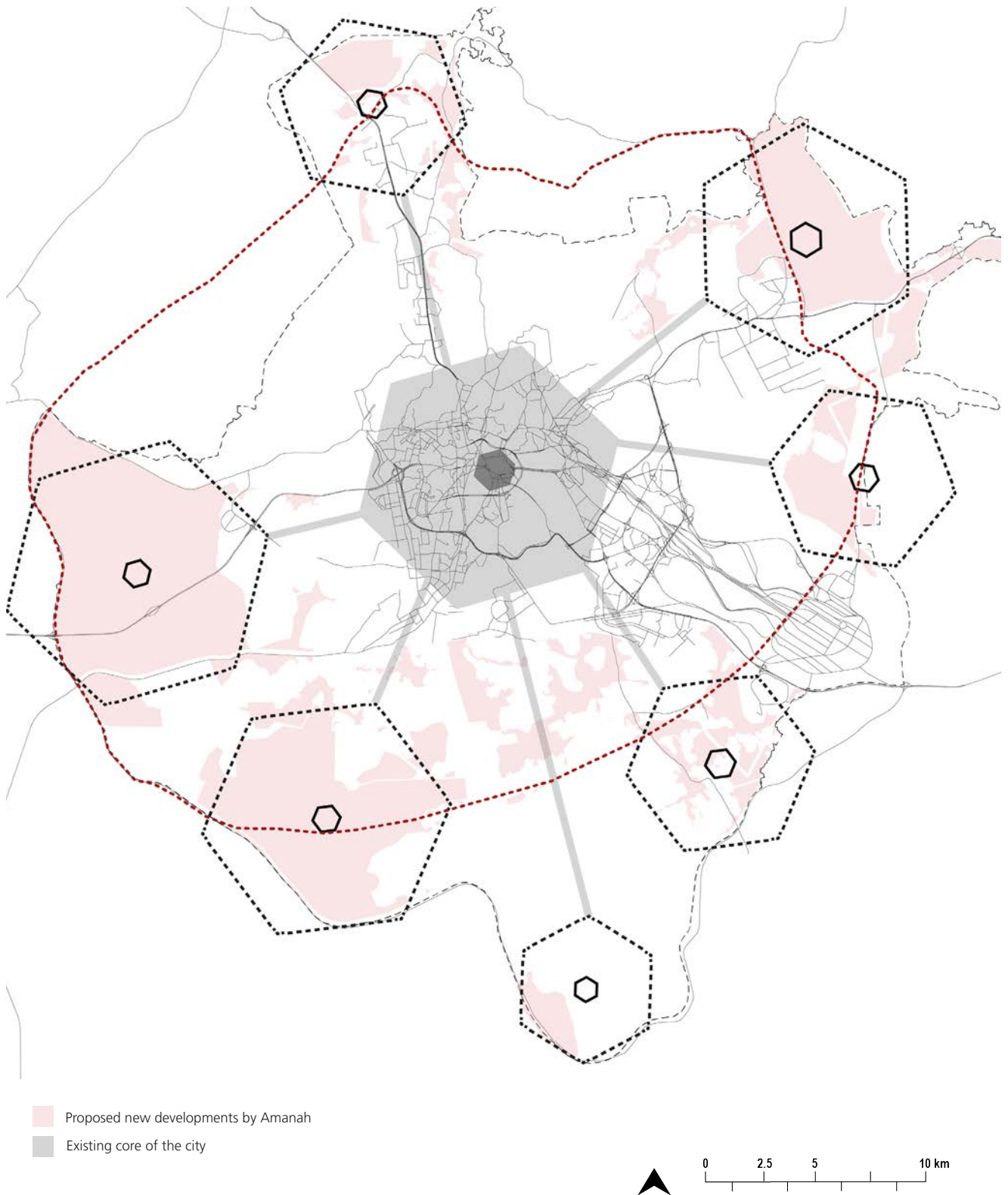


Fig. 45. Makkah's unbalanced growth and development patterns



6.2.2 Dual City: Pilgrims and residents dynamics in Makkah

The city of Makkah doubles its population during Hajj. The number of pilgrims coming to the Holy City financially contributes to the wealth of the city, but it also generates a challenging operational context for services, facilities and infrastructures. As millions of Hajj pilgrims return home, Makkah's two million locals are left struggling with the impacts of their changing city.

Much of old Makkah has been razed and rebuilt to make room for growing tourism, displacing residents who are not able to afford the rent in the city centre. More and more, residents are facing challenges to participate in the Hajj economy, and having to compete with corporations, for example, hotels replacing private homes, and fast-food chains replacing food stalls in once-bustling street markets.

According to recent data shared by Arab News in 2016, the average Hajj pilgrim spent SR2,500 (670 USD) on housing/accommodation. Pilgrims who stay around central Makkah pay anywhere between SR4,000 (1,000 USD) and SR7,000 (1,900 USD), while worshipers who are lodged further away, pay between SR1,000 (270 USD) and SR2,500 (670 USD).⁴⁷ Because of the profits derived from renting out accommodation for religious tourism, several landlords in Makkah demand that their tenants leave their apartments during Hajj, in order to rent them out to pilgrims. Within the housing leases in

Makkah - considered one of the most densely populated cities in the Kingdom - several landlords accept lower annual rents for their housing units, as long as residents leave their flats free for rental during Hajj. These apartments are rented out for 10-month terms, and leased to pilgrims during the peak season.⁴⁸ Apart from the housing aspects tied to the pilgrimage dynamics, residents lament a lack of services, entertainment, and facilities in areas that are not of interest to the heavy pilgrims' influx. These two examples represent some of the spatial manifestations of the "Dual City" phenomenon affecting Makkah.

Another element to be critically highlighted is the proposed transportation system for the city. The proposed metro lines are still not aligned with the needs of the citizens, who don't commute to the Great Mosque on a daily basis. The current plan still demonstrates a decisive orientation towards managing the movement of pilgrims rather than facilitating daily use of the city for the permanent residents.

During the workshop organised in March 2018 by UN-Habitat and MoMRA, participants specifically requested more attention from the local authorities on the movement routes and needs of the permanent residents.



Aerial view of Mina camp, it is situated 5 kilometres to the East of the Holy city of Makkah

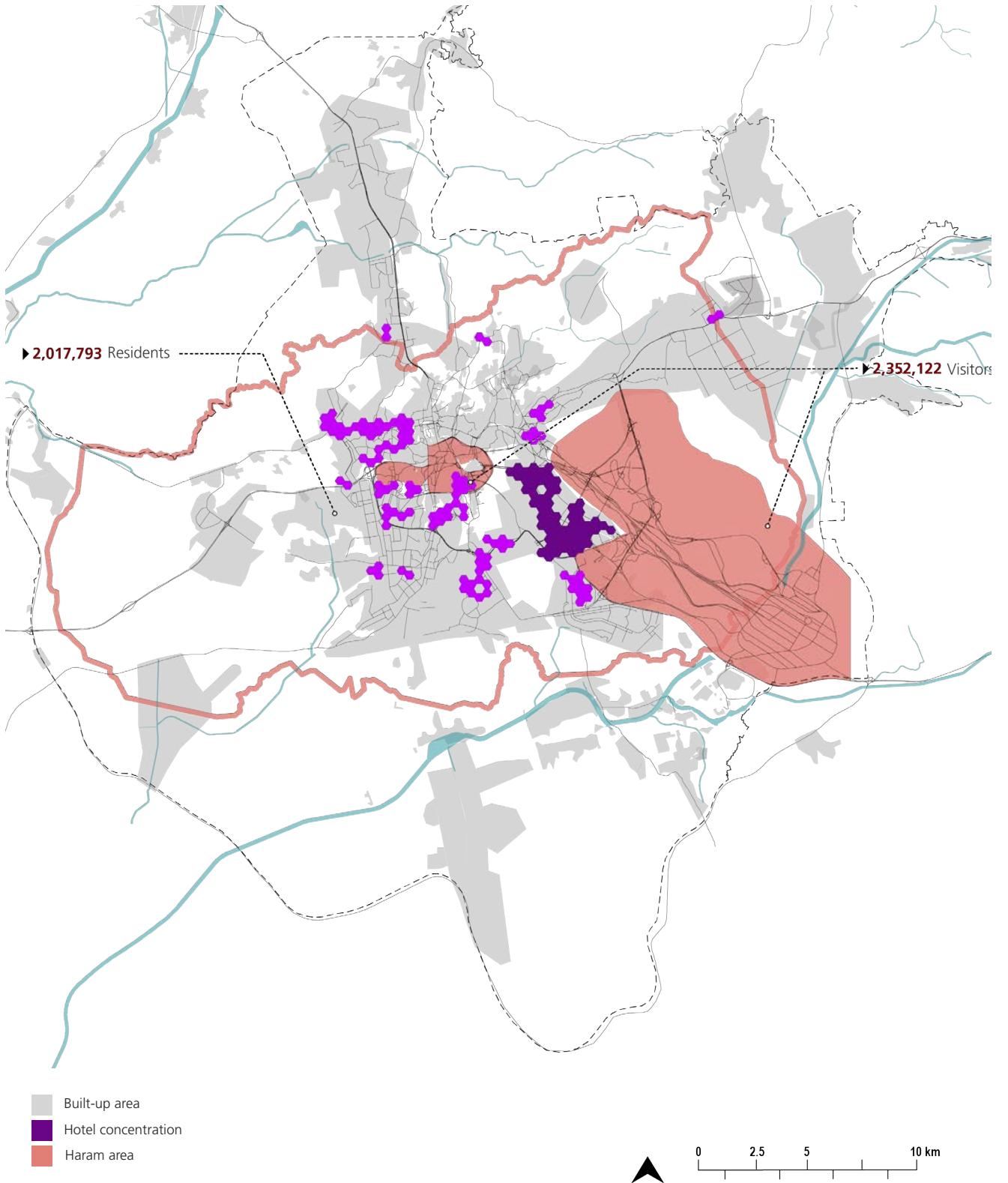


Fig. 46. Dual City: Pilgrims and residents dynamics in Makkah



6.2.3 Endangered historic / vernacular urban pattern in Makkah

Driven by recent developments aimed at accommodating more and more pilgrims, the city of Makkah has seen its historical and traditional urban pattern change drastically. Many high-rise buildings have been built around the Al-Haram over the years, destroying the old Ottoman and Arab urban fabric, located once around the Holy Mosque. To make room for this, many historic buildings were demolished. In perpetuating this course of action, the city is running the risk of losing its historic built environment, and part of its unique identity with it.

According to the studies of the Hajj Research Centre, several monumental and important buildings were demolished to make room for new construction. Thousands of homes and entire neighbourhoods have been destroyed to make way for the city's expansion. Thirteen of Makkah's fifteen old neighbourhoods have been razed to make room for hotels and commercial spaces, that are also triggering environmental risks, because of their impact on the groundwater table and geological stability. Analyzing how this aspect impacts the urban structure at the neighbourhood level, three key typologies of developments were observed and selected, to illustrate how the city deals with its historical and vernacular fabric. The criteria utilised for this categorisation are based on the integration (or lack of) between historical, unplanned neighbourhoods, and recently developed areas, subsequently

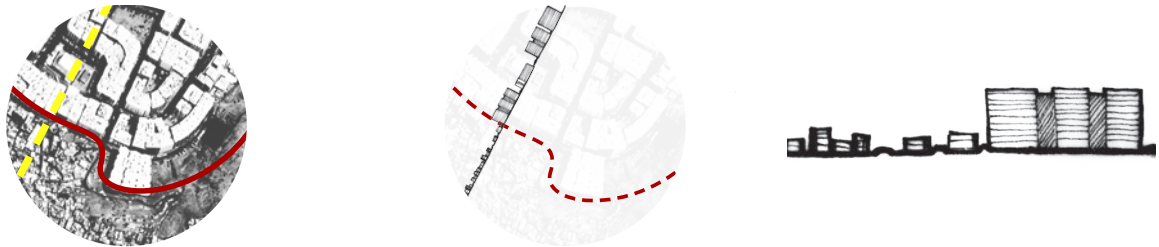
defining three types of relationships over three case studies (neighbourhood snapshots).

The first case highlights the contrast between the vernacular urban pattern, and the recently built governmental buildings. These institutional neighbourhoods are completely disconnected from the surrounding fabric, and the newly established street pattern does not align or connect to the older one.

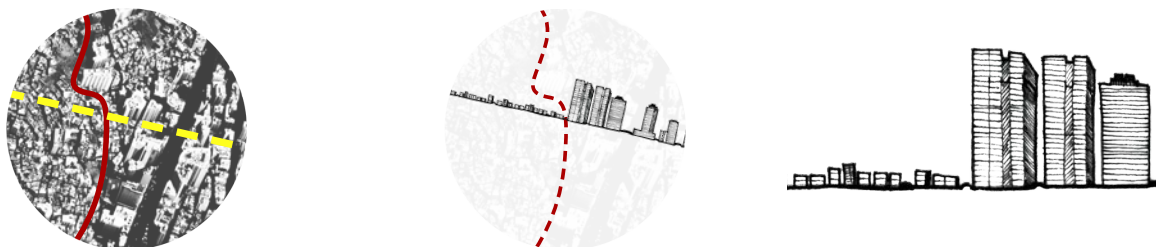
The second case points out the difference in the typology of fabric between vernacular neighbourhoods and new high-rise residential developments. This creates an unbalanced density, and puts pressure on the existing infrastructure systems (water distribution, sewerage, roads, etc.). Additionally, the environmental impact of these new neighbourhoods have to be carefully evaluated as high-rise buildings usually trap wind circulation around concrete towers, reducing the natural ventilation system, a unique characteristic of the traditional neighbourhoods. Furthermore, as it has been previously argued, vernacular fabric and historic neighbourhoods have a much better climatic performance.

