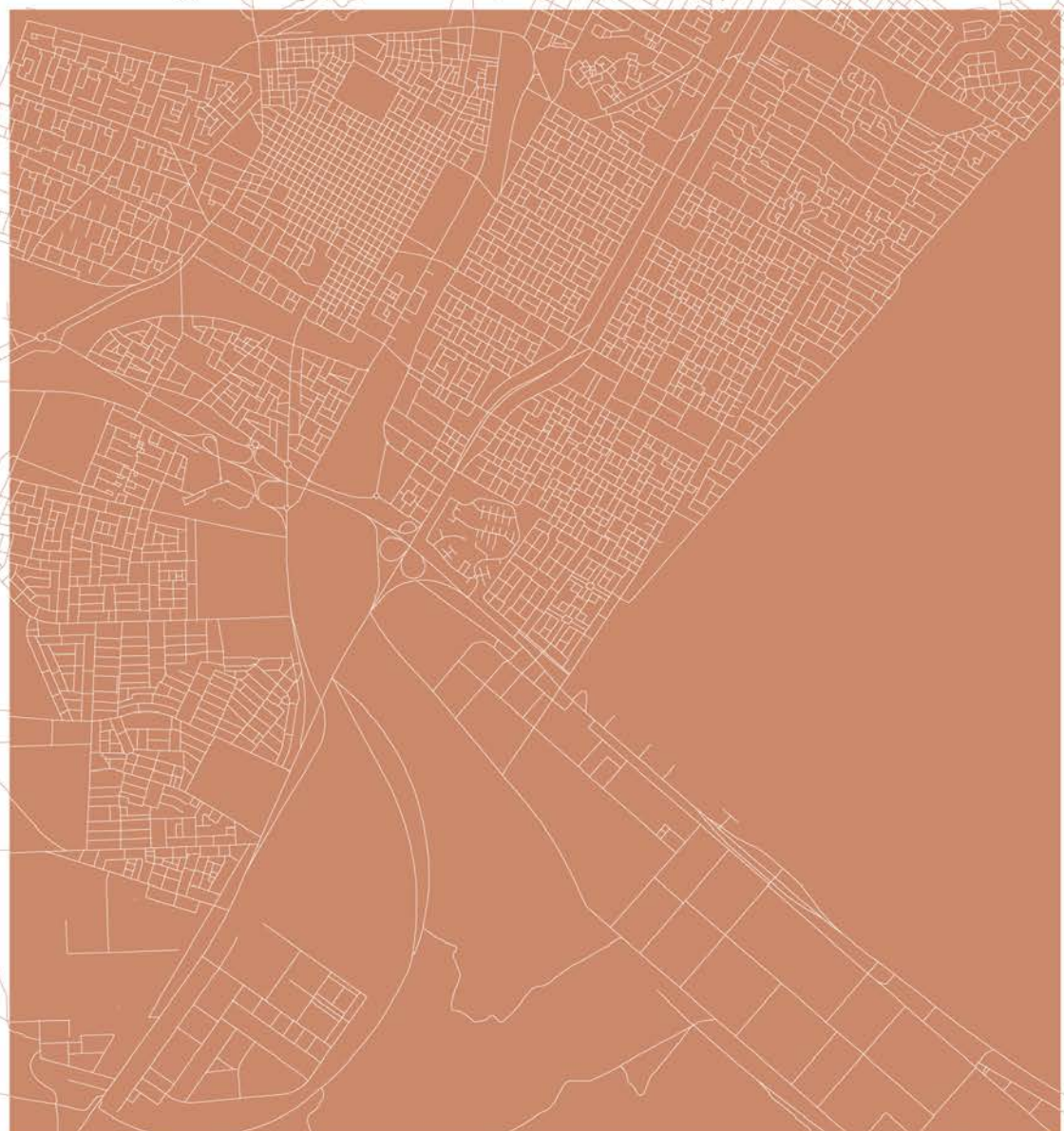


ARAR

City Profile



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

© 2019. Ministry of Municipal and Rural Affairs
King Fahd National Library Cataloging-in-publication Data

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

ISBN: 978-603-8279-04-5

1-Ar'Ar City- History 2- Saudi Arabia - Northern Region
I-Title
953.14 dc 1440/8077

L.D. no. 1440/8077
ISBN: 978-603-8279-04-5

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www.unhabitat.org



وزارة الشؤون
البلدية و القروية
Ministry of Municipal & Rural Affairs

مستقبل المدن السعودية
FUTURE SAUDI CITIES



UN HABITAT
FOR A BETTER URBAN FUTURE

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ARAR

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FUTURE SAUDI CITIES PROGRAMME

CITY PROFILE



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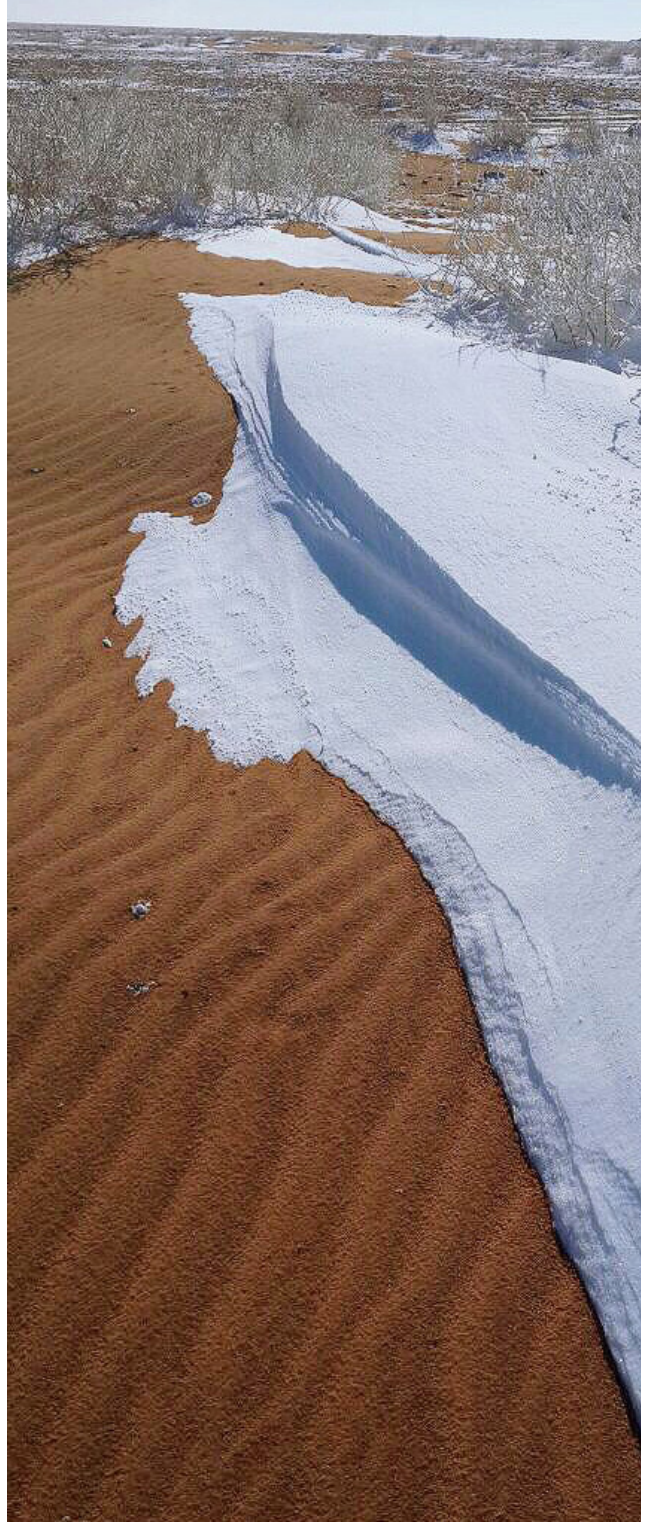
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INTRODUCTION **1**



1.1 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 (MoMRA) 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.

1.2 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.

1.3 Objectives of the City Profile Report

1.3.1 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.

1.3.2 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



View of Prince Abdullah Bin Abdulaziz Mosque in Arar

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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, 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.

1.4 City Profile Methodology

1.4.1 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.



© FSCP

Workshop in Arar with stakeholders and UN-Habitat

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.

1.4.2 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;
- Regional Plan for the Northern Borders Region;
- Arar Local Plan.

1.4.3 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, including the definition of city-visions, and long-term plans that are both ambitious and measurable. The six dimensions are:

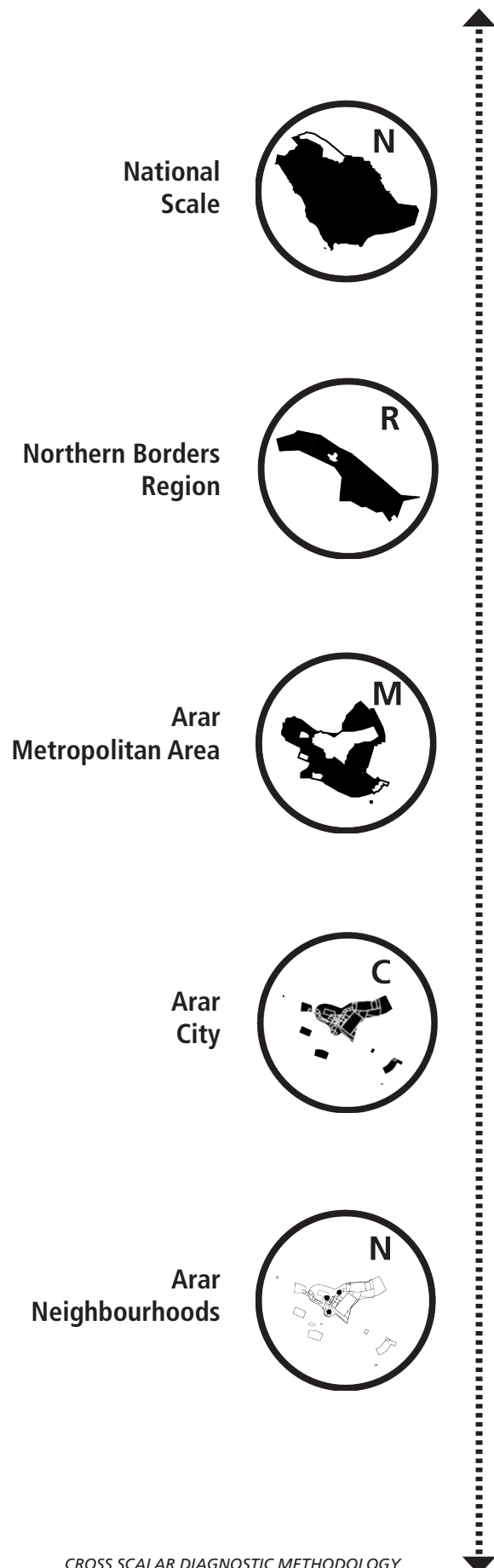
- Productivity;
- Infrastructure;
- Quality of life;
- Equity and inclusion;
- Environmental sustainability;
- Governance and Legislation.

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

1.4.4 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





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

2.1.1 Historical background

The city of Arar was founded in 1951, after the ARAMCO oil pipeline (Tapline) was constructed and completed. Arar was initially an oil pumping station, with a health centre and housing for the workers of the pipeline, called RR Oil Station. The workforce primarily came from Al-Ahsa, Hael, Yanbu, and Al Wajh. At that time, the first Tapline plan was issued for the planning of the first city nucleus to be located in the Northwest of the confluence of Wadi Arar in Wadi Madna, in what is now the Eastern part of the Al Rawdah Neighbourhood, and the Southern part of the Muhammadiyah District.

2.1.2 Geography and location

The Northern Borders Region is located in the far North of Saudi Arabia, and is surrounded by four other administrative regions of the Kingdom; Eastern Region to the East, Al Jouf, Hael, and Al Qassim to the South. This is a particularly important location for the Kingdom, since the region shares the entire Northern border with Iraq, being the main gateway to Iraq, Jordan, and Syria. An international highway crossing the region links both Kuwait and the other Gulf States to other Arab countries that lie North of the Kingdom. Arar, located at 30.98 latitude and 41.04 longitude and with an elevation of

555 metres above sea level, is the biggest city in the region. Because of its location, Arar serves as an important supply stop for travelers on the Saudi Arabian highway 85.

2.1.3 Demographic background

According to the estimations of the Central Department of Statistics and Information, the total population of the region is 395,000, representing about 1.2% of the total population of the Kingdom, which was estimated to be 30.8 million people in 2014. On a breakdown of the total population in the region, there are approximately 297,000 Saudi residents, against 62,000 non-Saudis residents.

2.1.4 Socio-economic background

Arar City is located in the heart of a vast rocky limestone plain, with 50% of the region being sandy and the presence of gravel deserts, causing the Northern Borders Region to be the least populated of all regions in the Kingdom. However, the area is known for its fertile pasture lands, which lends itself well to its principal occupation of sheep and camel herding for the population of the entire Northern Borders Region, including the cities of Rafha, Turayf, and Alaoiqilah, and other suburban villages.

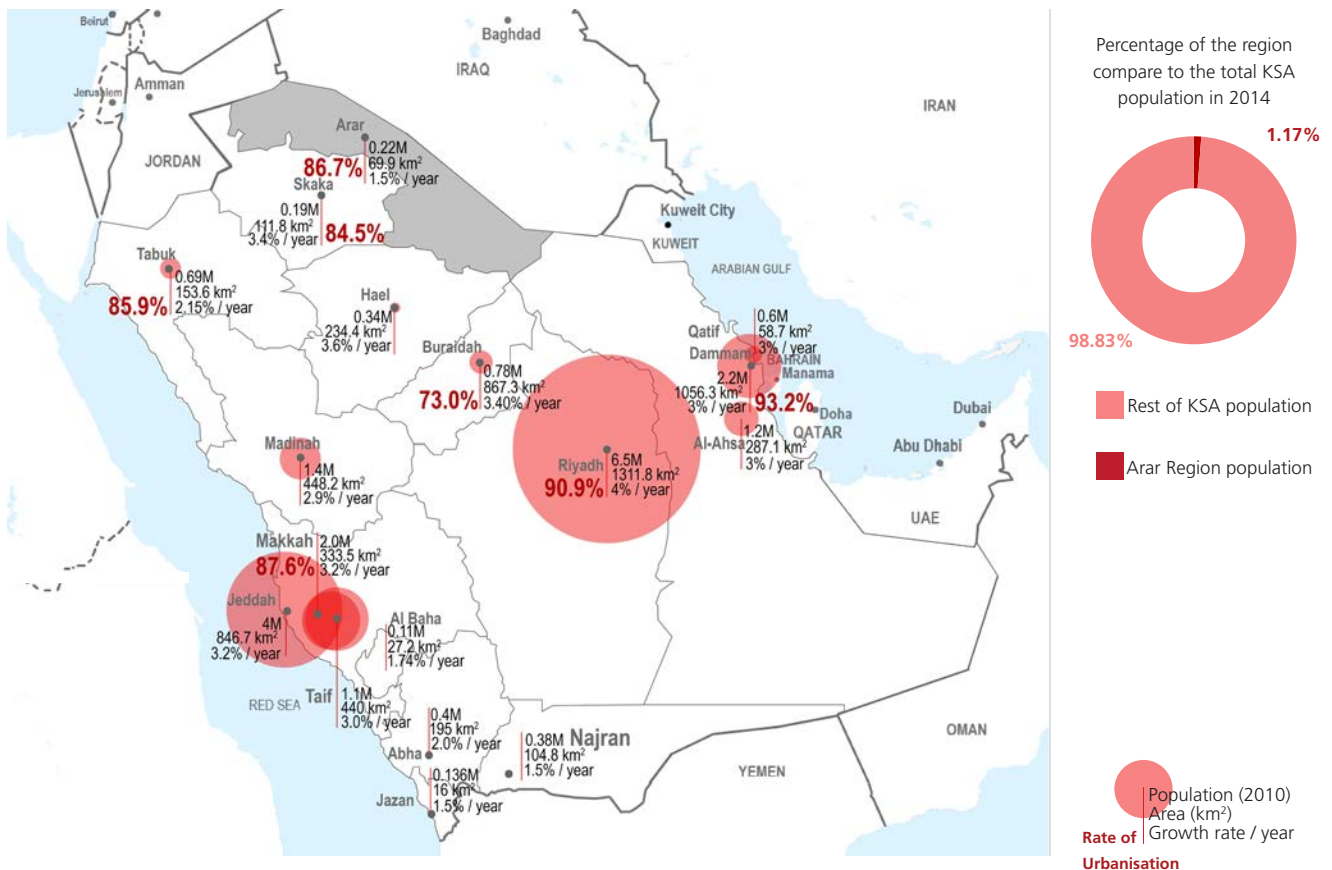


Fig. 1. Population distribution, growth rate and urban areas within the Kingdom of Saudi Arabia

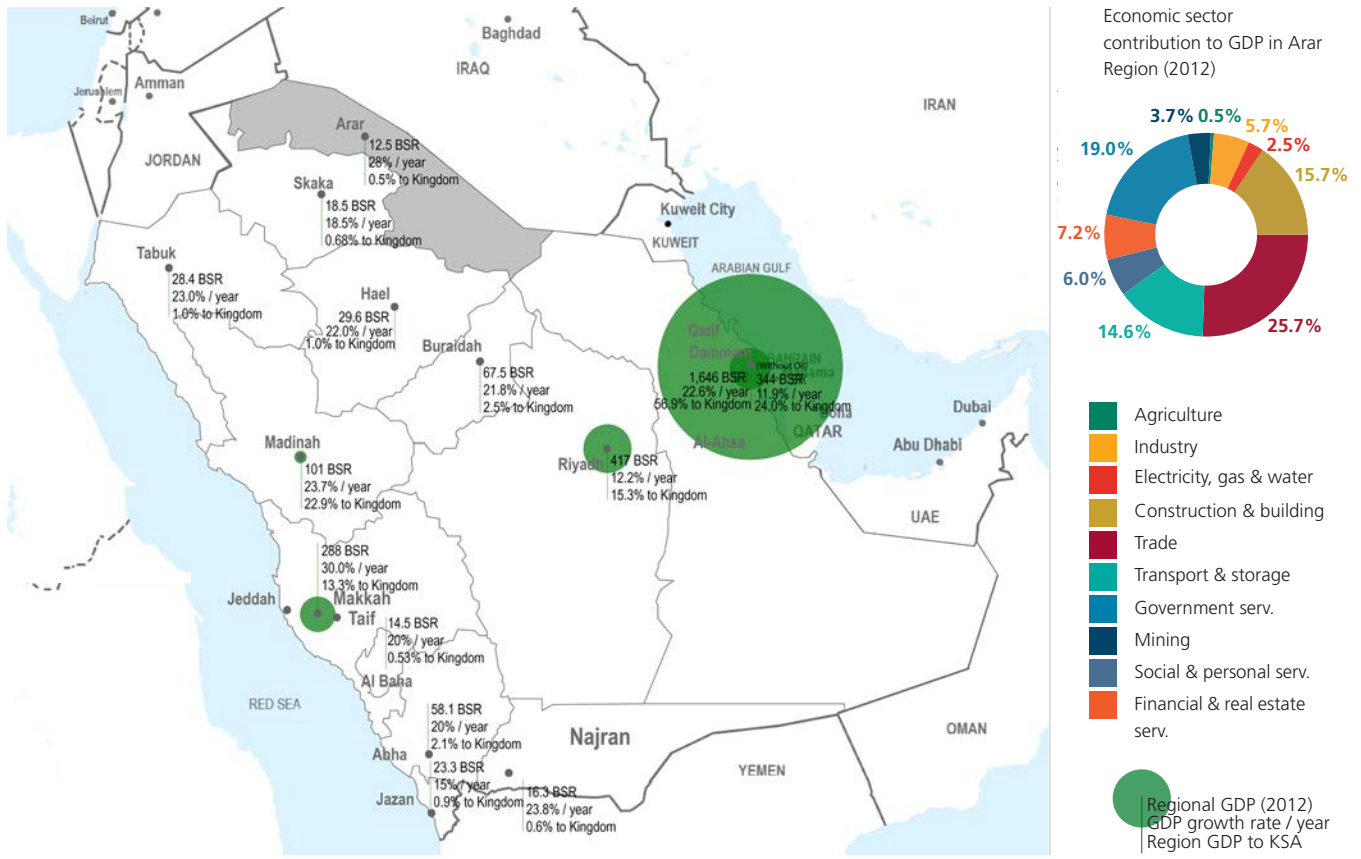


Fig. 2. Regional Gross Domestic Product and economic sector contribution

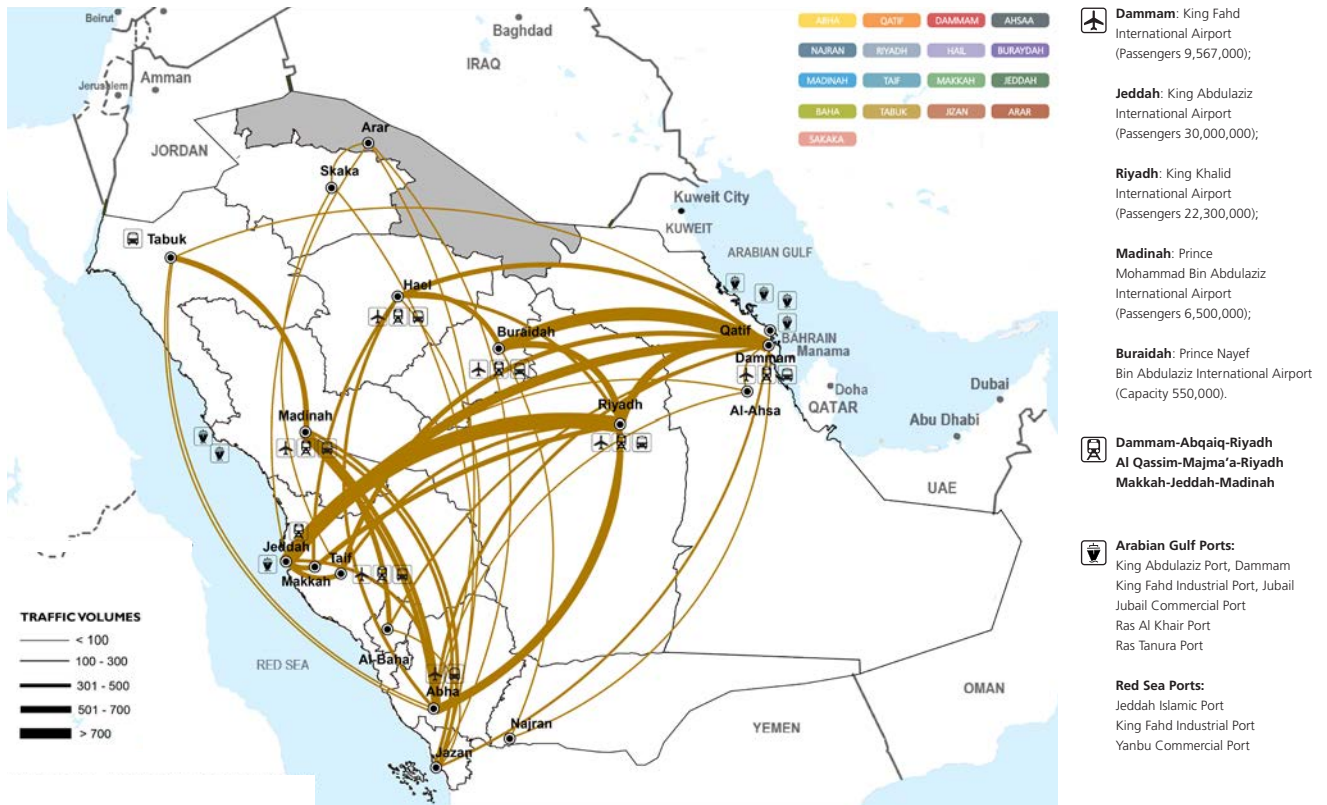


Fig. 3. Transport connectivity between Saudi cities



The Gross Domestic Product (GDP) of the Northern Borders Region, in 2012 was equivalent to approximately 12.5 billion Riyals, representing 0.5% of the total GDP of the Kingdom, which corresponds to 0.9% of the the Kingdom's GDP, without considering crude oil and gas. The average annual growth rate of the GDP of the Northern Borders Region amounted to 28% during the period from 2009 to 2012. Within the Northern Borders Region, the trade sector ranks as the number one economic driver, and it accounts for 25.7% of the regions' economy. The construction and building sector follows with 15.7%, and the transport and communication sector at 14.6%, collective and private sector at 7.2%, financial services at 6.0%, industry at 5.7% and mining at 3.7%.¹

The "land port" of Arar, the international crossing gate at the Iraqi border and Saudi Arabia, has been closed for most of last 27 years. During this time, it opened annually to the Iraqi pilgrims and closed after their return, however has fully been put back in operation in 2017. This signals a possible key economic cross-border synergy, as the reopening of the border gate would provide jobs and economic opportunities in both countries. This can potentially revive the economy of both Arar and the bordering Anbar Region in Iraq, thanks to the passage of truckloads of goods, moving between Baghdad and Riyadh. Overall, this trade route/corridor could in fact increase economic opportunities for the Northern Borders Region, strengthening its contribution to the total Kingdom GDP, while attracting those in search of job opportunities. This could have a positive counteraction to the current tendency,

which sees migration rates in the region standing at 2.55%, (data referring to the 2004-14 period).