The third case highlights the issue of new infrastructure, specifically highways, crossing the city centre and surrounded by a series of new residential towers. Here, not only does the highway become a barrier between the different

1. Vernacular pattern and Institutional buildings



2. Vernacular pattern and new residential development



3. Vernacular pattern and new infrastructure

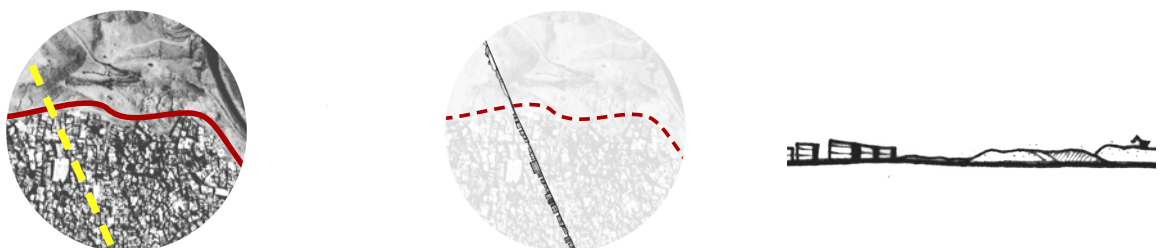
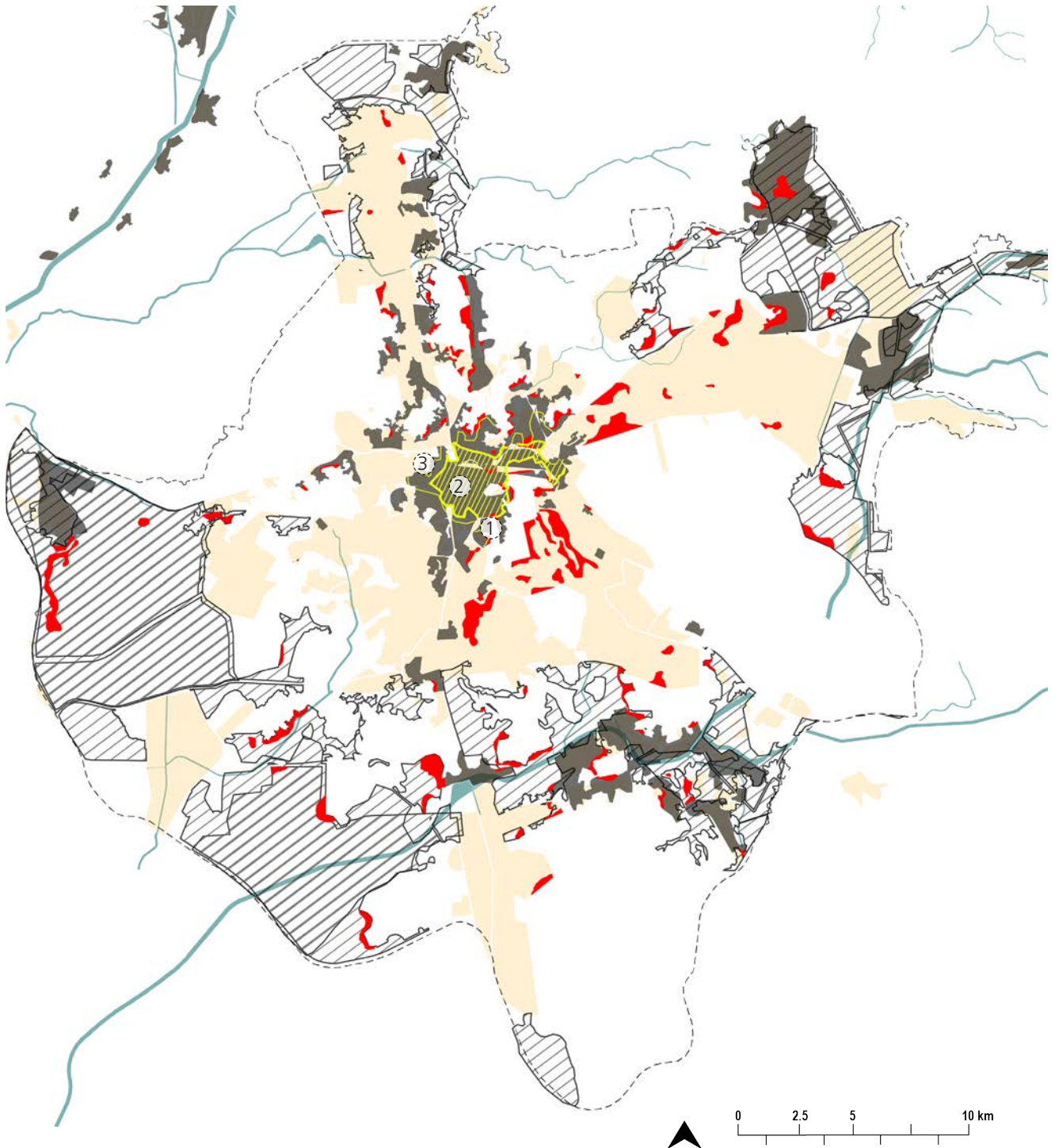


Fig. 47. Typologies study of street pattern connection



- Areas with historic value
- Areas built before 1973
- New developments
- Areas at land-slope risk (above 30%)
- Unplanned areas
- Built-up area

Fig. 48. Endangered historic / vernacular urban pattern in Makkah



neighbourhoods, but these new towers, that are detached from the pre-existing neighbourhood and have no relationship to the street level, negatively impact the overall streetlife and pedestrian connectivity.

6.2.4 Socio-ecological and economic imbalance in Makkah

As previously described in Chapter 4, the city of Makkah is located between the rocky mountains of the Western portion of the Arabian Shield, which is still one of the most geologically active parts of the Earth's crust, and the Red Sea. The geological condition of the region occasionally generates earthquakes, that can be felt in Makkah. Being aware of these conditions, the city requires an extended verification of the engineering structure of its buildings. Earthquake experts, in fact, predict that over the next 70 years, there could be an earthquake measuring anywhere between a 6.0 to 7.0 on the Richter Scale, in Makkah itself. Such seismic events have been documented over almost 2000 years in the region. The rugged environment and the seismic risk make the provision of physical infrastructure economically and technologically challenging.

New developments should be directed to areas that can be efficiently serviced by utilities and infrastructure, taking into account the geological characteristics of the area. Steep, rugged slopes are often not appropriate for development, both in terms of the increased cost of development, and because of a more difficult accessibility. Steep slopes, are not easy to be serviced by emergency personnel and are not always accessible for people with mobility challenges. In addition, when unplanned settlements are located on steep slopes, they are subjected to the risk of landslides, because of the instability of the construction, and the lack of proper foundations.

City regulation and management should be more prescriptive and proactive in preventing new developments over mountainous terrain and steep slopes, both legally approved and unplanned ones. Seismic and landslide risks are directly connected to the complex hydrological system of the city, which is challenged by pressuring developments, causing it to cyclically expose residents and visitors to flood risks. Delicate ecosystems and natural water infrastructure have been disrupted in their functioning, or completely eradicated to make room for hotels, high-rise buildings, and overdimensioned religious facilities, impacting the natural flow of rainwater and the soil infiltration capacity.

And while the underlying hydrogeological structure of the city is overlooked and damaged, key sites like the sacred ZamZam well have been monitored continuously to ensure its water quality for the millions of pilgrims visiting this site, demonstrating a contradictory behaviour. In addition, the city is characterised by an inconsistent green network. The green and open public spaces available are scarce in quantity

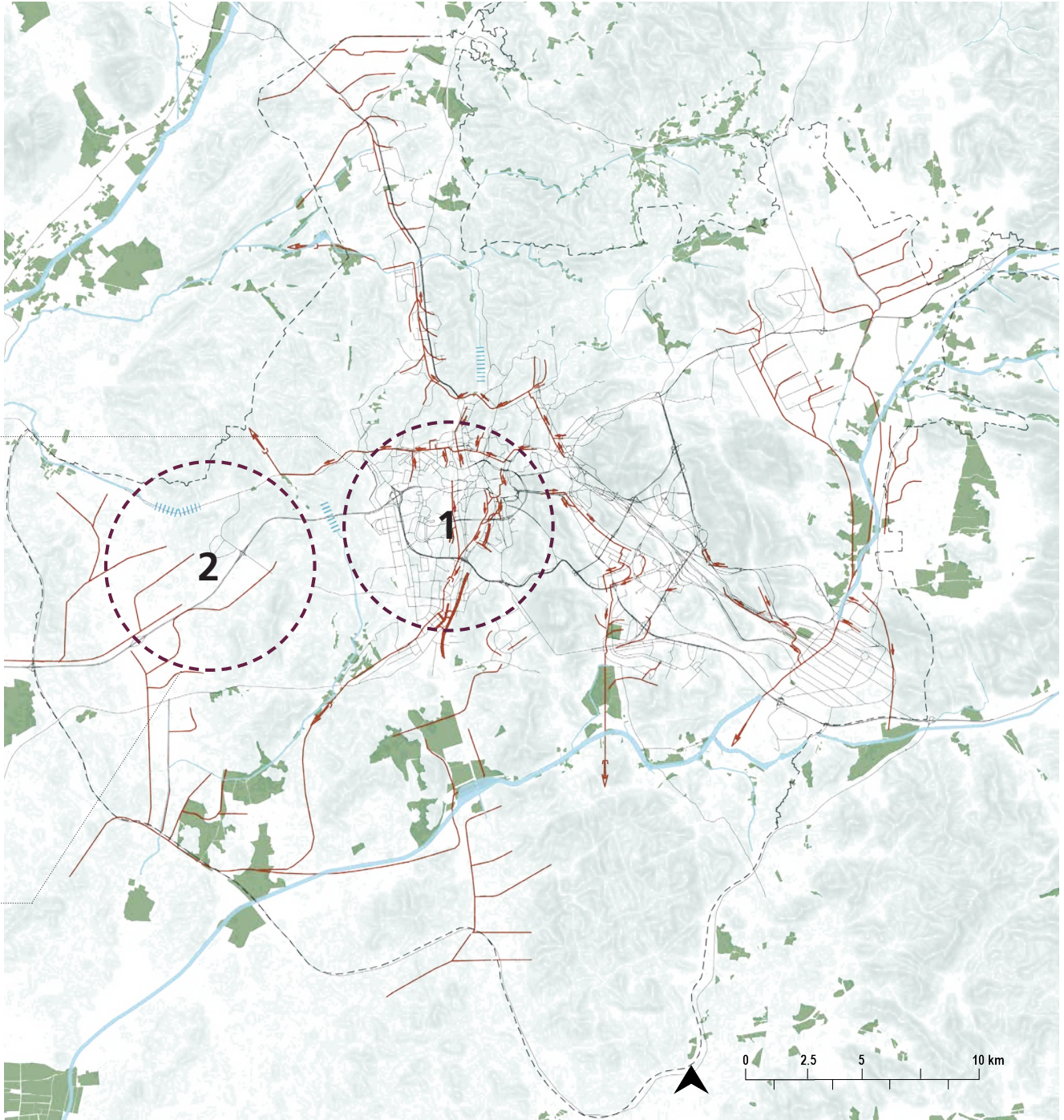
and fairly disconnected amongst them, as well as from the blue network of wadis crossing the city. The overall lack of green spaces and the misalignment between green and blue networks, together with the previously mentioned key risks, need to be urgently addressed, in order to reduce the disconnection and imbalance amongst the social, ecological, and economic dimensions of Makkah, making the city more resilient.



Lack of green public space in most populated areas, which causes urban heat island effects.



Missing connection between green and blue network, which increase the evaporation factor and decrease agriculture efficiency.






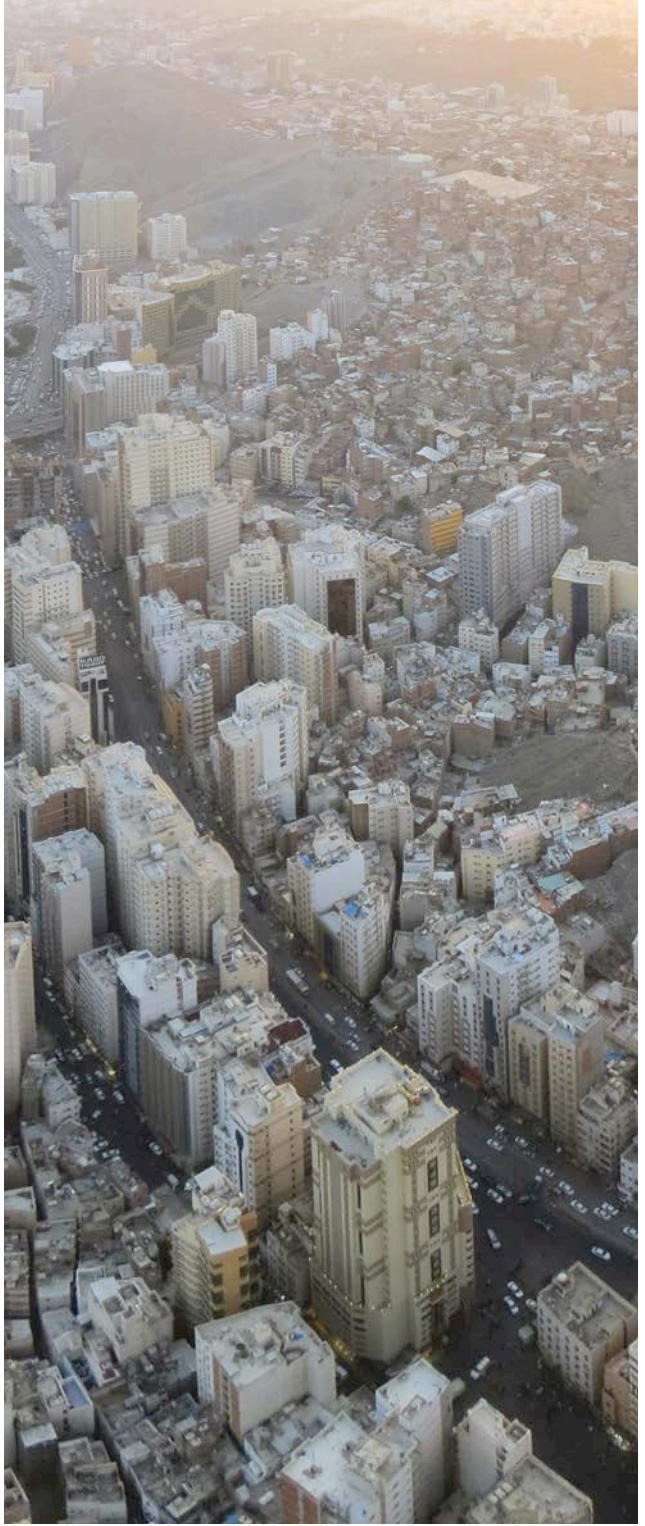
-  Agricultural land
-  Stormwater management system
-  Wadis

Fig. 49. Socio-ecological and economic imbalance in Makkah

6

THE FUTURE CITY



7.1 Strategic Responses

After performing a strategic diagnosis, and identifying four main issues affecting the urban development of Makkah, four strategic recommendations were identified in response. Akin to the four strategic issues, the above-mentioned four strategic recommendations define the conceptual framing for a systemic and strategic level of solutions. Once defined in their conceptual nature, they are developed into a more detailed description, spatially interpreted and contextualised in Makkah, at the various scales. This is followed by a roadmap to implementation, in the form of an articulated Action Plan.

7.1.1 The Compact City

According to UN-Habitat principles, cities need to encourage spatial development strategies that take into account the need to guide urban extension, prioritising well-connected infrastructure and services. A Compact City is envisioned as a high-density urban settlement, characterised by mixed-use development, dense and vibrant urban areas, and well-distributed services and facilities, (such as hospitals, parks, schools). Establishing spatial and legal mechanisms to consolidate a Compact City can increase accessibility and walkability, therefore increasing use of public transport and public space, reducing congestion, boosting the local economy, and increasing interactions across society. Policies to promote urban compaction involve the promotion of urban regeneration, the revitalisation of town centres, restraint on development in rural and peripheral areas, promotion of higher densities and mixed-use development, and the concentration of urban development around public transport nodes.



7.1.2 The Integrated City

An Integrated City is developed as a whole, presenting a well-distributed level of urban services, ensuring all its parts contribute to its function. An equitable distribution of services and functions should ensure that people of varying social classes and age are brought together, and equally benefit from a high-quality urban environment. However, integration also means that all policies, projects, and proposals are considered in relation to one another. In this regard, the synergies between different urban elements should be such that the city as a whole achieves more than the sum of the individual parts. In response to the diverse fragments and complex relational webs of the contemporary city, UN-Habitat proposes the development of context-sensitive interventions that address the multidimensional aspects of socio-spatial integration in urban policies and practices. The lack of socio-spatial integration in Makkah is multi-layered, but its most visible and impactful aspect relate to the city's spatial dualism between permanent residents and pilgrims. Mechanisms for integration between different city users that bring people together experiences in a shared urban environment, is one of the strategic solutions proposed for Makkah.