2.1.5 National connectivity

Air Transport

There are currently three regional airports within the the Northern Borders Region, (Arar, Tarif, and Rafha), serving the needs of the passengers and goods spread across the entire territory, by linking the cities across the region amongst them and to other major national hubs. The number of passengers across the Northern Borders Region airports was 263,000 and 274,000 in 2011, and 2012 respectively, recording an annual increase of about 0.8% and 0.7% for the total passengers-related air traffic in the Kingdom, ranging between 33.6 millions and 38.5 millions passengers in 2011 and 2012 respectively. Concerning the densities of haulage, the quantity of goods transported via air was 482,000, and 423,000 tons in 2011, and 2012 respectively, which represents the 0.1% of total air cargo loads in Saudi Arabia. ²

Railways Transport

The North-South railway crosses the region and connects it to Riyadh and Al Haditha, a city adjacent to the Jordanian borders, and passes through the Al Qassim, Hael, and Al Jouf Regions. This railway line is undoubtedly a valuable addition to the infrastructure of the Northern Borders Region, addressing most of the needs for passengers transportation services, freight movement, and storage services, as well as

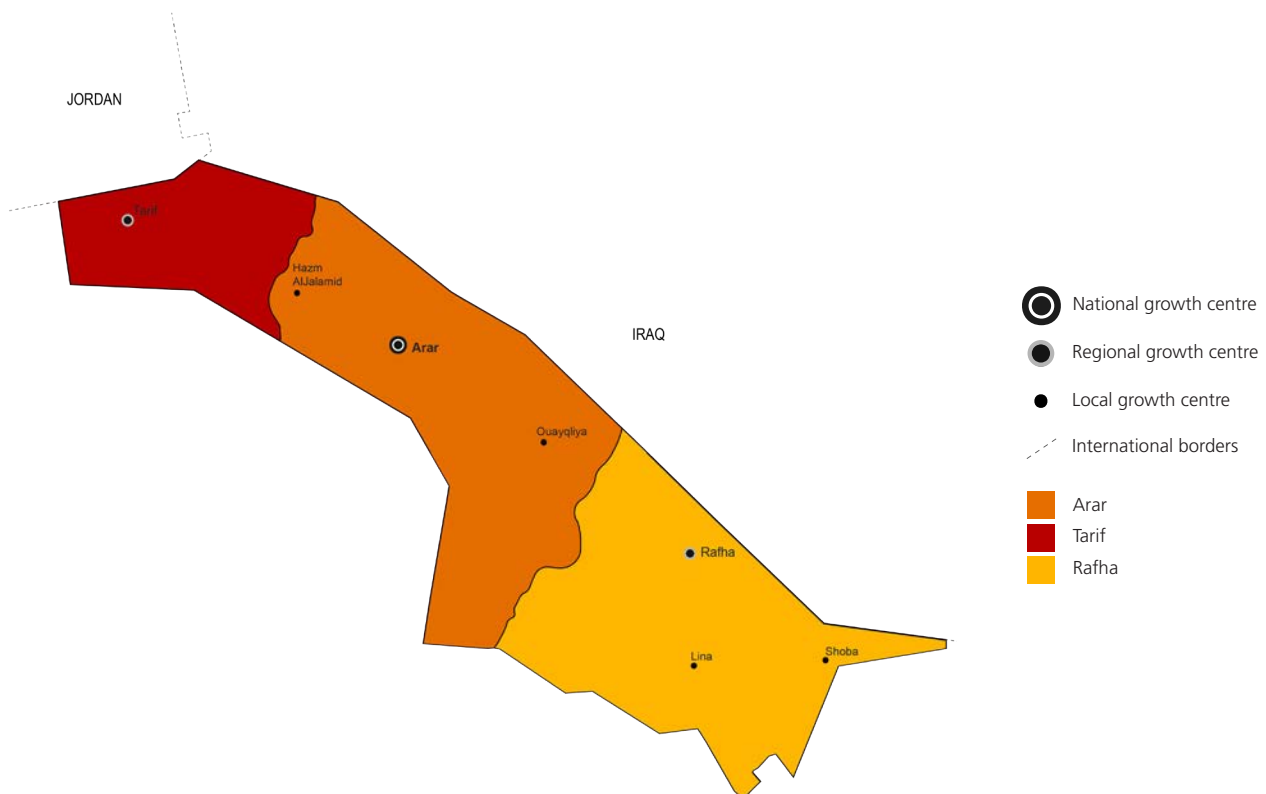


Fig. 4. Administrative boundaries



for supporting development projects in the region in general.³

2.2 Regional Development Patterns and Dynamics

2.2.1 Regional organisation

Administrative Boundaries

The Northern Borders Region extends over an area of 133,000 km² or about 6% of the total area of the Kingdom, with a population of 395,000. The region is divided administratively into three governorates: Arar, Rafha, and Tarif, with Arar as its capital. Of the three governorates, Arar has the highest population rate, corresponding to 60% of the total regional population, while Rafha holds 25%, and Tarif, with 15%.

Located in Northern Saudi Arabia near the Iraqi border, Arar is large and is known for its fertile pasture lands, and therefore its principal regional occupations are related to sheep and camel herding. Rafha is the second largest, and currently the Ministry of Housing is building over 600 new units for the local population, while providing significant improvements to the local infrastructure. The city of Tarif, like Arar, is one of the cities that have been established because of the presence of the international oil pipeline in the region. Whilst the city is not well developed yet, it hosts the Tarif Domestic Airport, located approximately 5 kilometres from the town, which is a possible development engine for the area.

The Regional Plan for the Northern Borders Region

The Regional Plan for the Northern Borders Region proposes a hierarchically organised system of growth centres and development corridors, aiming at organising and coordinating future development efforts. One of these corridors, arguably the strongest, is constituted by the international Highway 80 crossing the region and moving towards the other GCC countries. Not only does Highway 80 act as a key national artery by linking the central parts of the Kingdom, it is also a key international economic axis for trade within the GCC.

According to the Regional Plan, and as a national growth centre, Arar City hosts services of regional and national relevance, acting as an important economic hub. Regional and local growth centres, including Rafha and Tarif, capitalise on tourism, agricultural activities, and mining.

Economic Resources

However, given the location and its natural characteristics, the Northern Border Region is considered to be one of the least vibrant in the Kingdom both in terms of diversification of economic activities and overall productivity. The leading economic sectors are described below.

Mining and Quarrying

The mining and quarrying sector in the Northern Borders is one of the new economic activities which can contribute to the exploitation of the natural resources in the Region, and cover



Fig. 5. Development corridors according to the Regional Plan for the Northern Borders Region



the needs of other economic sectors such as industry, building, construction and others. It is one of the sectors of comparative advantage in the Northern Border Region, where there are the raw materials of the mineral wealth, characterised by its commercial volume and economic feasibility as regards utilisation for industrial purposes. The most important minerals in the region are bauxite phosphate, dolomites, and, sand and sandstone with about (95-97%) silica content in Qassib Village.

Agriculture

Agricultural activity in the region is limited in terms of both area of cultivated land and productivity. This is due to the unsuitability of most of the topsoil in the Northern Border Region for agriculture, with the exception of the lands located in the Northwestern part of the Rafha Governorate. As per 2012, the total area of cultivated land for crops in the region amounted to 115 hectares, representing only the 0.01% of the 788,000 hectares crop-cultivated area in entire the Kingdom, as per 2011 data. Similarly, the regional production of vegetables, fruits, and dates barely reaches 0.03% of the total production of the Kingdom. Additionally, the number of livestock production in the region is very low, as at 2011 the regional rate of camels, goats, and sheep in relation to the total production of the Kingdom, were only 0.02%, 0.03% and 0.06%, respectively.

Industry

In 2013, the number of operating factories in the region was only 24, representing 0.38% (total of 6,364) of the number of productive factories in the Kingdom. This very low number of productive establishments is mostly due to the limited market

existing in the region. However, the total industrial investments in the region for the same year, amounted to 2.8 billion Riyals, representing 0.32% of the total investments in factories in the Kingdom, (873.2 billion Riyals). As per the recorded number of factory workers, it is estimated that 2,100 workers are present in the Northern Borders Region, representing 0.25% of the total industrial manpower in the Kingdom, estimated to be of 828,000 workers by the end of 2013.⁴

It's worth also noting that the Northern Region's cement factory, located 190 kilometres away from the city of Arar, and which started operating in 2008, is one of the largest factories in the entire Northern Borders Region, with an investment of about 1.2 billion Riyals. Its production capacity is one million tonnes annually, representing a substantial 3.5% of the Kingdom's total production of cement in 2013, estimated to be of 56 million tonnes.

Trade

In 2012, trade establishments and trade-related businesses in the Northern Borders Region were estimated to be 17,000, representing 1.5% of the total trading establishments in the Kingdom, which equates to 1.19 million establishments. However, there is a substantial annual average increase in the number of new enterprises in the Northern Borders Region, which was estimated to be 991 enterprises over the period between 2004 and 2012.

2.2.2 Regional structures and resources

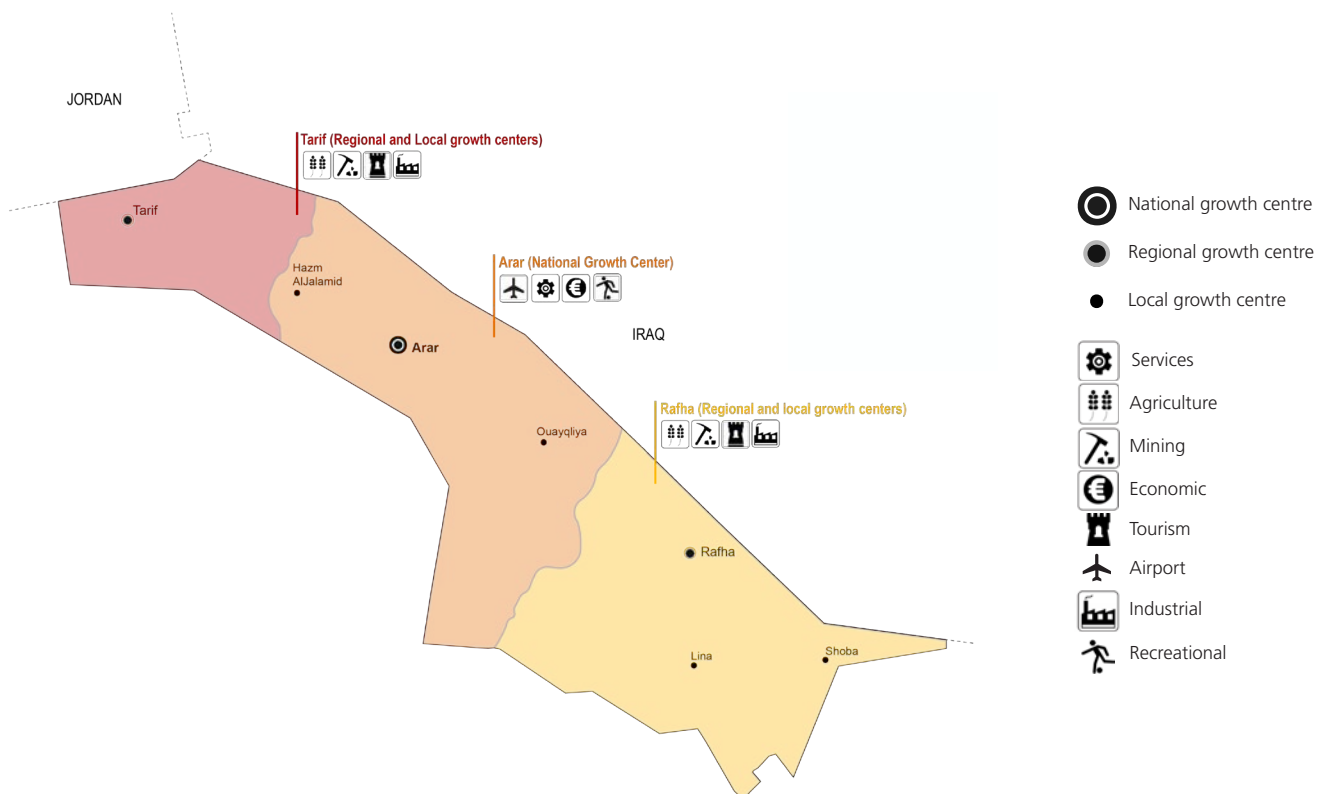


Fig. 6. Development sectors according to the Regional Plan for Northern Borders Region



Movement Infrastructure

In terms of major infrastructure, the region is accessible by state-of-the-art highways and domestic airports. The domestic airports in Arar, Rafha, and Tarif connect to all parts of the Kingdom. Highway 85 connects to Hafr Al Batin in the East, and to Al Qurayyat in the Northwest, while Highway 70 connects to Hael in the South, and Highway 80 connects to Skaka in the West, and crosses the border reaching Iraq in the North.

The regional road network is well developed, although not necessarily adequate. The total lengths of paved roads supervised by municipalities in the Northern Borders Region extend to 1,215 km, accounting for 1.3% of total lengths of the roads in the Kingdom, under the authority of the Ministry of Municipal and Rural Affairs.⁵ The region is currently witnessing new expansion projects for the road network within the cities, in addition to new regional roads linking the Northern Borders Region to other regions. There are several new projects under construction, for instance, the completion of the dual road of Skaka/Arar with Arar/Arar Algadidah, and a bridge at Badana Valley on the Northern borders.⁶

Oil pipeline

The Trans-Arabian Pipeline (Tapline), which originated the city of Arar, was one of the first oil pipelines to be built in the Kingdom, going from Qaisumah in Saudi Arabia to Sidon in Lebanon. It played an important role in the global trade of petroleum. Oil transport through the pipeline started in 1950, but in the early 1980's its functioning was drastically reduced, until it completely

stopped operating in 1990. Today, the entire line is unfit for oil transportation and has been decommissioned, although the physical infrastructure remains visible.⁷

Minerals and other environmental resources

As mentioned, the Northern Borders Region is characterised by a vast rocky limestone plain, an environmental asset, but by fertile pasture lands as well. The main natural resources and their location in the region include phosphates and allied metals in Hasm Al Jalameed, Um Al Waal, and Al Khubara, limestone in the North of Harrat Al Hurra, South of Tarif, clay from Tarif, and dolomites from the Wadi Arar.

Tourism and cultural heritage

The region is characterised by a rocky desert nature and natural reserves, wild areas, and archaeological sites. The region, considered the North Gate of the Arabian Peninsula in antiquity, hosts the Zubaida Trail,⁸ the most important historic route to Makkah, disseminated with ancient monuments, most of which still exist today. This is potentially a big tourist attraction, currently not put in value or being leveraged on for the development of diverse tourist activities, and therefore failing to capture large numbers of visitors and tourists.⁹