7.1.3 The Historic City

A Historic City is defined as an active human settlement, strongly conditioned by a physical structure that originates from its past, and recognisable as representing the evolution of its people.⁴⁹ Following this definition, it is fundamental for historic areas to be inhabited and form a live cultural nucleus, with a strong urban identity. Over the last few decades, inner-cities and their historic districts all over the world have been deteriorating. Saudi cities are facing high-pressure from development, and often, in historic cities, architectural heritage has been allowed to deteriorate or eradicated to make space for new development, in place of conservation in historic areas. Responding to this scenario requires firstly the establishment of categorisation of these areas, followed by precise regulatory systems for their preservation, restoration, rehabilitation, and revitalisation, aiming not only at protecting the heritage buildings but the entire historic urban fabric, inclusive of all its elements, from streetscapes to residents.



7.1.4 The Resilient City

A Resilient City takes into consideration appropriate built form, and physical infrastructure to increase resilience to the physical, social, and economic challenges that arise from depleting carbon-based fuels, and climate change. A Resilient City can be defined as "a sustainable network of physical systems and communities."⁵⁰ These physical systems consist of both the constructed and natural environmental components of the city. They include roads, buildings, physical infrastructure, communications facilities, soils, topography, physical features, geology, waterways, population density, etc. In sum, the physical systems act as the body of the city, its bones, arteries, and muscles. Resilient cities are cities that are capable of withstanding severe shock and stress without either immediate chaos / damage or permanent deformation or rupture. Rebalancing the urban system, to consider stress conditions, is therefore key for Makkah.





View of the city of Makkah from the surrounding mountains



7.2 Appropriate Models for Makkah Urban Development

7.2.1 *The Compact City: Consolidating development by creating and densifying new centres in Makkah*

A high degree of pressure is placed on Makkah's urban core, due to the city's main attractor: the very central Grand Mosque. Moreover, the Mashaer area, during certain periods of the year also receives a heavy influx of pilgrims. To relieve some of the pressure placed on the city centre and the current transportation system, the 2012 Structure Plan for Makkah proposes the definition of secondary clusters around the city as new destinations for pilgrims. In these terms, the UN-Habitat review of the 2012 Makkah Plan found it aligned with its findings and recommendations. The plan appropriately aims at transforming the city into a polycentric model, also indicating that new areas for densification should be located within the existing urban footprint, to avoid leapfrogging development and limit urban sprawl. Accordingly, the new public transport system shall provide a backbone for new mixed-use centralities to be developed around main stations located within the identified growth areas. These new mixed-use destinations, distributed across the city, should follow the principles of Transit Oriented Development (TOD). In the discourse around the Compact City, the emphasis is on the relationship between the urban form and the sustainability of a city, succeeding the suggestion that the shape and the density of cities have implications for their future sustainable use of resources, and quality of life for its citizens. But what a Compact City means for Makkah's appropriate development, is acutely different from what it means for another city, as the emerging spatial vision for Makkah is the one of a polycentric city, with distinct but well-connected, compact, and dense mixed-use centres. In this vision, a strategic densification process helps to gradually reshape Makkah into a well-functioning polycentric system, using the new public transport as the backbone around which to densify and take advantage of residual vacant land within the existing footprint to rebalance access and distribution to services, commercial facilities, and job opportunities. To enact this vision, a selective densification process within the urban footprint is needed. This requires new legal tools to be set in place, and existing ones, such as the Development Protection Boundary, to be revised and enforced to ensure strong regulations around no-development areas, preventing sprawl and redirecting major development efforts around the new centres. In line with a series of criteria, such as availability of vacant land, proximity, existing developments, or insistence on the new public transport system, etc., five New Centres were identified as:

- The major node of Al Haramain high-speed train station has all the characteristic to quickly becoming a new urban hub and vibrant centrality. It is already an important gate for pilgrims arriving via land from Jeddah, providing the opportunity to quickly becoming a new pilgrims' destination by delivering dense, mixed-use development and services supporting pilgrims;
- The Northern expansion of the city is currently characterized by sporadic monofunctional residential developments. The area however provides an opportunity for a new mixed-use centrality

given the proposed public transport system that will service the area. As such, a strong multi-purpose node could be developed in the North by providing well connected and densified areas with complementary services in close proximity to the public transport system.;

- The three Southern nodes along the proposed public transport, currently underdeveloped, yet hold the potential to become new centralities and to rebalance the current service polarisation.



Al-Haramain High-speed Railway Station



The Great Mosque of Makkah



Residual vacant land within the existing footprint

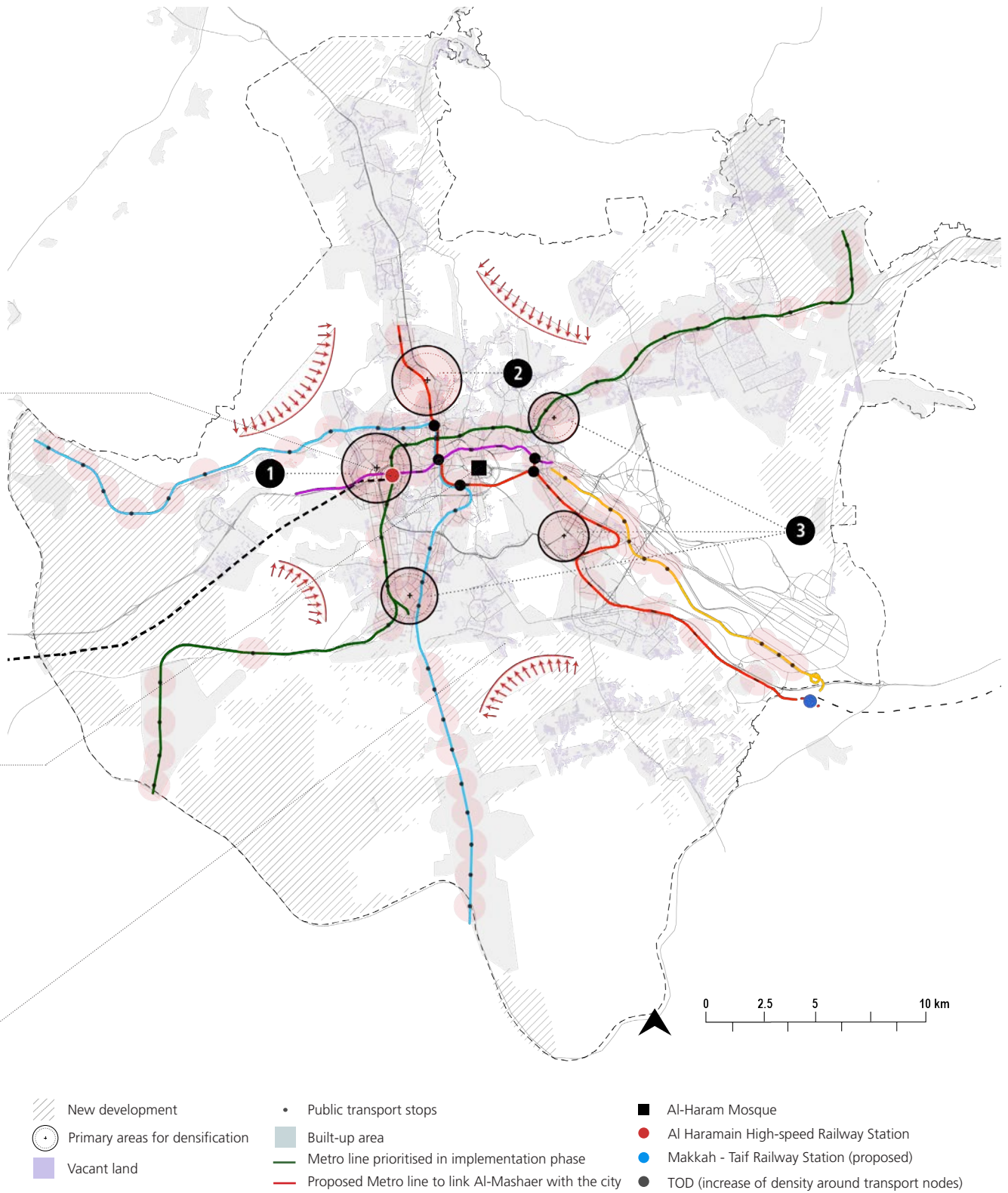


Fig. 50. The Compact City: Consolidating development by creating and densifying new centres in Makkah



7.2.2 The Integrated City: Bridging Makkah and bringing residents and pilgrims together

In order to achieve an extensive socio-spatial integration in the city, and dismantling Makkah's spatial dualism, a comprehensive series of policies and interventions needs to be put in place. As a first step, a strong emphasis needs to be placed on implementing the proposed public transportation system, which can act as a backbone for integration, by allowing movement, exchanges, and encounters, therefore fostering socio-spatial integration across the city. Overall, the proposed public transportation system will play a key role in fostering integration and connectivity amongst different parts of the city, to also facilitate interaction between residents and pilgrims. Thanks to the implementation of the proposed metro system, the city will be able to host a higher density and enact the polycentric vision, densifying new mixed-use centres around transportation nodes. This will contribute not only to a more varied distribution of residential densities but by redistributing pilgrims' destinations across these new centres, highly connected by the new public transport, it will also favour social integration and cohesion, mixing of residents and pilgrims across the city.

For Makkah, a key aspect concerning integration relates to the need for addressing its duality as a city for its citizens and as a global destination for pilgrims. Building on the previous strategic recommendation, the vision for Makkah Integrated City implies a strategic redistribution of services and hosting facilities for both pilgrims and residents across the city, following the previously mentioned polycentric model, and starting to restructure the city around new spaces of integration. According to the vision for Makkah Integrated City, and in addition to the new proposed centralities, three strategic areas have been identified as having the potential to address the issue of integration:

- There are several remaining historic and vernacular areas built before 1973. The existing vernacular urban fabric with its irregular street pattern and human scale environment could offer interesting opportunities for hosting a non-disruptive development of temporary accommodations during Hajj, and in parallel offer opportunities for upgrading and economic revitalisation of vernacular and historic settlements;
- The Mina camp can host up to approximately three million people, thanks to the 100,000 tents located in the camp. Mina camp is a large area and is partially serviced, nonetheless, its capacity is not fully utilised over the entire year. However, this vast area, underutilized for most of the year, has the potential to become a space of integration if new creative temporary uses are found for it. The participants workshops has suggested, the area could be used over the year for cultural gatherings, religious exhibitions, or other activities resulting in a vibrant and more alive area, as well as useful and accessible to both pilgrims and residents;
- The existing metro line, running in the Al-Mashaer area, is the only metro line that is currently operational in the KSA. However, it only operates during the short period of Hajj.

While awaiting for the new planned metro system, targeting residents' needs, this existing metro line could be utilised as a catalyst for strategic densification and integration processes. In the future, by linking it to the foreseen public transport system, it could become an important tool for integration between different areas of the city, especially the Mina camp.



Area with potential historic value, built before 1973



Mina Camp



The existing metro line running in the Al-Mashaer area

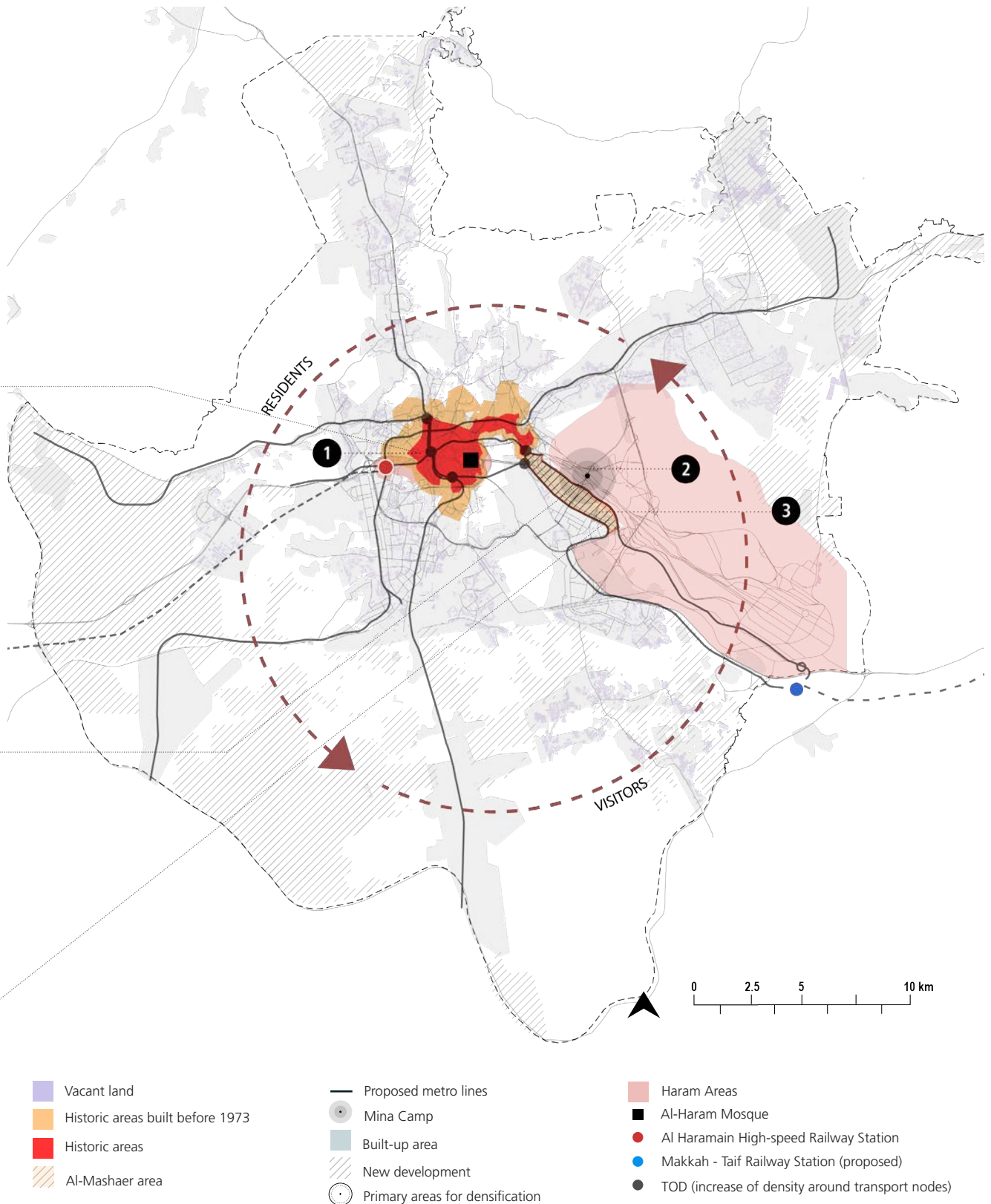


Fig. 51. The Integrated City: Bridging Makkah and bringing residents and pilgrims together



7.2.3 The Historic City: Preserving and enhancing Makkah's identity

Makkah is losing most of its historic and vernacular built form under the voracious pressure of speculative development, especially in the areas surrounding the Great Mosque, which are also amongst the oldest. In order to preserve the historic identity of the city, a new regulatory system should be set in place and actively adopted to protect historic and vernacular neighbourhoods. These are the areas where the streetscape and the urban patterns, as well as the building typologies and the associated social structures, reflect the history of the city, its people, and both a past and present way of life. Building on the strategy for Makkah Integrated City, the vision for Makkah Historic City proposes a preservation and revitalisation strategy leveraging on Makkah's unique historical role as a hospitable religious destination.

Historically, in Makkah, residents used to host pilgrims in their houses during Hajj. In the past 20 years, with the substantial increase in international hotels and high-rise buildings, a radical change in the urban layout and in the hospitality tradition occurred. Retrieving this old custom would present the possibility of complementing the hospitality offered by creating small-scale accommodation options, such as "boutique hotels" or similar, and spread across historical and vernacular neighbourhoods. Not only would this reduce the physical and social distance between pilgrims and residents, but would also constitute an opportunity for additional income generation options in low and middle class households, favouring an incremental economic revitalisation of historic and vernacular areas. However, differences across diverse types of settlements need to be acknowledged, and as such, a diversified approach to preservation, upgrading, and revitalisation needs to be set in place following their systematic categorisation. According to the characters of Makkah's urban fabric, three typologies of settlements requiring different approaches were identified:

- The central area of Makkah has been inhabited for centuries. Even though the development of new hotels and the expansion of the Great Mosque have already caused the loss of important elements of the city's heritage, there are still substantial portions of the historic fabric which deserve protection and upgrading through the establishment of a new system of integral heritage protection regulations;
- There are several remaining vernacular areas built before 1973, holding potential historic value. These neighbourhoods are characterised by a traditional vernacular pattern, connoting the identity of the city. These areas, although lacking heritage value in terms of buildings, present an organic fabric and a rich and articulated urban pattern associated to a traditional socio-spatial structure that also needs to be preserved as part of Makkah's identity;
- Some unplanned and vernacular neighbourhoods on the periphery of the city, are built on slopes and could

possibly be subjected to the risk of soil instability and subsidisation. These settlements should be assessed against possible risks, and relocated when deemed unsafe, or upgraded and better connected to the rest of the city, when safe. Furthermore, planning regulations preventing further expansion/constructions on the mountainous areas of the city should be set in place and enforced to prevent environmental risks, as well as the proliferation of unplanned areas.



The central area of Makkah



Vernacular areas built before 1973



Unplanned and vernacular neighbourhoods

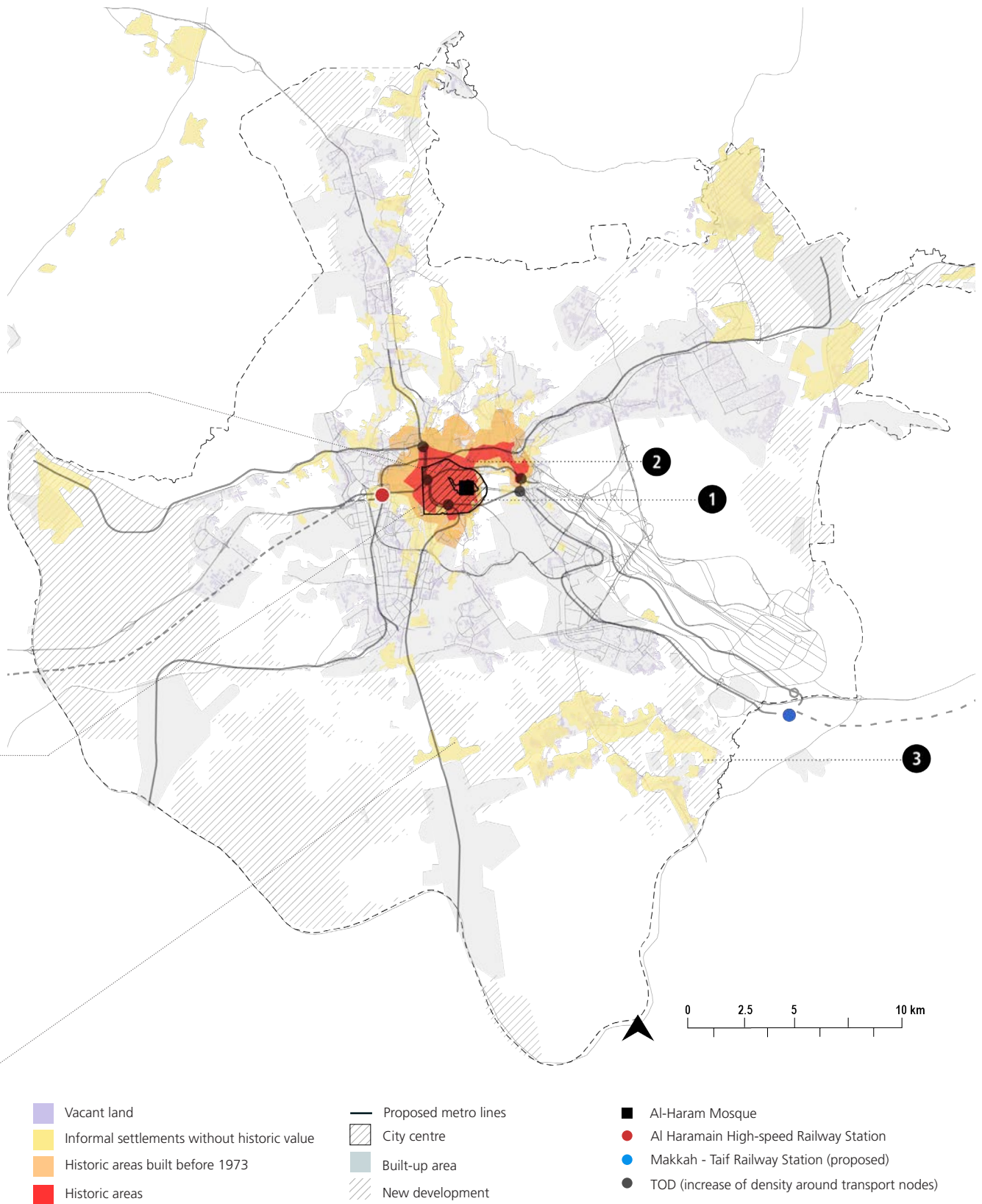


Fig. 52. The Historic City: Preserving and enhancing Makkah's identity



7.2.4 The Resilient City: Rebalancing Makkah's socio-ecological and economic systems

This strategy aims at promoting the development of urban spatial frameworks that support the sustainable use and management of natural resources and land, supporting the appropriate compactness and density, polycentrism and mixed-use from previously illustrated strategies. The approach, aiming at rebalancing how the city works, needs to strengthen urban resilience, enhance resource efficiency and environmental sustainability while triggering economies of scale and agglomeration by fostering risk reduction, food, and water security.

The green public spaces available are currently scarce in quantity and fairly disconnected from each other, as well as from the blue network of wadis crossing the city. As such, the overall lack of green spaces, together with the previously mentioned key risks, need to be urgently addressed, in order to reduce the disconnection and imbalance amongst the social, ecological, and economic dimensions of Makkah, making the city more resilient.

Accordingly, as a starting point, the city needs to rebuild and strengthen its inconsistent green network, converting vacant land into public spaces, especially in the city centre. In parallel, the city needs to start relinking green and blue systems where possible, gradually moving away from the current highly engineered flood-control channeling system towards re-establishing a more natural water management systems at the entire urban scale. Primary wadis, which carry the main water flows toward the city and have the capacity to replenish underground water tables, will have to be protected from development encroachment, reopened and re-naturalised where possible, provide opportunities for the establishment of new linear parks and public spaces across the city.

While gradually re-establishing underground water-recharge mechanisms, this approach will also offer opportunities to promote urban and peri-urban agriculture, strengthening food security and resilience. In addition, an articulated and well-linked system of smaller public spaces needs to be set in place, targeting the areas surrounding the Great Mosque, which is currently highly congested, and accompanying the development of the new high-density centralities.

Following these considerations, three main approaches have been defined as the basis for the Makkah Resilient City strategic vision:

- Processes of re-naturalisation of the heavily artificialised wadi beds, targeting the main wadis, and aiming at gradually moving towards natural water management approaches to foster water security and resilience while providing multi-functional rehabilitation of the wadis as linear parks to improve citizens' quality of life;

- Provision of smaller public, open, and green spaces, utilising the residual vacant land to address the lack of green areas in the central city and accompanying strategic densification processes addressing and preventing congestion;
- Incentivising Urban and Peri-urban Agriculture along rehabilitated wadis to foster food security and resilience while also providing economic opportunities.



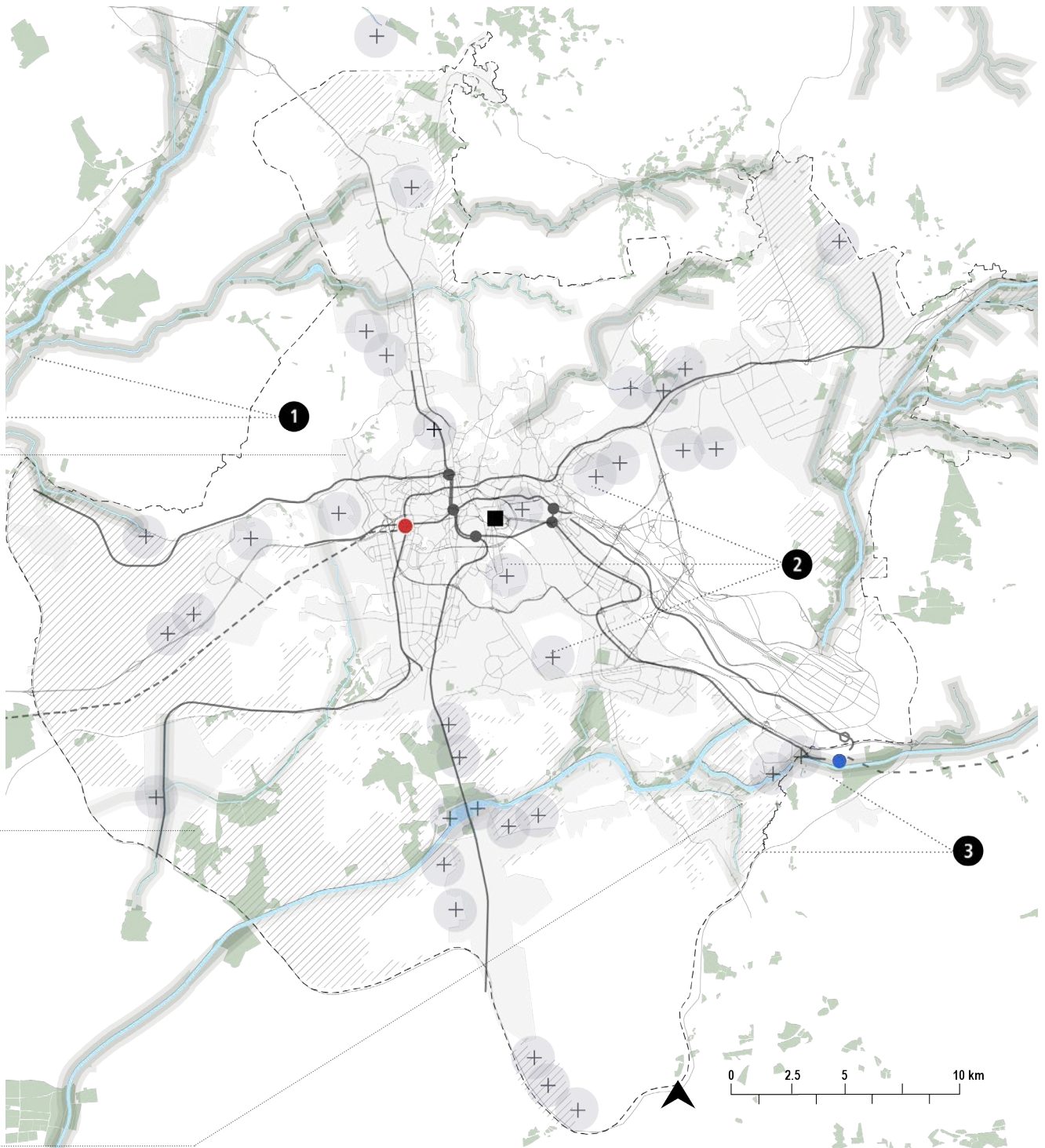
Built-up area



Agricultural land



Insufficient green public spaces within the city



- | | | |
|---|-----------------------------|--|
| Wadis | Proposed metro lines | Al-Haram Mosque |
| Agricultural land | Proposed public green space | Al Haramain High-speed Railway Station |
| Proposed wadi re-naturalisation system | Built-up area | Makkah - Taif Railway Station (proposed) |
| Proposed peri-urban - urban agriculture | New development | TOD (increase of density around transport nodes) |

Fig. 53. The Resilient City: Rebalancing Makkah's socio-ecological and economic systems

7.3 An Action Plan for Makkah

Transforming conceptual recommendations into concrete and implementable strategies requires detailed systemic actions, that can incrementally trigger the envisaged spatial, economic, and social transformation.

As such, an action plan that is rooted in the four strategic recommendations and grounded in a series of systematically scaffolded interventions for Makkah serves as a guide in prioritising and detailing the subsequent actions needed for building an integrated and resilient city.

The Action Plan outlines four systemic actions, envisaged specifically for Makkah, and defined as:

- **ACTION 1: Establish an extensive public transport system to support the creation of new centralities;**
- **ACTION 2: Implement strategic densification around main nodes and transport lines;**
- **ACTION 3: Relink natural elements to the city and establish a well-integrated and capillary green and public space system;**
- **ACTION 4: Protect, revitalise and integrate historical and vernacular areas.**

Actions 1 and 2 address the need for a system of urban interventions, in order to address the issue of sprawl and segregation in the city. The implementation of a public transportation network and the creation of new centralities around the main nodes acts at the city scale. Action 3, while addressing the socio-ecological rehabilitation of natural elements, also promotes punctual interventions by targeting diffused micro public space networks at the neighbourhood scale. Action 4 focuses on the neighbourhood scale, targeting preservation, upgrading, and revitalisation of heritage areas, from historic to vernacular neighbourhoods.

Overall, the Action Plan creates impact at two scales: the urban and the neighbourhood scale. It fosters connectivity and integration by improving transport networks, rebuilding the relationships between different city users, promoting strategic densification, and improving integration of the urban outskirts to the rest of the city.

It supports the retrofitting of natural infrastructure towards multiple purposes, and promotes economic diversification at the neighbourhood scale, suggesting heritage preservation programs for the vernacular and historical settlements. If implemented, these actions have the potential to radically readdress Makkah's urban development.