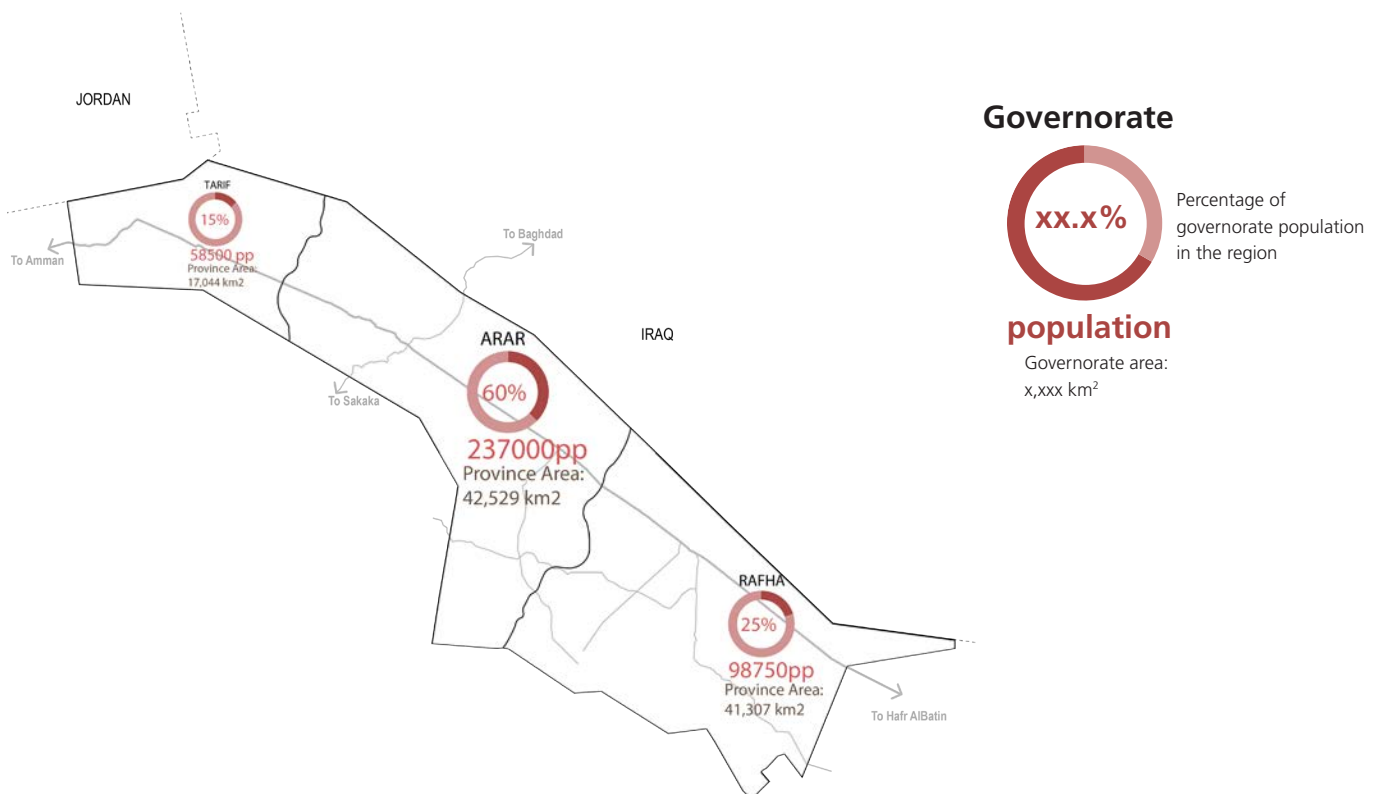


Fig. 7. Population distribution in the governorates

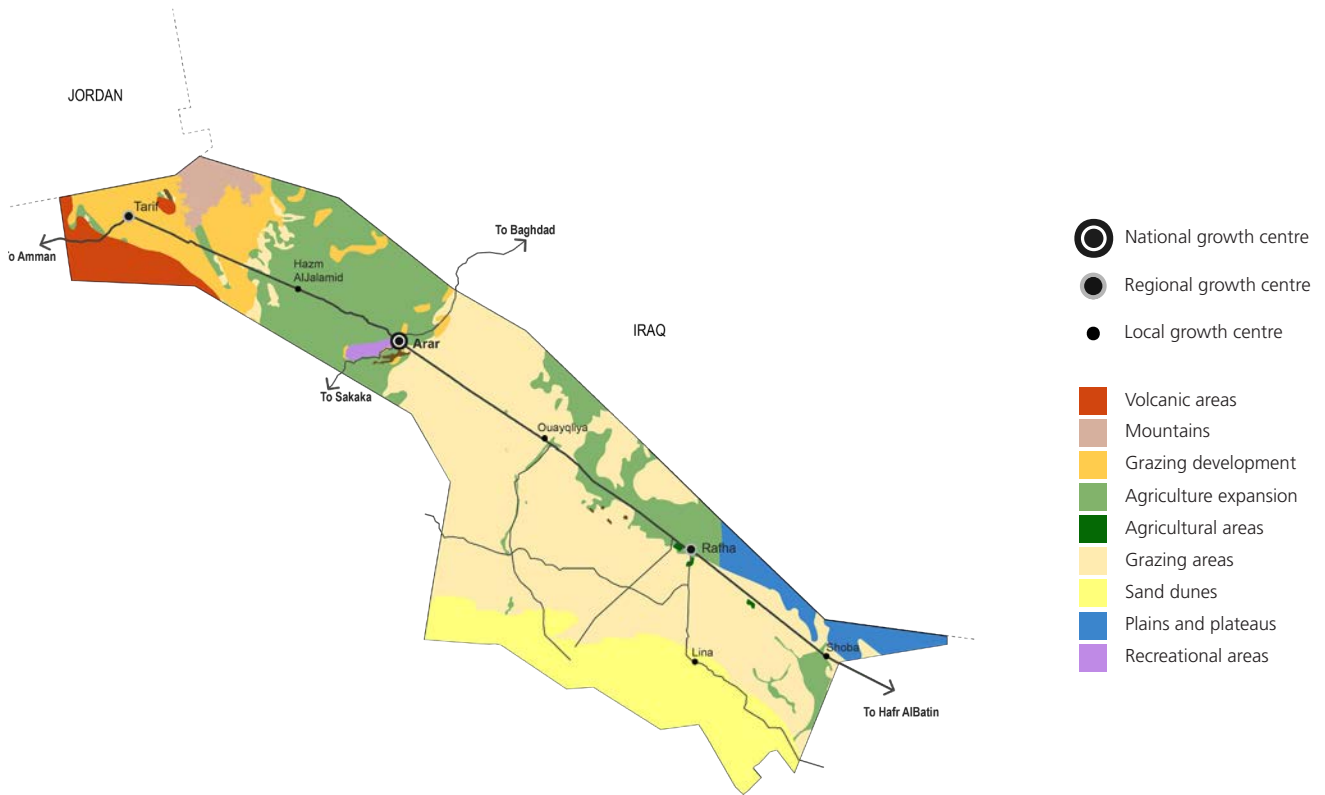


Fig. 8. Regional land use

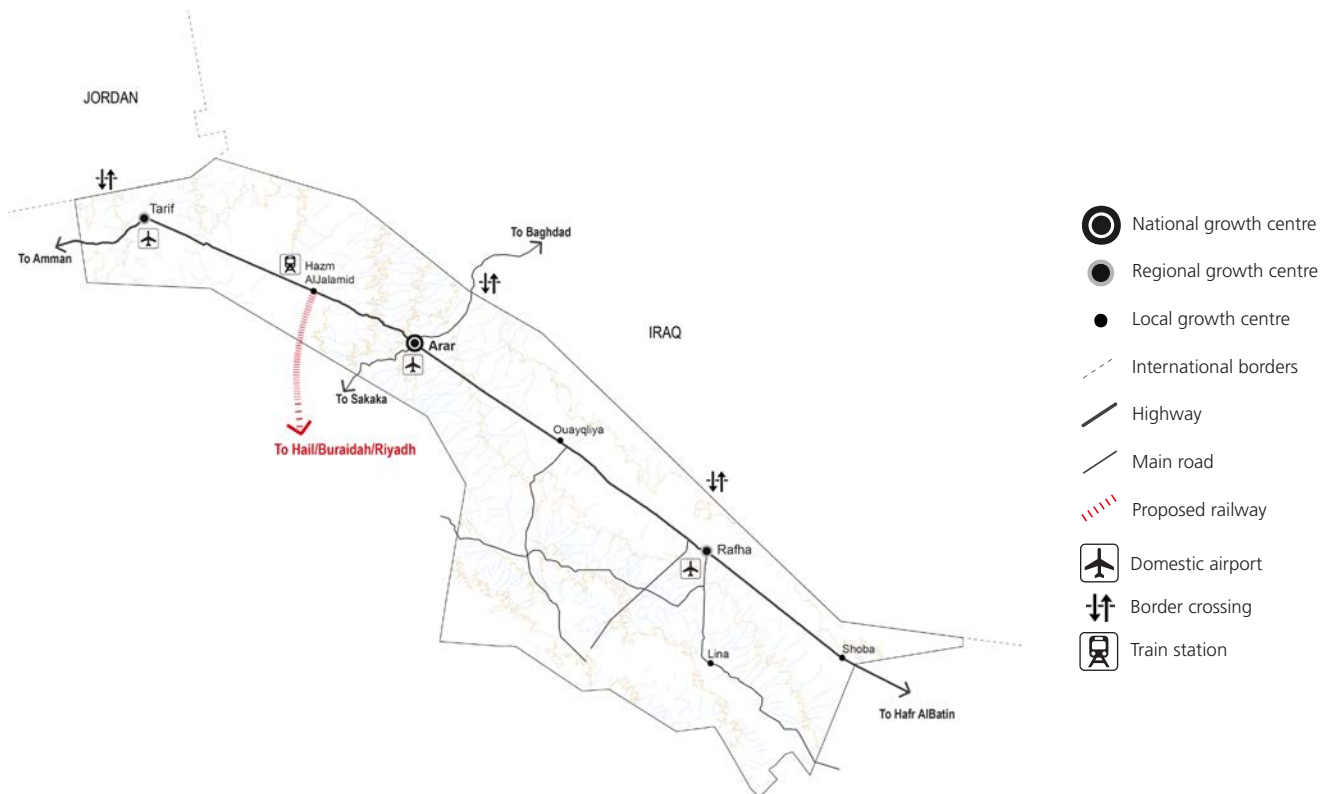


Fig. 9. Movement infrastructure

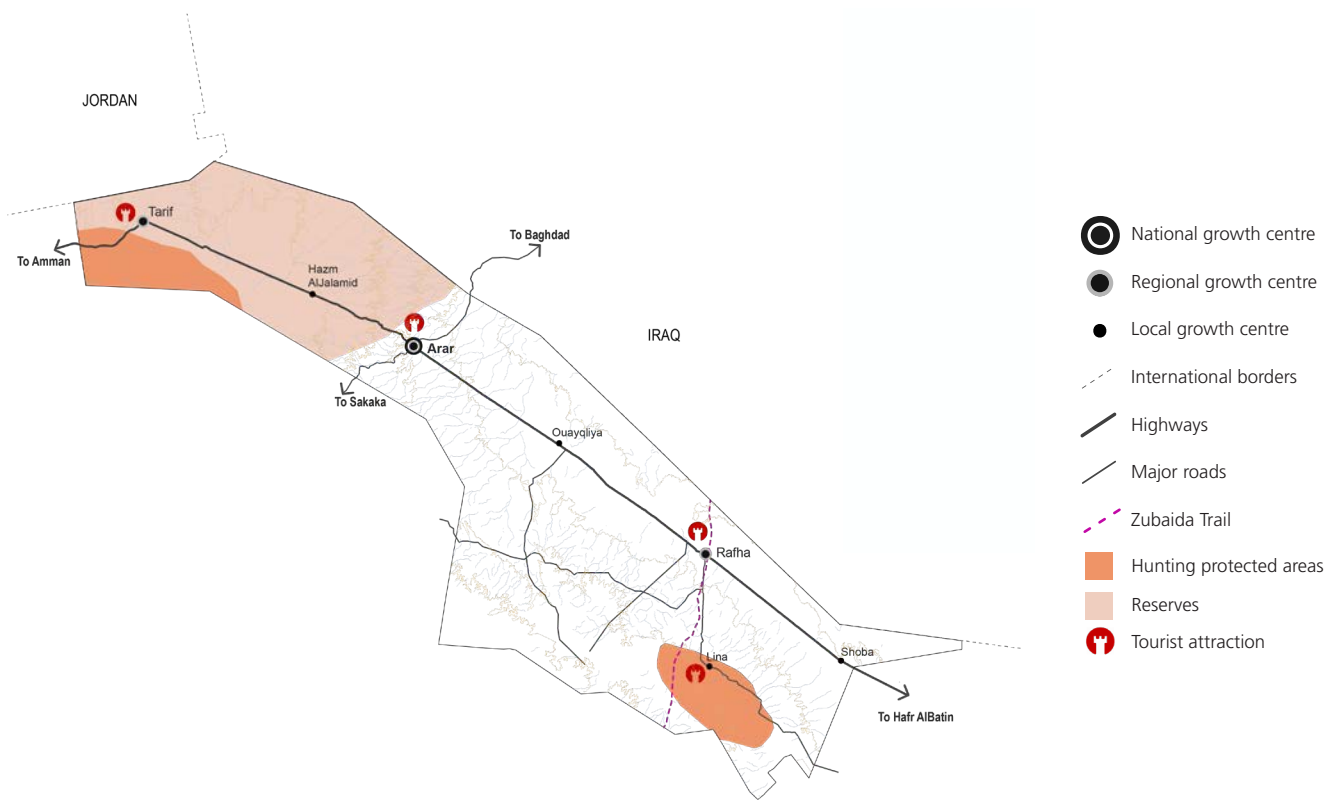


Fig. 10. Tourist attractions and protected areas

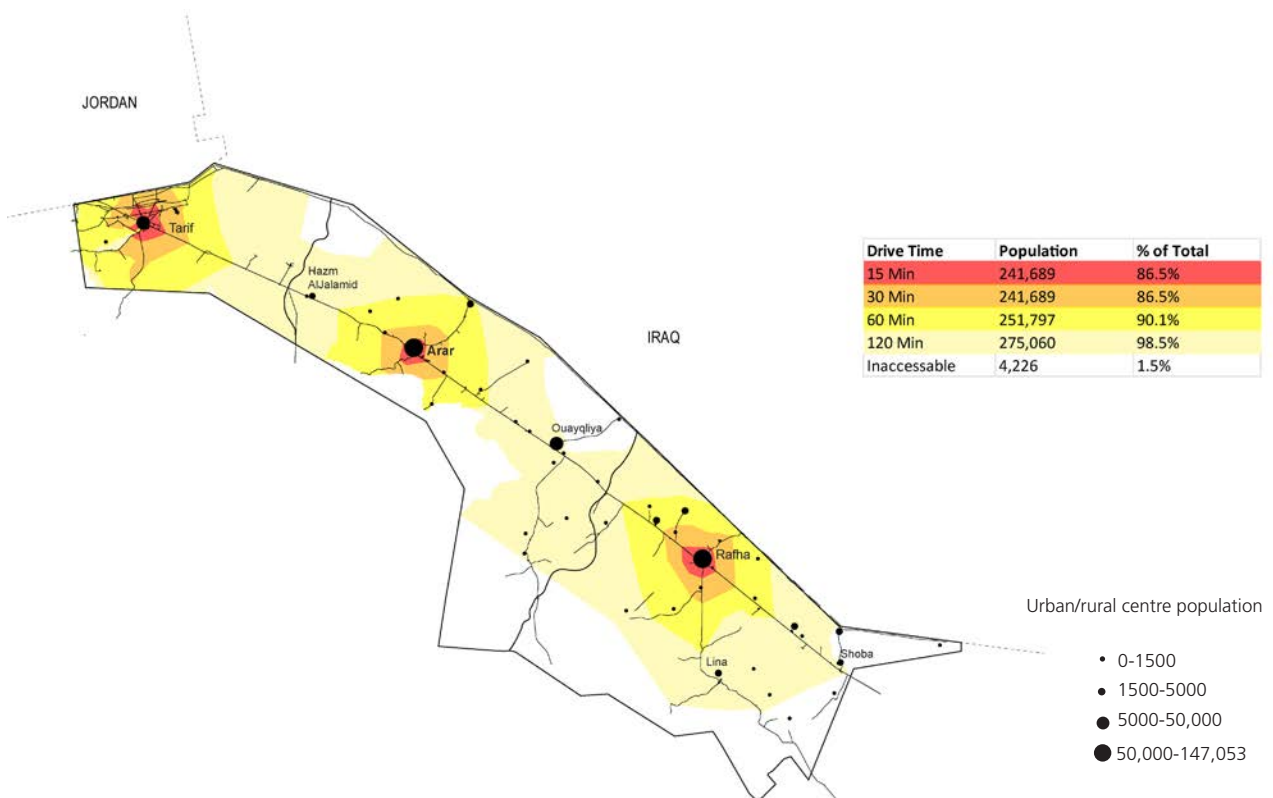


Fig. 11. Access and connectivity in the Northern Borders Region

GOVERNANCE AND FINANCIAL FRAMEWORKS

3



3.1 Legal and Institutional Context

Arar's legal planning framework 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 (Royal Order, Royal Decree, Supreme Order, Council of Ministers Resolution, and Ministerial Decree) that function in a hierarchical order, underpinning their authority and validity. Given this non-centralised law-making process, the city of Arar is guided by over 500 existing urban planning related instruments with most of these having been promulgated at the lowest administrative level, (circulars)¹⁰ lacking authoritative legal force.

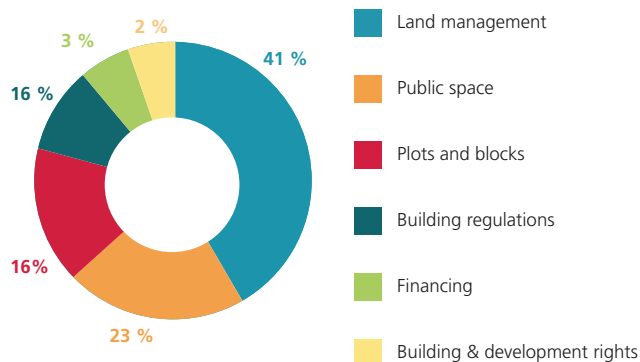


Fig. 12. Number of urban laws in KSA based on the Main Themes of Urban Planning Legislations (UN-Habitat)

The Ministry of Municipal and Rural Affairs (MoMRA) is legally entrusted with the task of conducting urban planning of the Kingdom's cities, including the permitting of all types of construction activity. It therefore plays a significant role in Arar's growth and development patterns.

The Municipality of the Northern Borders (Amanah), as the local level actor for Arar, acts solely as an implementing arm for MoMRA. The institutional budgetary system is also centralised, meaning that Arar's development intervention is reliant on funding allocation from MoMRA, through the sole fiscal resource of an annual line item budgeting.

The Government and military land that exists within the urban core poses a great challenge to Arar's territorial planning. The Kingdom's planning system, which follows a hierarchy of spatial levels and is predominantly top-down, influences the spatial system of Arar.

The National Spatial Strategy (NSS) of 2001 is the guiding plan for the Kingdom. Six plans,¹¹ except the Local Plan, have been approved and implemented for Arar. These are a) the Regional Plan for the Northern Borders Region, 2005; b) the General Indicative Plan, 1985; c) the Structural Plan, 1998; d) the Master Plan, 1997; e) the Urban Growth Boundary Phases, (2014, 2019 and 2030) for the city of Arar; f) the Local Plan (not approved); and g) the Land Subdivision Plans, 1950-1970. Apart from NSS which is enshrined in law,

the remaining planning instruments are defined only by procedural manuals which compromises their legitimacy. By nature, these instruments cannot construct a system of legal accountability and transparency among the relevant actors. Moreover, there is evidence to suggest that land use and building control regulations have facilitated urban sprawl within Arar.

For example, given the total number of buildings (16,364) and residential districts (73) within the city, a third (34%) of these buildings are the height of two floors (city centre, in three residential districts), followed by (31.6%) single floor buildings (the outskirts of the city, in 66 residential districts).

Buildings with three floors constitute 28.9% (outside Arar city centre, in four districts); however, there are only 4.7% of buildings with four floors (with a limited number inside the city, distributed along the Arar regional roads). Moreover, the building regulations in force have engendered urban sprawl within Arar, despite the call from residents, specialists, and the private sector to regularise high-density residential housing within the city.

In terms of reform, Arar 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 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.

Administratively, the Legal Department within the Amanah of the Northern Borders Region, which is involved in assessing the efficacy of planning laws, as well as its supervisory body (Monitoring and Control Authority), should be both strengthened through staff training initiatives so that they are functionally equipped for their role, as well as have enhanced capacity to address complaints from the community regarding the application of rules and regulations. The legal framework needs to enshrine an acceptable level of public participation in decision making, to foster equality and inclusion.

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.

3.2 Planning Instruments and Procedures

3.2.1 Hierarchy of plans

The planning system of Arar 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 12 highlights the planning instruments in force in Arar.

3.2.2 Regional Plan for the Northern Borders 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. For the Northern Borders Region, a Regional Plan was approved in 2005, which:

- a) develop a comprehensive vision for development, in a manner that maximises the use of available resources,
- b) establish a strong and diversified economic base for the region,
- c) provide new job opportunities; and
- d) meet the population's needs for services and infrastructure.

The idea of the Regional Plan is to concentrate urban development in urban clusters in the region, which, in turn,



Development along Arar's highways

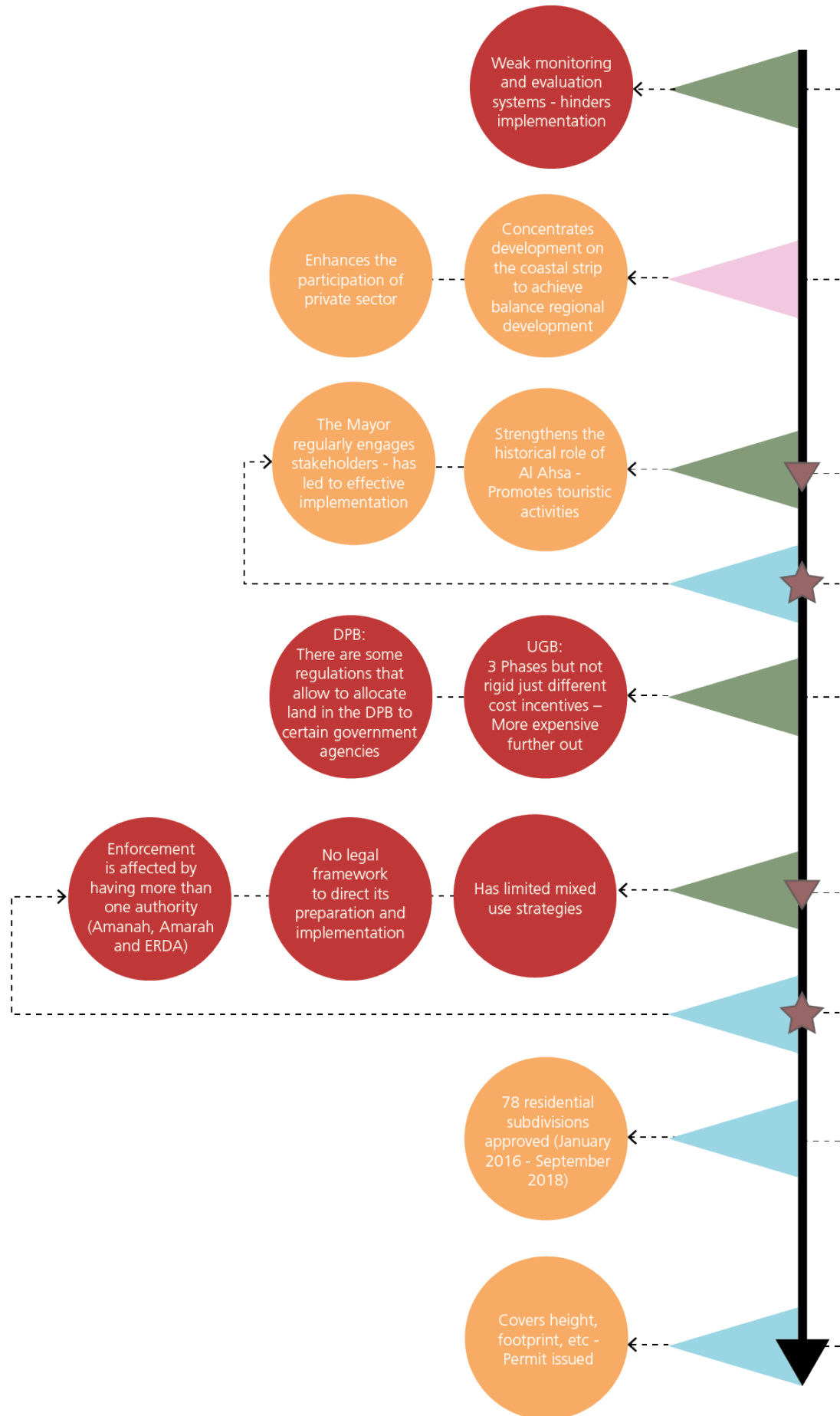
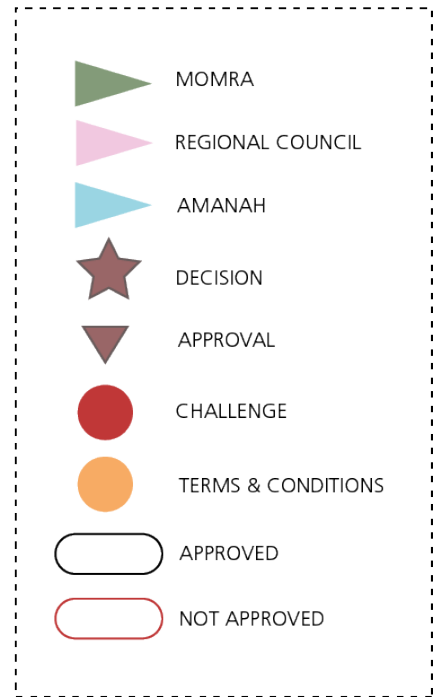
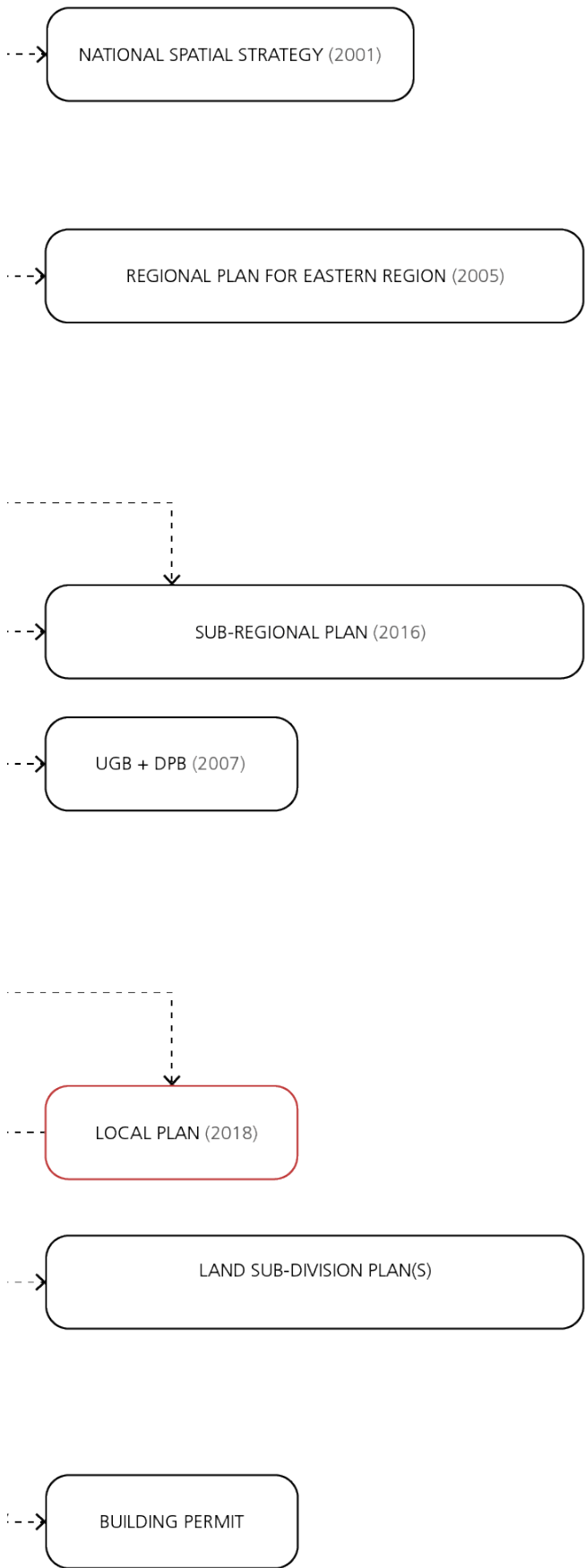


Fig. 13. FSCP simplified representation of hierarchy of plans and the planning instruments for the city of Arar



will serve various other urban clusters. The proposed clusters are divided into several categories according to the functional role they will play, including consideration of diversity and integration (especially in terms of activities and jobs).

The Regional Plan outlines the following strategic and development objectives of the Northern Border Region:

- To enhance the development of Arar City, as a national growth centre, and the progressive development of other regional areas by supporting and promoting regional growth centres to help advance urban, social, and economic development;
- To strengthen economic integration among the regions of the Kingdom, as well as facilitating economic integration between the Kingdom and its neighbouring countries, by developing clusters along the Kingdom's borders, such as the city of Arar;
- To diversify the economic base in the region while achieving sectoral balance in the following key industries, (mining, agricultural, pastoral, tourism, etc.) in accordance with resources and the productive capacity available. The private sector is also called upon to play a positive role in economic development;
- To achieve balanced regional development among regions within the region based on the quality of resources available in each region;
- To achieve balanced urban development by upgrading and completing infrastructure networks, (roads, communications, electricity, water, etc.)

3.2.3 The Arar Plan

The Arar Plan¹² is a planning tool constituted of a strategic component (the Structural Plan), and of a regulatory document supporting the technical implementation (the Local Plan). The scope of these plans includes:

- Long-term strategy for the city;
- Identification of relevant development areas;
- Identification of urban/not urban land;
- Main mobility system;
- Environment protection;
- Infrastructure provision;
- Detailed land use;
- Urban regulations; and
- Detailed proposals for selected areas.

Structural Plan of Arar

The Structural Plan, which is the strategic component, aims to identify key spatial structures as those provided for in the Regional Spatial Strategy. The Arar Structural Plan (1996-2043) was prepared by the Amanah. This plan, in line with the Regional Plan, highlights different objectives for the different cities that are located within the metropolitan area. For instance, the city of Arar remains the administrative and

services centre for the region.

Arar City attracts the most development efforts in the region, having 87% of institutions, services, and investments, as well as 59% of the regional population concentrated in the city. Arar also features some archaeological and touristic sites that are currently under the process of redevelopment. This has necessitated the preparation of a tourism development plan.

Regarding the land use, the Structural Plan identifies strategic land uses and infrastructure networks within the metropolitan area of the 1450 (2030) Urban Growth Boundary (UGB). Within this UGB, 60% of the urban footprint is reserved for military uses, whereas 25% of the urban area is preserved for residential use. The area allocated for residential purposes can hold double the projected population as the plan promotes a very low-density residential typology.

This plan encourages a mono land use typology. Mixed land uses and commercial uses (2% mixed-use, 2% commercial use) are only proposed along the major corridors and secondary roads. Other uses, such as industrial, have a land allocation of 4%, while 3.4% of the city's urban areas are allocated for public facilities.