© FSCP

Workshop between MoMRA (FSCP), Amanah of Makkah and local stakeholders

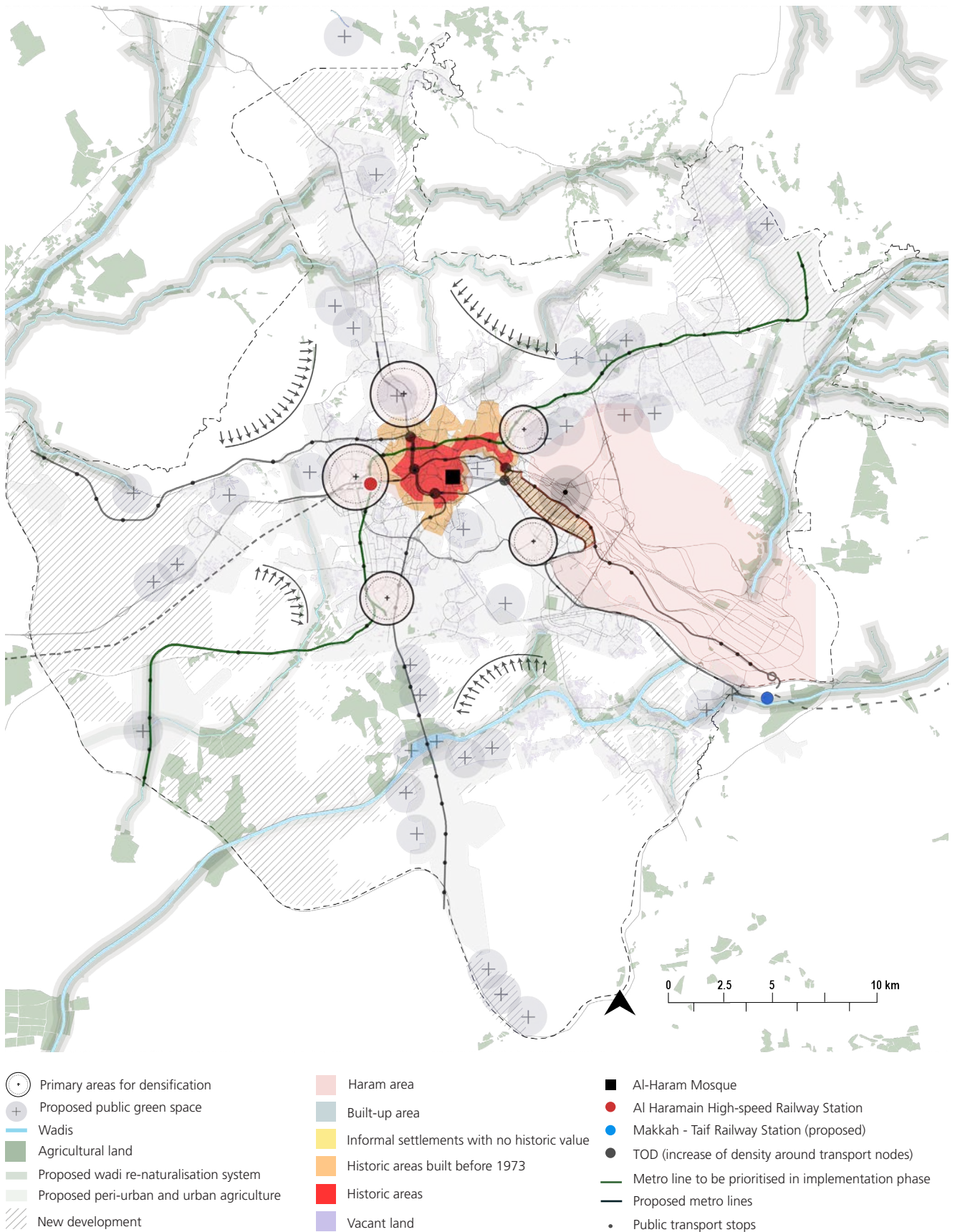


Fig. 54. Strategic recommendations for Makkah

7.4 Four Systemic Actions for Structural Change

7.4.1 Action 1: Establish an extensive public transport system to support the creation of new centralities

The first action addresses the need to restructure the city starting from its mobility patterns. Embracing the proposal for a new public transportation system, Action 1 guides the setting of priorities for its phased implementation, by prioritising efficiency in serving the existing city and its citizens. It furthermore sets the preconditions for promoting an incremental increase of urban density and for the creation of new centralities around the emerging major transport nodes. Action 1 can be summarised in the following steps:

1.1 Incrementally build the public transport system starting from the Green Line (line 3)

Based on the catchment and accessibility analysis conducted over the proposed transportation system, the Green Line, or metro-line number 3, provides the greatest benefit and should therefore be prioritised. This line is foreseen to be running from the South-Western neighbourhoods to the new district in the North-Eastern part of the city. By crossing almost the entire city transversally, this line would already offer walkable access to the metro system for 160,000 people, or 20% of the entire urban population. Making this line operational will overcome the isolation of the neighbourhoods in the Northeastern part of the city.

1.2 Subsequently, implement the Al Haramain-Al Mashaer, Purple Line (Line 2) and connect it to the existing Al Mashaer line (Yellow Line)

The connection of the Green Line (Line 3) and the Purple Line (Line 2) with the Al Haramain Train Station, will create transportation hub and a key intermodal node that will act as a gateway to the city for pilgrims and citizens alike. This will provide the opportunity for a strong mixed-use centrality to be created around the hub.

1.3: Complete the system with the implementation of the Blue Line (Line 4) and lastly with the Red Line (Line 1), start defining new centralities around major nodes

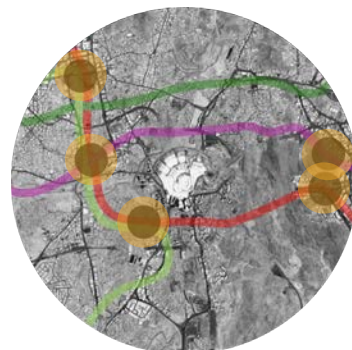
While incrementally implementing the other lines as suggested by the above sequence, an overall TOD strategy should be implemented around major interchanges. This will decrease the pressure on the city centre of Makkah, and reduce car-dependency for people living on the outskirts of the city. Given the radial growth of the city of Makkah and the congested ring road system, a supporting system of park-and-ride facilities should be set in place at major nodes, to limit the accessibility of private vehicles to the city centre.



Public transport system starting from Line 3 and connected to the Al-Haramain high speed train station



Implementation of the Al-Haramain - Al-Mashaer Line connecting the new system to the existing Al-Mashaer line



TOD strategy applied around major interchanges

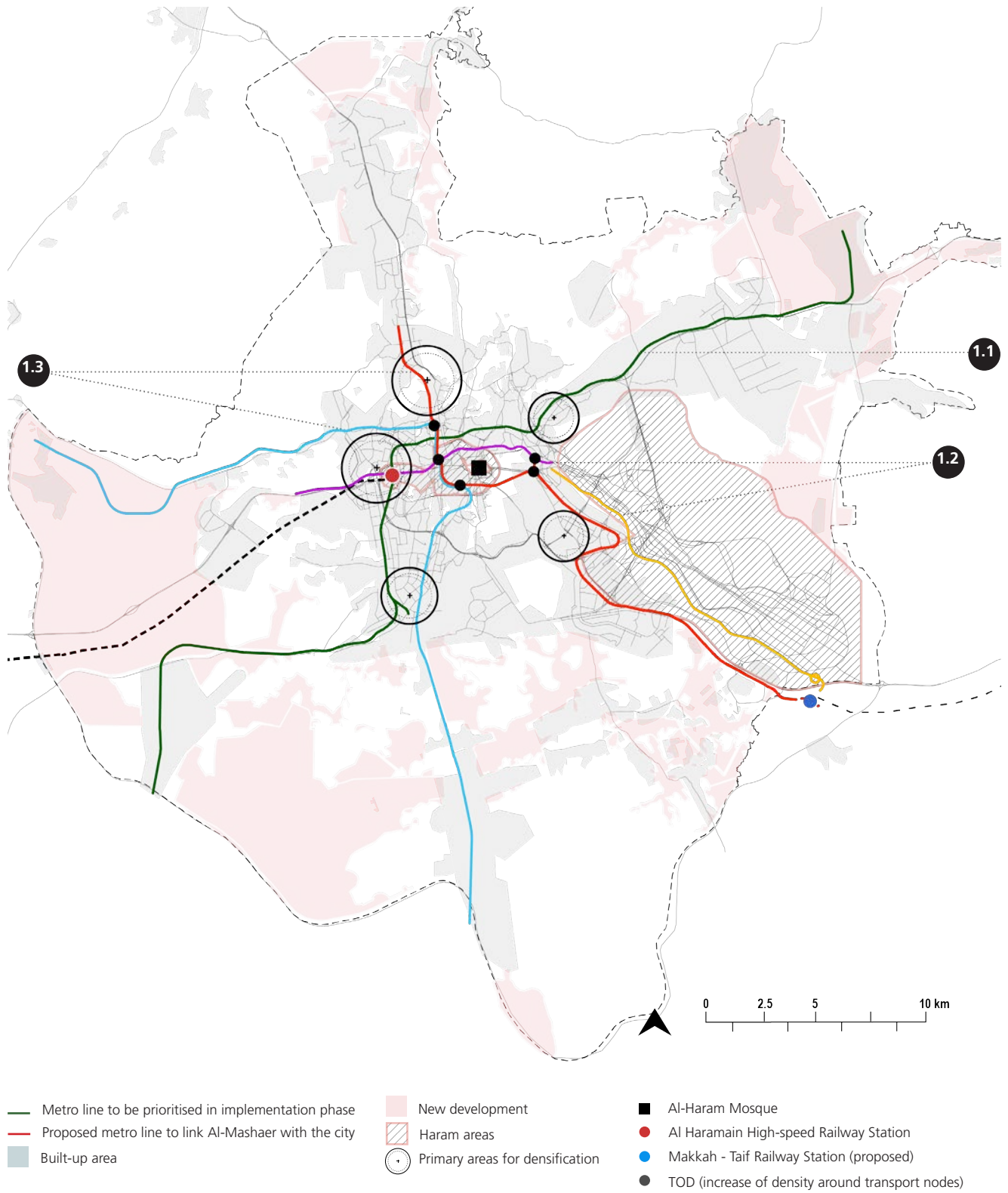


Fig. 55. Action 1: Establish an extensive public transport system to support the creation of new centralities

7.4.2 Action 2: Implement strategic densification around main nodes and transport lines

Following the implementation of a public transportation network, the city should start actively promoting TOD development, incentivising residential densification in the areas with walkable access to public transport. However, strategic densification could already start during the implementation of the first new public transport line, taking advantage of the existing Al-Mashaer line.

Strategic densification should then be applied to selected major nodes to define emerging new centralities by incentivising mixed-use development and concentrations of services and facilities around them. Lastly, other measures should promote densification around transport corridors, especially targeting medium rise, mixed-use, and residential development. As such, Action 2 suggests what areas to prioritise in operationalising a Transport Oriented Development approach to Makkah's strategic densification.

2.1 Densify along the Northern extend of the Al-Mashaer line, using vacant land to initiate strategic densification processes

While the functionality of the Al-Mashaer train is limited to the Hajj period, the train is the only urban public transport existing in Saudi Arabia at the moment. As such, it should be seen and valued as an asset, immediately enabling strategic densification on the Western side of the Al-Mashaer while promoting and supporting residents/pilgrims integration. By targeting mainly housing for permanent residents, strategic densification around the upper part of Al-Mashaer should take place with the goal of both taking advantage of existing infrastructure and available vacant land, and bringing together pilgrims and residents, while simultaneously injecting life to areas that are well-served but underutilised.

2.2 Promote mixed-use densification around the identified five main Public Transport nodes to create new centralities

Once the main public transport lines are in place, selected major nodes need to start emerging as new centralities, concentrating services, facilities, job opportunities, and residential development. These well connected centralities will also act as new destinations for Pilgrims, enacting the vision for Makkah polycentric urban system. The five identified nodes, as mentioned in paragraph 6.2.1, are the Al Haramain high-speed train station, the main station connecting the city to the Northern expansion, and the three major Southern stations along the proposed public transport lines.

2.3 Promote dense and mixed-use development along the entire Public Transport system

The development pressure currently experienced in the city should subsequently be redirected to follow the distribution

of the metro lines, incrementally shaping a dense, integrated, mixed-use and well-connected city, reducing car-dependency for both residents and visitors. The density within the consolidated City will start increasing towards 150-200 people per hectare, and consumption of desertic land in the outskirts of the city should be consequently avoided. This intervention will over time structure a more sustainable and efficient urban form.



Densification along the upper arm of Al-Mashaer



Creation of new centralities around major nodes



Mixed-use development along public transport system

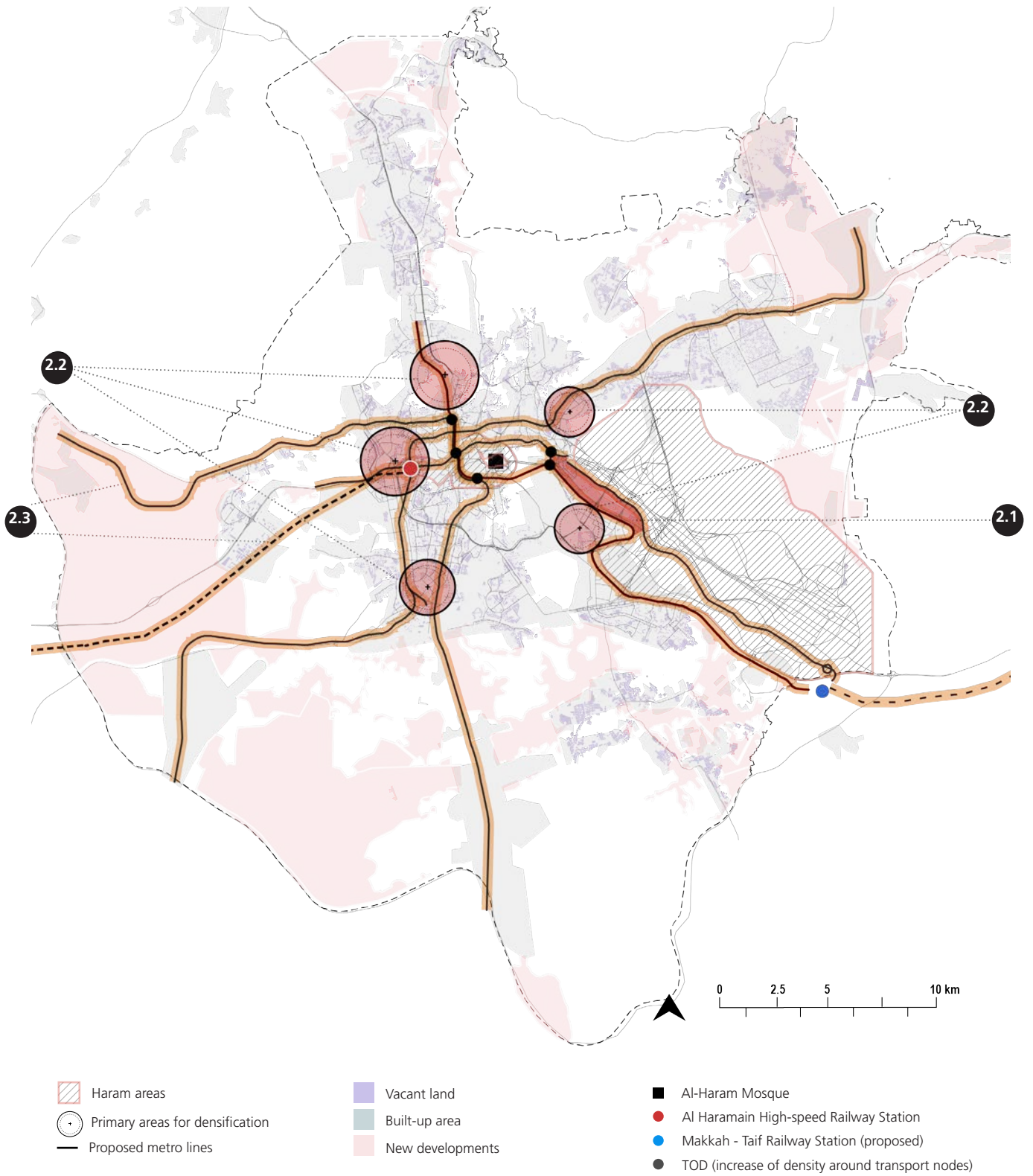


Fig. 56. Action 2: Implement strategic densification around main nodes and transport lines

7.4.3 Action 3: Relink natural elements to the city, establish a well-integrated green public space network

Action 3 aims at making the city more resilient, more sustainable, and enjoyable by its residents. As such, and in parallel to the strategic densification process of Makkah, vacant land will have to be selectively preserved for the creation of green public space, especially in areas subjected to densification. The natural system of wadis, currently neglected as a structural element in the city's functioning, will have to be naturalised and strengthened, moving towards natural water management systems at the entire urban scale, so as to play a key role in the city's development. In addition, promotion of urban and peri-urban agriculture along the wadis will gradually support the relinking of green and blue networks, while strengthening food security and resilience. For example, the Hima wadi, running on the Northern periphery of the city and feeding the sacred ZamZam well, carries the biggest amount of water during the rainy season, and it plays a vital role in regulating the major watersheds. It however lacks integration with the spatial fabric of the city, and does not actively contribute to an overall natural water management system. The Hima wadi should be redefined as a sustainable cultural landscape, converted in a peri-urban linear park and actively re-designed to maximise rainwater retention and reuse, supporting peri-urban agriculture and enhancing the natural setting.