Local Plan

The Local Plan represents the third level of the urban planning system in the KSA and is largely focused on those areas of the municipality, which are contained within the UGB, with a particular 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 of regulations, which contains specifications on the permitted 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:

- apply urban controls to urban land use and building regulations;
- to provide public services and infrastructure in a cost-effective and integrated manner;
- set basic requirements for proposed road networks, and
- 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 by the existence of parallel structures applied by MoMRA and the Ministry of the Interior. Whilst the legal mandate for planning



Public space outside the historic city

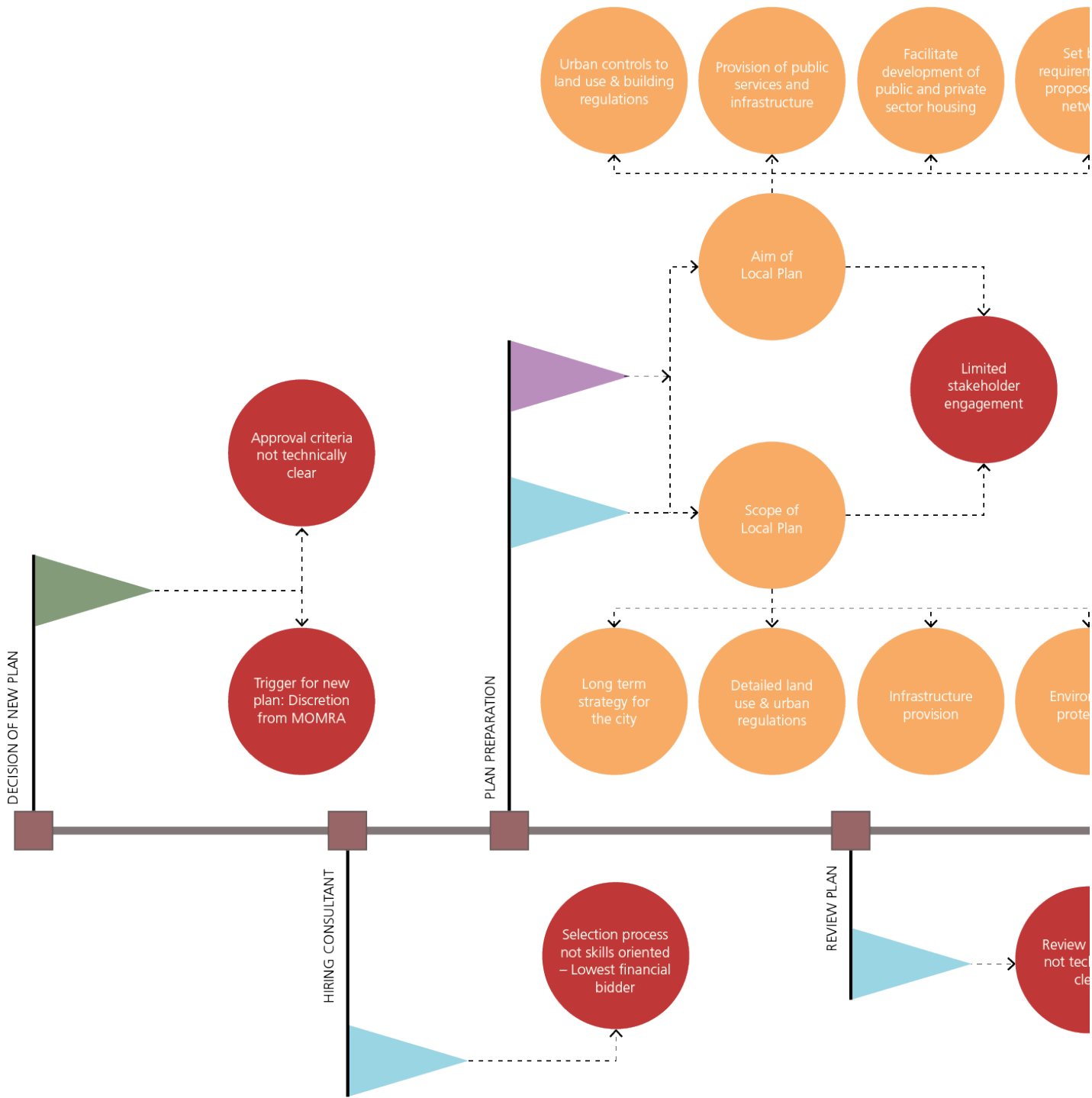
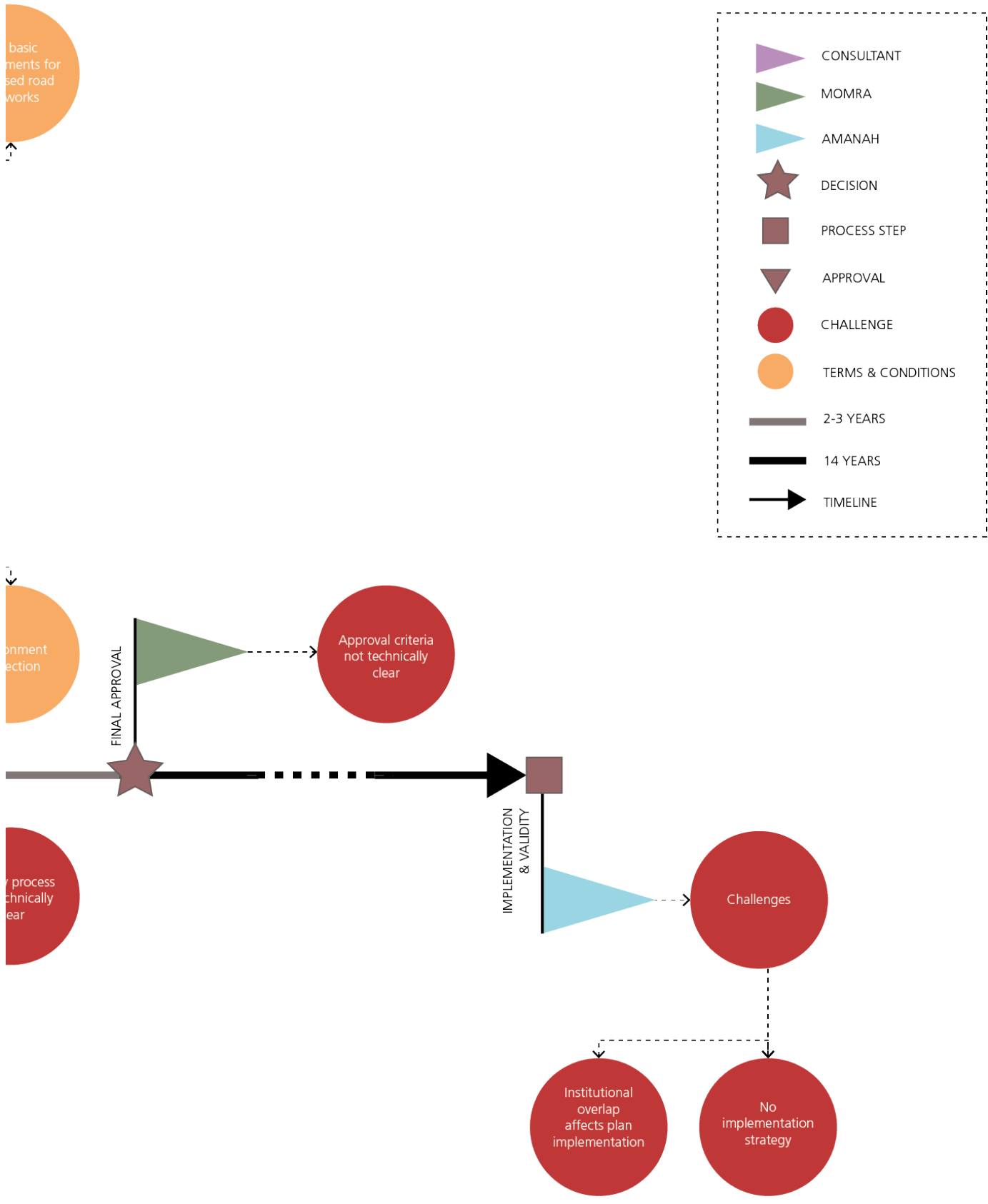


Fig. 14. FSCP simplified representation of Planning Process and Actors involved in the preparation of the city of Arar



clearly lies in the Municipalities (under MoMRA), there are jurisdictional overlaps with newly established Regional Development Authority, as well as with the Mohafezat (Governorates – sub-regional) and Markaz (Districts), which fall under the Ministry of Interior. While previously to the establishment of the new Regional Development Authorities, the Ministry of Interior was the oversight body for regional project implementation, with MoMRA designated as the central spatial planning institution, the new Regional Development Authorities will now take up the role. However, there still lacks a clear mechanism for coordination. This frequently leads to an impasse in decision-making which affects the delivery of technical standards within municipalities such as Arar.

The Arar Local Plan was prepared in 2014 by MoMRA, in coordination with the Amanah, but it is yet to be approved.¹³

3.2.4 The Arar 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 Urban Growth Boundary is meant to control urban expansion, whereas the Development Protection Boundary (DPB) is meant to prevent urban sprawl in the outskirts of cities without adequate infrastructure, by demarcating a no-development zone. The DPB supports not only the role of the Urban Growth Boundary in preventing sprawl, but also has the function of preserving land for future urban development beyond the 1450 (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.

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 the size of the lot. Arar is categorised as a national growth centre, (see figure 15). Legally, the area between the Development Protection Boundary and the 1450 (2030) Urban Growth Boundary is protected and not earmarked for development; however, the

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 CENTERS (HAEL, TABUK, BURAIDAH, UNAYZA, ARAR, NAJRAN, JAZAN, AL BAHA, SKAKA, ABHA, TAIF AND AL-AHSA)		
MORE THAN 500,000 SQM		
- Tarmacking of internal roads - Sanitation and electricity - Water if available - Storm water infrastructure	- Tarmacking of internal roads - Sanitation and electricity - Water if available - 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.)	- Tarmacking of internal roads - Sanitation and electricity - Water if available - 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.)
- Tarmacking of internal roads - Sanitation and electricity - Provide land for social services (schools, kindergartens, hospitals)	-	-

Fig. 15. Matrix showing the development options within the phases of the Urban Boundary in the National Growth Centres (including Arar)

Law also outlines mechanisms for building mega or national-regional economic projects therein. Additionally, given the legal flexibility around the definition of “mega” or “strategic” projects, private residential developments exist outside the 1450 (2030) Urban Growth Boundary. 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.

Setting the Boundary

The Urban Growth Boundary for Arar, along with other cities, was set simultaneously by MoMRA, through a Committee under the Unit of Coordination and Projects. 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 Arar, land belonging to the Ministry of Housing has been scattered in remote locations within Phase II of the boundary. However, the development thereof may take longer due to the lack of required services.

Permitting

Development within the Urban Growth Boundary is closely linked to permitting and development control. The process in Arar 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 Northern Borders Region);
- 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

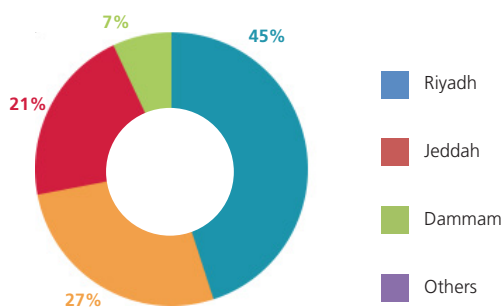


Fig. 16. Percentage of white lands – First phase of implementation of the White Lands Law

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.

3.2.5 White Lands Act - Arar

The amount of undeveloped land (“white lands”) in Arar is high; there are 24,118 hectares, which represents more than 65% of the land inside the 1450 UGB of Arar. 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 Law¹⁴ 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, (see figure 16). At the moment, the Act is operational only in Makkah, Riyadh, Dammam and Jeddah.

3.2.6 Land Subdivision Plans

The land subdivision plans are the basic building blocks for KSA cities’ growth and development. The Mayor of the Northern Borders 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.
- 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.

There are 223 land subdivision plans which have been approved by the Amanah within the Urban Growth Boundary.¹⁵

3.3 Institutional Framework

3.3.1 Urban institutions in KSA

Arar'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.¹⁶ 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 development.¹⁷ In practice, there is little coordination between these departments and the Amanah, and this affects service delivery and project implementation.

3.3.2 Regional context: Northern Borders Region

According to the Ministry of Interior administrative classification, the Northern Borders Region is divided into 3 governorates and 18 centres. Seven Markaz (class A) and eleven Markaz (class B) Arar, 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 the Ministry of Interior¹⁸ Given this structure, the Amanah is allocated funds by MoMRA, for development action and municipal services through an annual line item budgeting,¹⁹ which is the sole fiscal means available to Arar.²⁰

There are additional institutions in the Northern Borders Region that manage and regulate the development process. The Amarah of the region, headed by the Regional Prince who, pursuant to the Regional Law,²¹ reports to the Ministry of Interior. The Regional Council²² is based in the Amarah, and is required to:²³

- 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.