3.1 Revitalise natural hydrological system across the city, restoring and preserving wadis and transforming them into linear parks

Primary wadis will have to be protected from development encroachment. Wadis should also be reopened and re-naturalised to provide opportunities for the establishment of new linear parks and public spaces across the city, starting to relink green and blue systems by incentivising urban and peri-urban agriculture where possible. In the central city, this implies gradually moving away from the current highly engineered flood-control channeling system towards re-establishing a more natural water management approach. By reinstating underground water-table recharge mechanisms, and by creating and capillary distributing water retention ponds along the wadis beds, the alluvial overflow could be accommodated in a sustainable and natural ways, simultaneously increasing water security and resilience to floods.

3.2 Selectively preserve and convert vacant land into public spaces, creating a well-distributed network, especially in the city centre

An articulated and well-linked system of smaller public spaces needs to be set in place, targeting the areas surrounding the Great Mosque and accompanying the development of the new high-density centralities. Some of these new public spaces surrounding the Great Mosque can also be turned into additional prayer spaces over Hajj, while being actively used by residents all-year round. Across the entire city, the focus should be on preserving vacant land in areas with a good density. Vacant land areas within the consolidated City could be easily turned into small public spaces, supporting density increase and reinforcing ecological functions. Particular attention should be given to the selection of available vacant land in the proximity of the wadis, now turned into linear parks, in order to support and link the linear open spaces to a more diffused capillary network within the urban fabric. By implementing a proper greening strategy aligned to existing natural water systems, this action can also contribute to decreasing the urban heat island effect in the city centre.

3.3 Promote and incentivise urban and peri-urban agriculture along wadis

Programmes and incentives promoting urban and peri-urban agricultural activities should be set in place to complete the process of strengthening and rebuilding a natural infrastructure system, relinking green and blue networks. Urban agriculture favours social improvement, and it has ecological benefits such as reducing the city waste, improving urban biodiversity and air quality, as well as generating an overall reduction of the environmental impacts related to both food transport and storage. This will increase food security and resilience, while contributing to an economic diversification for the city.



Proposed design reference for wadi re-vitalization (Wadi Hanifa in Riyadh) with a peculiar social and environmental value as a potential linear public space for the city.



Proposed design reference for wadi re-naturalization (Cheonggyecheon River in Seoul, Korea) showing how a system of linear public spaces can be created in the urban area.



Proposed design reference for green - open public space in the centre area of Makkah. (Banoles, Spain by Joseph Mias)

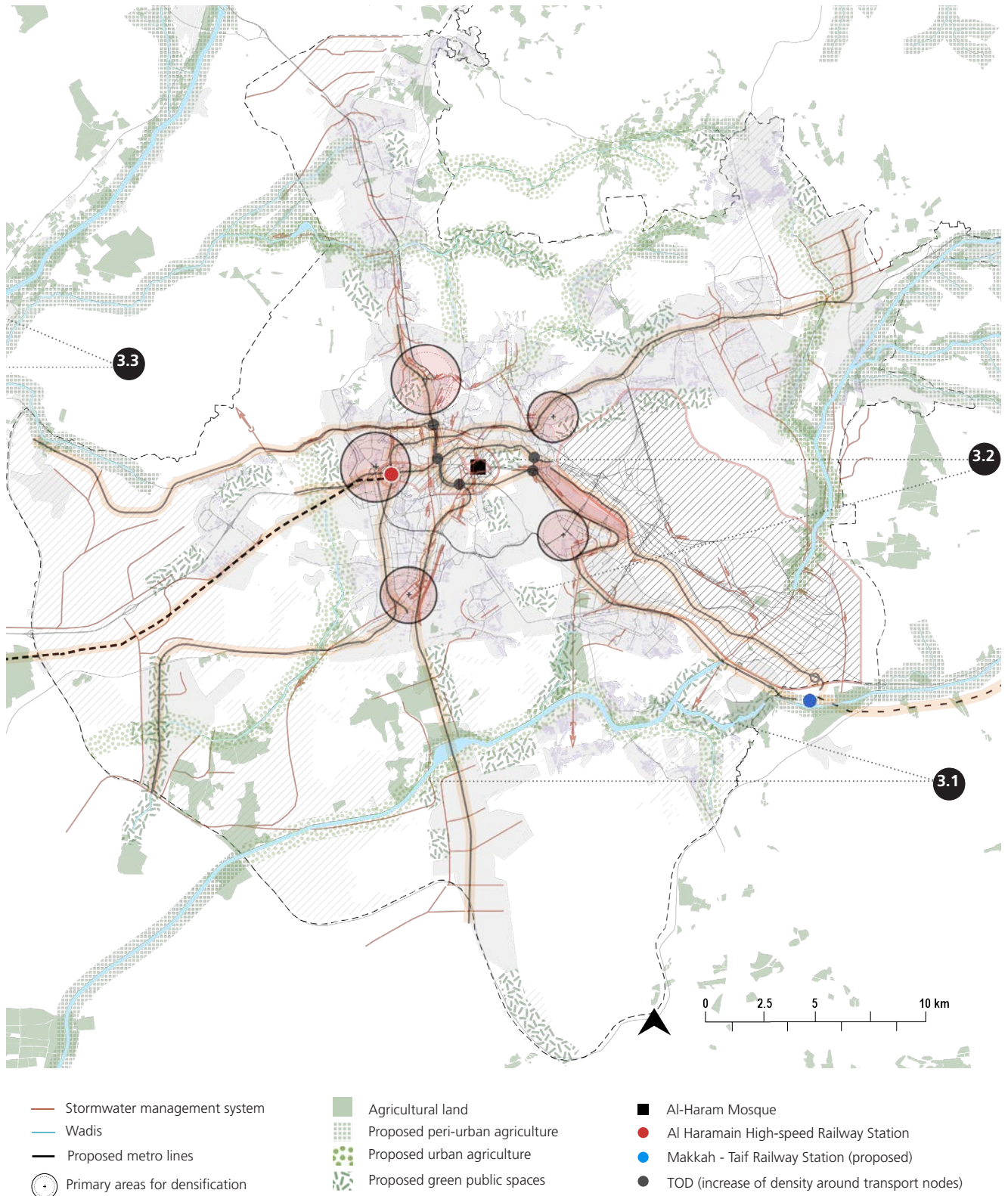


Fig. 57. Action 3: Relink natural elements to the city, establish a well-integrated green public space network

7.4.4 Action 4: Protect, revitalise and integrate historic / vernacular areas

A comprehensive regulatory system should be set in place to first assess and to subsequently formulate an appropriate strategy to target the preservation, rehabilitation and upgrading, as well as the integration, and revitalisation of different kinds of neighbourhoods in Makkah. Preserving and upgrading historic and vernacular areas would treasure the identity of the city against a standardised and stereotyped kind of development made up of high-rise hotels and condominiums. Upgrading, integrating, and revitalising vernacular areas would improve the public realm and maintain a richer socio-spatial pattern, creating new economic opportunities. The upgrading, integration, and revitalisation of both historic and vernacular areas would generate enormous touristic potential (not necessarily tied to Hajj or Umrah), creating and redistributing economic benefits derived from tourism to a wider population. Proper risk assessment for unplanned settlements would allow to develop appropriate responses, either by upgrading and integration, or relocation, simultaneously allowing for better management of sprawl and environmental risks.

4.1 Protect and upgrade central historic areas

The area surrounding the Great Mosque has been continuously inhabited for centuries. The increase of pilgrims visiting the area, resulted in the expansion of the Mosque and the construction of new hotels that radically changed the historic urban structure of the oldest part of the city. New heritage preservation regulations should be put in place to prevent the construction of new high-rise buildings in the central area of the city, preventing further disruption of the historic urban patterns. A buffer zone regulating development surrounding the historical areas should be set in place, limiting high-rise development to preserve existing skyline alignment and prevent obstructing the view of the Great Mosque from the rest of the city. Articulated rules for categorisation, protection, and upgrading of historic areas should be set in place, to prescribe approaches, materials, and processes for buildings' protection and restoration, including norms for the treatment of the public realm, (e.g. regulatory system for commercial fronts and signage).

4.2 Revitalise and integrate vernacular areas within the consolidated city

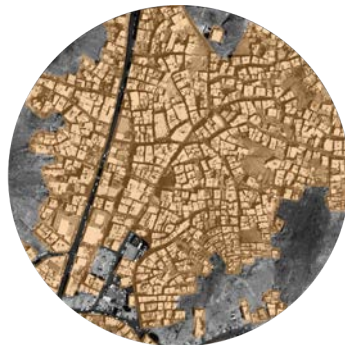
The areas bordering the historic core of the city and presenting vernacular patterns should have a specific set of regulations and design guidelines for their revitalisation and integration. This should include the preservation of the irregular street patterns and urban fabric, as well as the existing streetscape. Upgrading of the built environment through interventions on both the exterior and interior parts of the buildings should form an integral part of the approach. Selective demolition processes of unsafe and poorly maintained buildings should aim at increasing hygiene standards, while providing necessary services and infrastructure in line with specifically designed structural upgrading and revitalisation plans. and in parallel devising small and distributed public space networks. Upgrading the public realm by providing small and distributed public spaces would revitalise the socio-economic vibrancy of the neighbourhoods, while increasing the quality of life for residents.

4.3 Assess and upgrade, or relocate unplanned areas

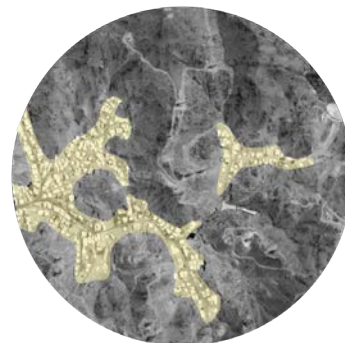
The proliferation of unplanned settlements on the outskirts of the city - most of which were illegally built to host migrant workers - are often in very poor conditions and located on risky topographic locations. For these neighbourhoods, a different set of regulations is needed. These should provide criteria and risk-assessment parameters guiding in the definition of the most appropriate approach. Upgrading and better connecting and integrating the settlements to the rest of the city, or relocating residents to new development areas and demolishing the unsafe settlements should be the considered approaches. These parameters should also help to prevent new construction in areas subjected to environmental risks, supporting in the containment of sprawl and preventing unregulated development.



Area with potential historical value



Area with potential historical value, built before 1973



Unplanned and vernacular neighbourhoods

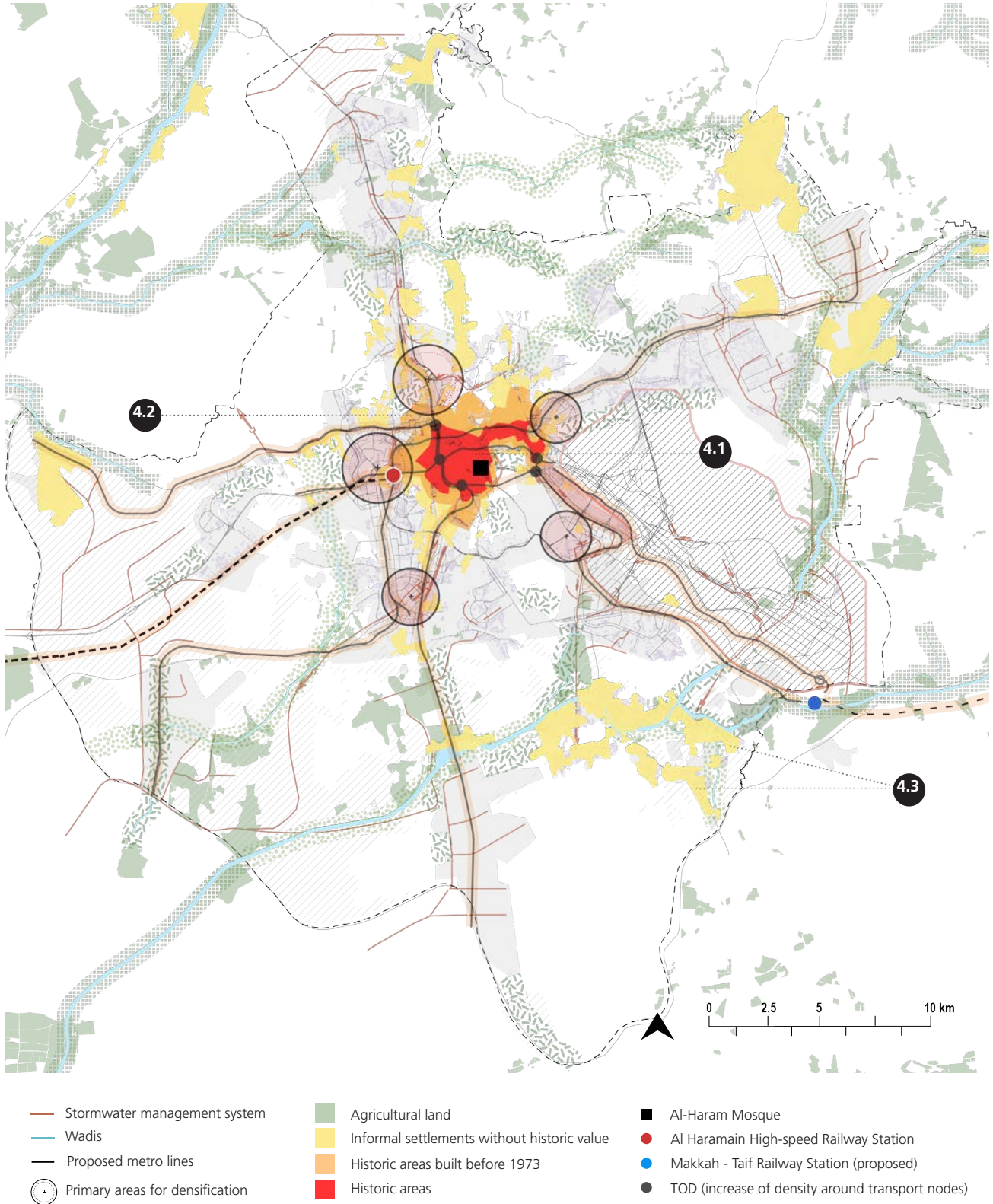
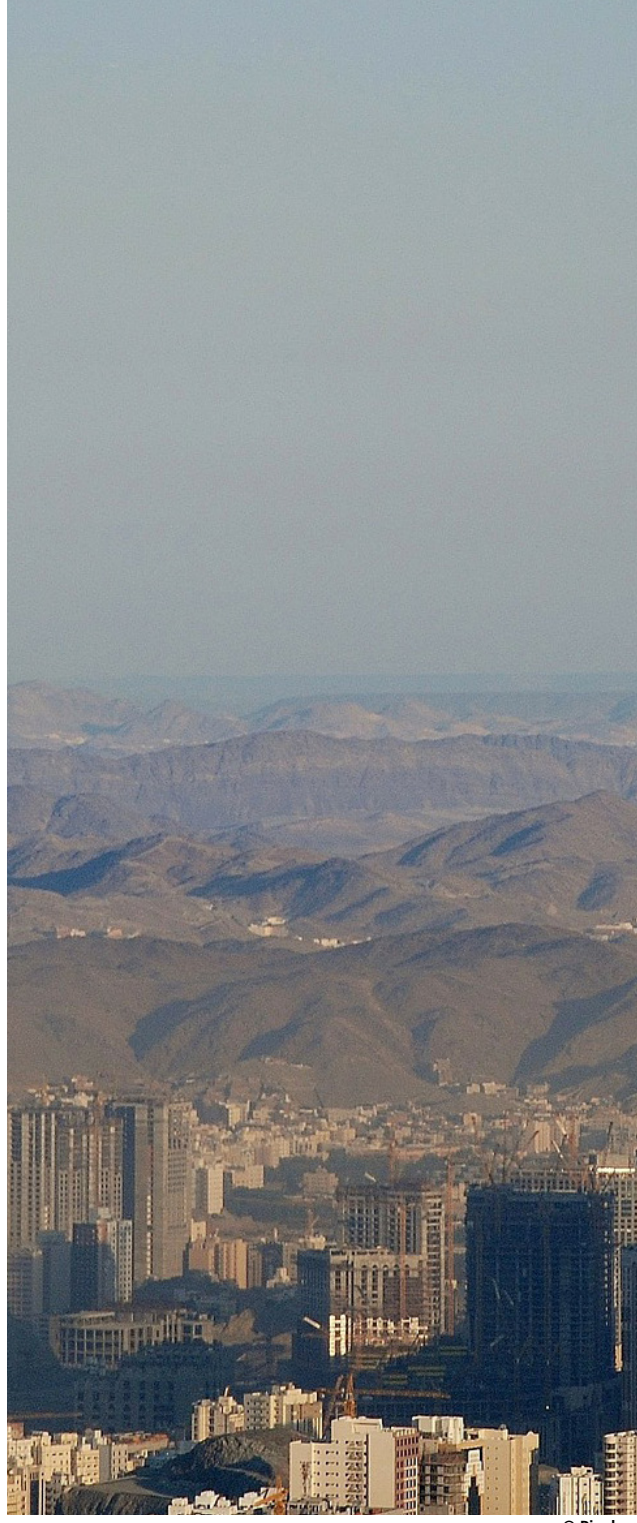


Fig. 58. Action 4: Protect, revitalise and integrate historic and vernacular areas

FINAL RECOMMENDATIONS: THE THREE-PRONGED APPROACH

7



8.1 Spatial Recommendations

8.1.1 A strategic view for the Makkah Region

The Makkah Region is characterised by an unbalanced hierarchical system of cities, where Jeddah and Makkah overshadow the other urban centres. If rebalanced, this could create the basis for regional growth, as the cities that are well serviced, well distributed, and of varying dimensions have the potential to act as drivers for gradually redistributing development from major to smaller urban centres. Although giving priority to the scattered and marginalised smaller cities in the region is necessary to improve the geographical redistribution of economic activities, it should not take place at the expense of cities and major urban centres in the region, such as Jeddah, Makkah, and Taif, which are leading high growth rates in the region's economy, as a whole.

Recent expansions beyond their boundaries are currently driving the development of the three cities. This indicates a tendency towards forming a larger conurbation by being economically interdependent, and possibly forming an emerging mega-region. While this expansion is a possible driver for economic growth, if not carefully planned for and managed, it might lead to more uncontrolled sprawl, further regional imbalance, and rising inequalities. This means that planning efforts for the three cities can no longer ignore these spatial and economic interdependent dynamics, and should rather consider the formation of a strong inter-urban corridor characterizing the emerging mega-region.

One of the main ways to preventively address this, is to enhance and strengthen the overall connectivity across the three cities and, at the same time, to promote economic diversification across them. Implementing the suggested metro/train connection between Taif and Makkah could be a powerful step towards increasing connectivity, especially once the planned airport in Taif opens. This will attract large numbers of pilgrims traveling to Makkah, and redistribute both pressure and benefits of hosting the pilgrims more evenly across the three cities.

Diversify the economic base in the region

On the economic front, Jeddah is a key location for advanced economic activity in the region, while Makkah, as a global religious centre, is the main contributor to the regional and national economy for religious tourism. Taif, the only medium-sized city in the region, overshadowed by the two major cities, remains untapped and has considerable growth possibilities. Taif city has in fact excellent potential as a tourism and leisure centre, as it has a pleasant climate all-year-round. By highlighting its cultural and non-religious touristic function, its role within the system of cities in the Makkah Region can be strengthened. Systems of cities are considered one of the most important means by which development can be transferred, and there is no doubt that the Makkah Region, in its current condition, suffers from a highly disrupted system of cities.

As the total population in the Makkah Region will increase to nearly 10 million people over the next 20 years, it will be increasingly important to provide new job opportunities. It is estimated that nearly 2.5 million jobs will be needed, which is more than double the current number of available jobs in the region. It is, therefore, necessary to diversify the economic base in the region, through the introduction of new economic activities and by expanding existing activities in selected sectors. As an example, agriculture and fishing are currently contributing with only a 7.71% rate to the employment in the region. The national average for these sectors is however double that of the region. This indicates substantial room for growth and expansion in a region that have ample natural resources supporting these sectors. Undoubtedly, modernisation of the agricultural sector in the smaller cities, especially in the regions of Laith, Qundalfa, Jumoom, and Turba, which are areas with competitive advantage in terms of agricultural and water resources, would have a positive impact in providing new jobs in this sector, and would encourage urban development and settlement in these cities. The creation of job opportunities in new and different economic sectors, enabling the region to absorb the expected workforce increase, will constitute the greatest challenge for a new Regional Development Plan.

8.1.2 Towards Holy Makkah, Eco-historic City

The strategic vision for future Makkah aims to promote the development of urban spatial frameworks that redistributes appropriate compactness and density around polycentrism and mixed-use. A more compact urban form, structured along public transport networks, will support sustainable management of natural resources and land, greening the city and making it more resilient. New policy and regulatory frameworks will guide the preservation of historic areas and enhance Makkah unique identity. The Action Plan translates the strategy into a sequence of systemic actions, which, if implemented, will enable the strategic vision to become a reality, making the city:

- **Polycentric;**
- **Integrated;**
- **Green;** and
- **Historic.**

As such, Makkah Eco-Historic City is envisaged as a well-connected, and well-balanced network of centralities and neighbourhoods, each with its own identity, and accommodating a diversity of overlapping private and public spaces and activities, shaping a healthy and vital urban environment. It supports and completes the indications from the 2012 Comprehensive Plan, guiding in the progressive shaping of an attractive urban environment, connoted by high-

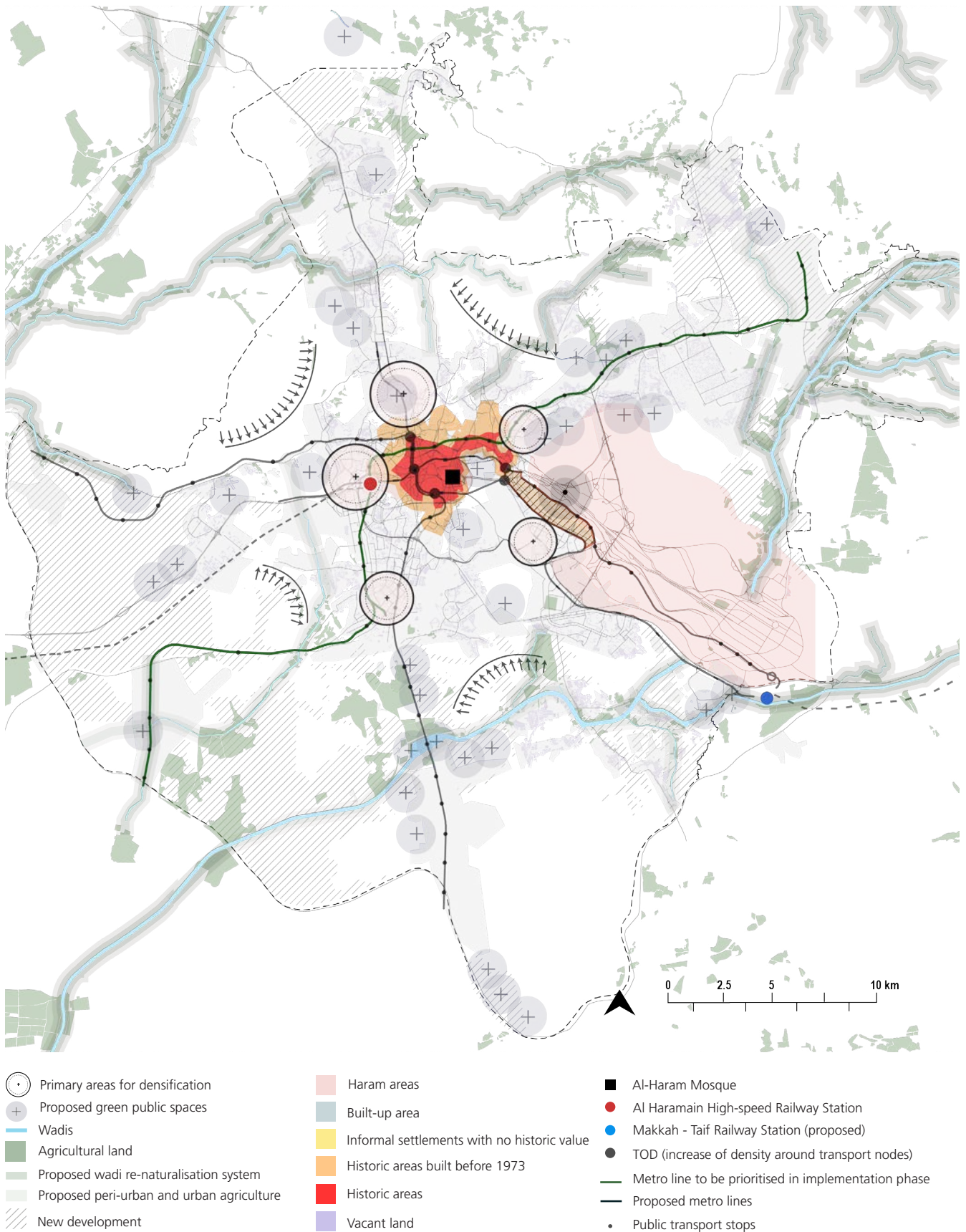


Fig. 59. Action Plan for Makkah

quality public transport and pedestrian facilities supporting integration amongst different parts of the city and between residents and pilgrims. Most importantly, both the strategic vision and the Action Plan strengthen two fundamental aspects, previously overlooked in Makkah's development: the natural environment, and the historic and vernacular areas. By incrementally greening the city, while re-establishing a healthy and functioning relationship between the built and the natural environments, Makkah will be able to enhance and rebalance the ecological, social, and the economic dimensions, providing a healthy and productive urban environment for its citizens, and for the millions of pilgrims visiting the Holy city. By preserving, upgrading, and revitalising historical and vernacular neighbourhoods, the city will be able to preserve its unique socio-spatial and historical identity, while increasing job opportunities, and distributing tourism-related benefits across a wider sector of the population.

8.2 Institutional and Legal Recommendations

In terms of legal reform, Makkah would benefit from both fiscal and jurisdictional decentralisation to facilitate independent and innovative solutions to urban social problems, at the Amanah level. This should entail:

- The transfer of local planning power, authority and function from MoMRA to the Amanah, with provision

for independent action without recourse to effectively address community needs. This is supported by the New Urban Agenda, which specifies that territorial urban design and planning processes should be led by sub-national and local governments, but their implementation will require coordination with all spheres of governments, as well as the participation of the civil society, the public sector, and other relevant stakeholders;

- Fiscal decentralisation, which gives autonomy to the Amanah to source funds to finance development activities. Revenue generation activities in cities may also include taxes and levies. Urban areas should be allowed to collect some form of property taxes to fund development activities. The recent White Lands Act that imposes fees on undeveloped plots in urban areas to tackle land speculation, housing shortages, and indiscriminate land development shows that regulatory mechanisms can be leveraged to generate revenue while fostering an efficient development framework;
- The opening of avenues for actors, including the private and voluntary sector and the general community, to participate in decisions regarding projects that affect them.

Consolidation of the legal planning instruments would also support development intervention of Makkah, along with the review, update, and modernisation of these laws to make them relevant to the current development situation. This should also entail re-thinking the lawmaking process to limit



Workshop presentation in Makkah

the number of actors. The mere existence of the laws in the KSA will not guarantee sustainable urban development as they must be functionally effective, i.e., precise in achieving their intended results, clear, consistent, and simple to understand. There is a need for a functionally effective urban planning law that, inter alia:

- Introduces incentives/requirements that will enable more compact city growth;
- Defines clear institutional roles and responsibilities at each level;
- Enforces linkage between all levels of plans (national-regional-local);
- Provides effective coordination and monitoring mechanisms; and
- Increases meaningful public participation and engagement in planning.

The legal framework also needs to enshrine an acceptable mode of public participation in public decision making to foster equality and inclusion. The consolidation of the urban legislation would also give legitimacy to the plans that Makkah relies on. Revising the Urban Growth Boundary Law to include clear criteria on how it is set would enhance technical and vertical accountability. This would also guide policy formulation designed to make the city more compact and dense. Moreover, post-legislative scrutiny of the Urban Growth Boundary law should be done to assess if it has met its policy objectives. This could, in turn, inform the legal reform process as well as the planning policy options.

8.3 Financial Recommendations

In 2015, the KSA began implementing reforms aimed at creating sustainable local public finance. The central Government continues to promote strategies for increasing own-source revenue at the local level through better tax administration and economic diversification.

Makkah's public finance priorities are closely aligned with Saudi Arabia's larger national development goals, which include supporting SMEs in key sectors like mining, tourism (e.g., religious and leisure), agriculture (e.g., food processing), and manufacturing. Therefore, expanding the public sector's capacity to finance essential local infrastructures and projects supporting development in these areas is a priority for Makkah.

International experience with own-source tax mechanisms represents the optimal set of financing tools for increasing local revenues (specifically, through the taxation of the real estate value capture mechanisms), that support sound fiscal policy.⁵¹ Saudi Arabia has already adopted new property taxes, such as the White Lands Tax and will continue to explore other tax instruments that are suitable to the needs of Makkah.⁵²

Introducing land-based taxation establishes a reliable own-source revenue stream for the municipal governments. Moreover, the benefits of public development projects (e.g., public transportation) are often multiplied by the positive externalities and value created by investing in sustainable and



Workshop discussion in the urban planning roundtable

accessible urban spaces.⁵³ UN-Habitat suggests Makkah make use of land-based tax mechanisms (e.g., betterment levies) in public projects, including the new metro line that will cover an area of 147 kilometres.⁵⁴

Public infrastructure, such as transportation systems can spur adjacent residential and commercial development, enhance accessibility and create jobs.⁵⁵ Local development driven by public projects can also drive increases in land value and indirectly engender a number of other community benefits.⁵⁶

While betterment levies are well suited for infrastructure projects, fiscal instruments such as waste management fees, parking fees, and congestion fees are useful tools for reducing vehicle dependency and increasing pedestrian traffic, especially in commercial and leisure areas.

There are a variety of tax instruments available to local Governments interested in expanding own-source revenues. Governments can maximise the benefits of these tax instruments by:

1. Coordinating and collaborating with different levels of Government to connect national strategies with local priorities;
2. Investing in capacity building and improving tax administration;⁵⁷
3. Tailoring fiscal instruments to local needs (e.g., fiscal cadaster in Bogotá, Colombia).⁵⁸

Lastly, coordinating among planning, legal/regulatory frameworks, and local finance is crucial to creating the necessary local conditions for sustainable and equitable development as outlined in the New Urban Agenda.⁵⁹

CASE STUDIES AND BEST PRACTICES

WASTE MANAGEMENT

In the Tamil Nadu State of India, a waste management project proposed the central government (35%) and the state government (15%) share 50% of the total project costs. A private entity (via a PPP) would provide the remaining 50% of project funding. The private concessionaire would be responsible for planning, designing, building, financing, operating, and maintaining the municipal solid waste management facility for the concession period. Land would be provided by the municipality through an annual lease as specified by the Government of Tamil Nadu.

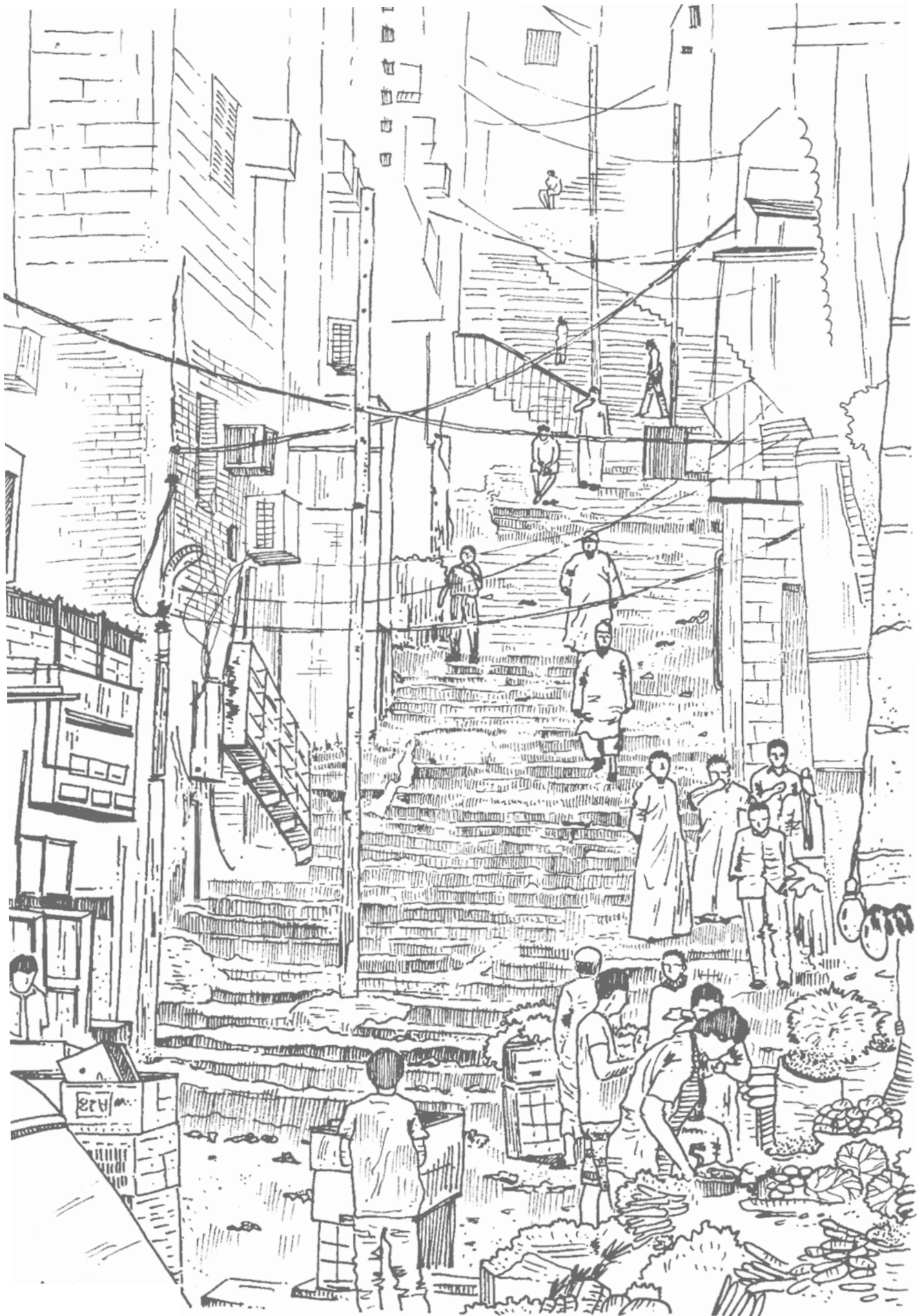
PARKING FEES

Chicago leased 34,500 curb side parking metres to the bank Morgan Stanley for 75 years, trading metre revenues for an upfront payment of nearly USD \$1.16 billion. This type of PPP contract includes a fixed schedule of metre rate increases, which raised rates two to four-fold by 2013. As a result, Chicago had the highest curb side metre rates in the United States. Metres were netting USD \$20 million annually while Morgan Stanley managed pricing and maintenance of the metres.

CONGESTION FEES

In 2007, Stockholm introduced a cordon pricing-based scheme to reduce congestion, local pollution, and generate local revenue. Following the introduction of the cordon, traffic decreased by 19% in the first year in addition to generating € 59 million annually. In Singapore, the implementation of an Area Licensing System (ALS) reduced traffic from 12,400 vehicles in May 1995 to 7,300 vehicles in August 1995 during restricted hours. Moreover, revenue from the sale of area licenses amounted to US\$ 47 million with capital costs were US \$ 6.6 million in 1975 with an additional US \$17 million from ALS revisions in 1989.

Source: Ernst and Young Pvt Ltd., Ministry of Urban Development of the Government of India, & the Confederation of Indian Industry. *Compendium on public private partnerships in urban Infrastructure: case studies.* (2017). World Bank. Washington, DC.; Weinberger, R., Kaehny, J., & Rugo, M. (2010). *U.S. parking policies: an overview of management strategies.* Institute for Transportation and Development Policy. New York, NY.; Croci, E. (2016). *Urban Road Pricing: A Comparative Study on the Experiences of London, Stockholm and Milan.* Transportation Research Procedia 14, 253-262.; Phang, S., & Toh, R.S. (2004). *Road Congestion Pricing in Singapore: 1975-2003.* Transportation Journal, 43(2), 16-25.



A street view sketch of an unplanned settlement located in the historical area of Makkah

8

ANNEX



9.1 Picture Credits

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9.3 Notes and References

- 1 Makkah Region Economic Report, 1434/1435 - 2014, SAGIA, 2014
- 2 Makkah Region Economic Report, 1434/1435 - 2014, SAGIA, 2014
- 3 Taif Development Plan final report - Prepared by AECOM for Taif Municipality and Consortia - Dec. 2012
- 4 It is the only regulation/bylaw in the Kingdom for the development of unplanned settlements. This law was submitted by the Regional Prince of Makkah for approval by the King. It was approved as a Royal Decree No. 9002 on 9/10/1428H (21/10/2007).
- 5 It is headed by the Regional Prince. Involved Ministries include Ministry of Finance, Ministry of Interior and MoMRA.
- 6 It has a more flexible composition as it is composed of the technical members working in the Finance, Interior and MoMRA Ministries.
- 7 Represent the instructions issued by a Minister, his representative or any official of the Ministry to announce new regulations and updates regarding any intent or action to be undertaken.
- 8 The planning system in Saudi is not formalized and therefore there is lack of consistency in the naming of plans across the cities. Normally, the strategic component is labelled as the Comprehensive Plan or Structural Plan. In the context of Makkah, it is referred to as the Comprehensive Plan. What is commonly referred to as the Local Plan, is called the Directive Plan in Makkah.
- 9 This agency was abolished later and it was replaced by two agencies; one for Makkah and one for Madinah. The one who is responsible for the implementing the plan now is the High Commission for Makkah Al Mukarramah and Al Mashaer Al Muqaddasah. Lately on 17/9/1439H (1/6/2018) the king promoted this agency to become Royal Agency for Makkah Al MukarRamah and Mashael al muqoddasah. The king has given three-month period from that date to the Bureau of Experts on the cabinet to prepare all detailed decrees to put this royal decree into action.
- 10 Issues assessed include: percentage of houses meeting a minimum standard of quality, floor area per person, ratio of house types, average distance to a public park or garden, average distance to school etc.
- 11 This indicator measures: Housing affordability index, housing rent to income ratio, housing finance index, percentage of housing needs met through low cost mortgages etc.
- 12 It assesses: Housing supply index, amount of rentable space available in unplanned settlements, percentage of disadvantaged groups living in unplanned settlements, percentage of change in unplanned settlement areas etc.
- 13 This indicator measures: percentage of GDP invested in housing, vacant housing supply, number of serviced lots available for construction of new housing starts, ratio of household production to household formation etc.
- 14 The criteria is abstract and therefore detached from the planning system.
- 15 According to Article 7 and 8 of Regional Law, the Minister of Interior chairs the meeting with all regional Amirs to discuss issues affecting each region and the general services required.
- 16 Royal Decree No M/4 dated 24 November 2015 (the "Law") and Council of Ministers Decision No. 377 dated 13 June 2016 (the "Regulations").
- 17 FSCP Workshop in Makkah 2017
- 18 Royal Decree of 1975.
- 19 See Royal Decree No. (1663) of 1976.
- 20 The other big four regional capitals (Riyadh, Jeddah, Madinah and Makkah) are also 1st Class Amanahs.
- 21 A line-item budget lists, in vertical columns, each of the city's revenue sources and each of the types of items such as capital outlays, contractual services, personal services etc. the city will purchase during the fiscal year.
- 22 Chapter 5 of the State of Saudi Cities Report, "Managing Urban Transformation in Saudi Arabia - The Role of Urban Governance (2018)" pg. 16.
- 23 See Article 5 of the Law of Regions to Royal Order No. A/92 (1993).
- 24 It consists of a) the Prince/Governor of the Region as president; b) Deputy Governor of the region as the vice president; c) Deputy Mayor of the Emirate/AMARAH; d) Heads of government authorities in the Region who are determined pursuant to a decision issued by the Prime Minister according to the directives of the Minister of Interior; and e) Ten citizens who are scholars, experts and specialists and are appointed by order of the Prime Minister based on the nomination of the Prince of the Region and the approval of the Minister of the Interior, for a renewable four year term
- 25 See ibid n.15, Article 23.
- 26 This department is supported by the City Planning Department at MoMRA.
- 27 FSCP workshop in Makkah 2017.

- 28 The National Urban Observatory is situated in the Department of Urban Studies, MoMRA.
- 29 It is acknowledged that there is conflict of interest as the Development of Makkah Region Authority is a board member of the Al Balad al
AlAmeen Company. This also explains the duplication of roles by these two institutions.
- 30 In 1438 (Islamic calendar), pilgrims totaled 2,352,122 (Hajj), 6,750,000 (Umrah), and 6,980,843 (Saudi nationals). General Authority for Statistics,
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- 31 King Abdullah Economic City is one of the most ambitious development projects in Saudi Arabia. The area of the City is more than 100 million
square meters, including the Sea Port, Industrial Zone, Central Business District, Educational Zone, Resort District, and Residential Communities.
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- 34 Saudi Arabian General Investment Authority. (2014). Makkah Region Economic Report 2014. The Kingdom of Saudi Arabia
- 35 Education is a priority input for local economic development and was an important discussion topic during the Rapid Planning Studio workshop
held in Makkah (March 2018).
- 36 Each of the 13 regions is divided into governorates and the region capital. The capital of the region is governed by an Amanah (municipality),
which is headed by a mayor.
- 37 Approved 2016 Budget for Makkah (Amanah), Ministry of Finance, The Kingdom of Saudi Arabia.
- 38 NTP goal is to increase own-source revenue to 40 % of municipal budgets by 2020. In 2016, intergovernmental transfers comprised 87 % of the
total budget for the Amanah of Makkah (MoMRA).
- 39 Jadwa Investment. (2016). The Saudi Stock Exchange.
- 40 The Capital Market Law, formation of the Securities and Exchange Commission, and creation of a privately-owned stock exchange were
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en-US/Pages/default.aspx](http://www.sama.gov.sa/en-US/Pages/default.aspx)
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- 45 1438H Hajj Annual Bulletin
- 46 Makkah MMM Comprehensive Plan (2012)
- 47 <http://www.arabnews.com/news/saudi-arabia/619216>
- 48 <http://www.arabnews.com/news/saudi-arabia/619216>
- 49 Definition from UNDP/UNESCO, Quito Colloquium, 1977.
- 50 David R. Godschalk, 2003, "Urban Hazard Mitigation: Creating Resilient Cities", Natural Hazards Review, Vol. 4, Issue 3 .
- 51 Potential revenue contribution through immovable property taxation is 2.1 % of GDP in high-income countries, while in middle-income
countries it contributes an additional 0.6 % to GDP. Norregaard, J. (2013). Taxing immovable property revenue and implementation challenges.
(No. 13-129). International Monetary Fund. Washington, DC.; Walters, L. (2016). Leveraging land: land-based finance for local governments.
United Nations Human Settlements Programme. Nairobi, Kenya.
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have to pay an annual tax of 2.5 % of land value. The land tax applies to a plot size equal to or greater than 10,000 square meters. It has been
adopted in the cities of Riyadh, Jeddah and Dammam.
- 53 Walters, L. (2016). Leveraging land: land-based finance for local governments. United Nations Human Settlements Programme.
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-
- 54 This approach is based on the idea that individuals, businesses and landowners in the area benefits from government or private investments in high valued infrastructure, such as roads, railway, industrial infrastructures, or public services, like schools and hospitals. Landowners and beneficiaries of a specific area intervened by an infrastructure investment, can see an overall long-term land value gain of their properties, even after having paid the levy. United Nations Human Settlements Programme. (2016). *Finance for City Leaders Handbook*, Nairobi, Kenya: United Nations Human Settlements Programme.
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