FSCP workshop in Arar with stakeholders

The Municipal Council, also located in the Amanah, with two-thirds of its members appointed 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 city.

3.3.3 Local context: Northern Borders - Arar

The Northern Borders Region is composed of several cities including Arar, which is the capital and largest city. As earlier mentioned, the city is managed by the Amanah, which is headed by a mayor. The Minister of MoMRA appoints the mayor, and the Civil Service Bureau appoints the rest of the Amanah's executive members based on their professional qualifications.

The organisational structure of the Northern Borders Amanah was updated during 1997-1998, and a revision process is ongoing. However, within the administrative structure and under the Mayor's office there are three important main deputies/agencies concerned with the administrative, organisational, and planning aspects of the Amanah of the Northern Borders Region as follows:

- Deputy of Reconstruction and Projects;
- Services Agency;
- Municipal Affairs Agency, (under its Department there are 4 sub-municipalities).

There are various challenges facing the Amanah in relation to the administration of Arar, such as:

- The lands owned by the military authorities and the reserved lands of ARAMCO Company are located within the urban core, which hinders the planning initiatives of the Amanah;
- The presence of an oil pipeline and the right of this line (ROW), which extends to 500 metres from each side along the length of these pipelines, greatly hinders urban development;
- The role of the Amanah is merely to apply the regulations and legislation, especially those issued by

the higher authorities. It has a limited role and mainly provides developmental suggestions as per the Council of Ministers Real Estate Disposal Regulation 2003, and its implementing regulations of 2005. The Amanah also has a direct role in the preparation of building regulations/systems of the city of Arar, especially within the unapproved local plan;

- Many Governmental agencies, and especially their departments operating within Arar City, overlap with the Amanah. These are the Amanah of the Northern Border, Arar Regional Council, Arar Municipal Council, Municipalities of the Governorates, including the following departments: transport, electricity, water, agriculture, civil defense, traffic, civil service, and notary public. At the regional level, several committees were formed to resolve the issue; these include: i) the Sub-Committee of the Regional Council; ii) the Municipal Council Committee and iii) the "Land Monitoring and Violations Committee." Usually, there is direct consultation between the Amanah and these agencies, particularly in relation to addressing citizen's complaints;
- There is limited vertical coordination between the Amanah and the Ministerial departments, except the Ministry of Finance, where there is continuous and direct coordination and communication, especially with respect to budgets, financial claims, and preparation of budgets;
- The limited number of employees specialised in urban planning, in addition to the recruitment and selection process is bureaucratic and time-consuming;
- Insufficient budget that does not compliment the magnitude of work to be undertaken within the Amanah. Among various things, this affects the hiring of qualified consultants to prepare the plans; and
- The procedures to monitor violations of planning regulations and enforcing administrative actions, such as penalties is cumbersome hence ineffective as a deterrent mechanism.

3.3.4 Legal and Institutional Implications for Arar

Most technical decisions and approvals passed in the local governance system (Amanah), including planning decisions, are made on a discretionary basis according to the priorities set by the Mayor and the Municipal Council. This affects the system's technical accountability, predictability, and practical clarity. Coherence cannot improve until measures are taken to instil legal mechanisms that harmonize and guide the planning system. This ambiguity, together with rule of law concerns, negatively affects foreign direct investment which undermines the economic pillar of the Kingdom's Vision 2030.

3.4 Financial Context

Arar is located in the Northern Border Region of Saudi Arabia. The city is well connected to the Saudi cities of Tabuk and Skaka, in addition to being in close proximity to Jordan. The central government's investment into Arar's economy supported the growth of private establishments in the region, which increased by 3.2% between 2012 and 2016. The majority of the region's economy is comprised of small and medium-sized enterprises in construction, wholesale, retail, livestock, community, and social services.

Following Saudi Arabia's Vision 2030, the regions economic goal of the government is to diversify the local economy into manufacturing and industrial industries. As a result, the government has been exploring new economic activities in strategic industries that will support job creation, business development, and innovation. Consequently, the development of public infrastructure (e.g., airports) that serve Arar's key economic sectors is a priority as the municipal government pushes to increase market access, spur competition, and harness the productive capacity of the region and its contribution to the national economy.

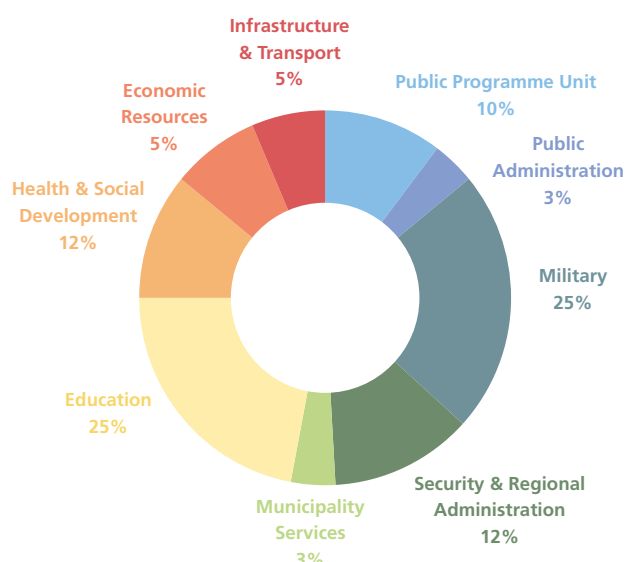
Part of the government's strategy to achieve its economic goals includes a renewed commitment to strengthen the feedback loop between (1) regional and local needs, (2) education and training, and (3) the economic landscape. This will enable the government to foster growth in human capital and improve

market conditions that are conducive to research, innovation, and economic diversification.

3.4.1 Financial system

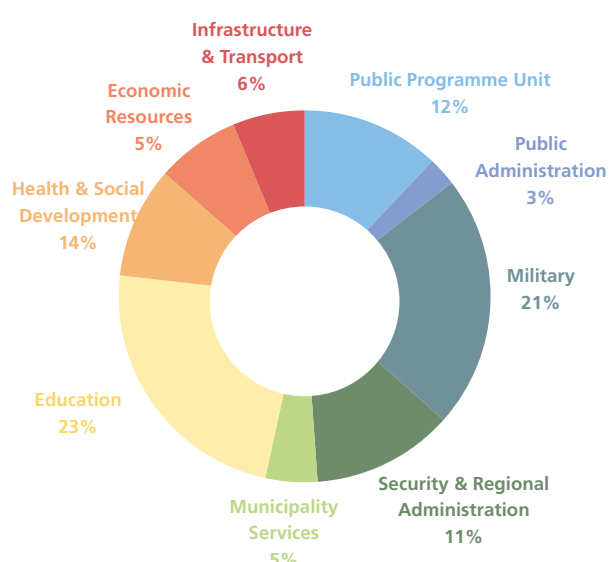
Public finance and sound fiscal management is key to supporting local development goals and establishing a solid financial base that strengthens the public sector's role in supporting local economic development. Currently, the National Development Plan guides Arar's public finance system. This system is highly centralised and dependent 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 (MoMRA), (see figure 17 and figure 18).

MoMRA, via the Amanahs, 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). In any given city, different ministries alongside those of MoMRA manage various projects and activities separately.



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

Fig. 17. Saudi Arabia national expenditure by sector, 2016



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

Fig. 18. Saudi Arabia national expenditure by sector, 2017

3.4.2 Municipal revenue

Currently, the Amanah only has a few sources of revenue and authority to collect fees. MoMRA has recently introduced municipal fees, which expanded their own-source revenue base, but local revenues continue to be insufficient. Consequently, the Amanah continues to be reliant on support from the central budget. Intergovernmental transfers from the MoF are based on annual budget proposals submitted by the various ministries. In MoMRA, the budget drafting process tends to be heavily influenced by local government needs and priorities; municipal governments submit project proposals for the next budgetary cycle, which are then submitted to MoMRA's leadership for final approval. The projects that are approved are included in the MoF's budget review and submitted to receive funding.

3.4.3 Financing municipal operating costs

In 2016, approximately 10% of the Amanah budget for Arar came from own-source revenue. Consequently, Arar continues to be heavily reliant on intergovernmental transfers. In order to reduce dependency on transfers from the central government, the National Transformation Programme 2020 (NTP), directs the local government to establish sound fiscal policies through the introduction of new financing instruments. In 2016, Arar generated SAR 126 million in own-source revenue. Consequently, they were only able to finance a small portion of their budget, as shown in figure 20.

Budget Category	SAR (thousands)
Salaries	120,388
Operation Expenses	16,100
Operation and Maintenance Programmes and Contracts	250,400
Projects	690,800
Total Approved Budget	1,077,688

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

Fig. 19. Amanah budget, Arar (2016)

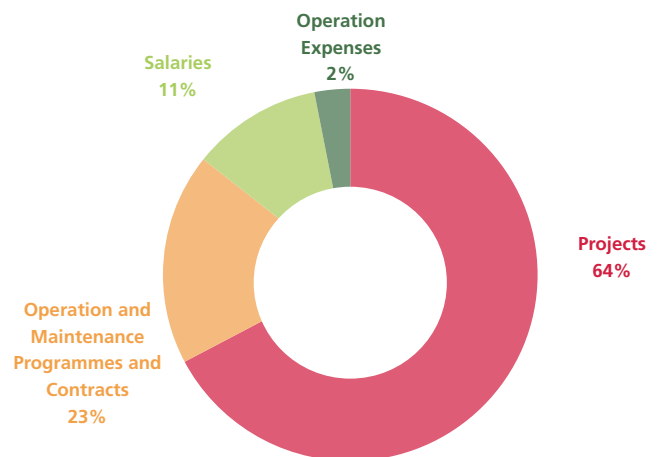
3.4.4 Capital financing for municipal development of Arar

The demand for capital to diversify the funds for local infrastructure, public goods and services in emerging countries is becoming a priority, especially in cities like Arar. This is strategic for Northern Border Province and Arar to create the right conditions to increase the economic contribution to national GDP, reinforcing local comparative advantages, supporting new entrepreneurial activities, and fostering innovation of industrial pattern (e.g. food industries and agro-processing industries).

In these terms, Northern Border Province and Arar economy have a direct benefit from new capital financing options, experiencing economic returns for local key sectors like, agriculture, livestock, and wholesale and retail. Besides, they present great chance to create employment and boost national and foreign direct investment (FDI) to achieve the goals of the Vision 2030 and diversify local economies.

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

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



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

Fig. 20. Amanah budget breakdown (2016)

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. 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. The Saudi Arabian capital market is becoming an example of efficient capital allocation driven by strategic reforms and increased market capitalisation.

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

This approach creates competitive and attractive conditions for capital and equity investors and is expected to have wide-ranging impacts on the local economies of cities like Arar in the future, increasing the availability of capital to support new firms, and making more competitive Northern Border Province and its main cities in the long run.



Aramco Tapline in Arar

4

THE CURRENT CITY





4.1 Urbanisation Patterns

4.1.1 The city's development patterns

The city of Arar was founded after the construction of the Tapline in the 1950's, initially being only a camp with workers' housing and a health centre located aside an oil pumping station. The pipeline was constructed at the intersection of the Arar and Badanah Valleys. Over time, many new tents started appearing around the central area of the city, and later transformed into mud houses, and further into more permanent structures. The growth of the city was favoured by the consistent water resource present in the Arar valley, and by the presence of agricultural areas along the regional roads (Arar / Doumat Al Jandal).

The initial population of the city was mainly constituted by workers from the oil sector. With the growing maturity of the oil industry, Arar became attractive to more Saudis as a job centre. In the following periods, and due to its location at the border of the Kingdom, the residing population increased because of the presence of the military and armed forces and their families. This continues to be a major contributor to the population growth. Foreign workers and regional immigrants also contribute to the population growth and diversity. The current Arar population is estimated to be approximately 219,079 people, and with a projected growth of about 1.7% annually, it estimated to host 283,300 inhabitants by 2030. The built-up area presents a density of 35.3 p/ha, while the density within the city's 1450 Urban Growth Boundary stands at 5.9 p/ha. Being a small town, the density over the built-up area is considerably good, although it is quite low in relation to the UN-Habitat's recommended density of 150 p/ha.

In terms of the physical growth, until 1985, the city expanded concentrically from the original centre, with some linear extension developing towards the North, along the main Wadi. Subsequently, the city started growing along an East-West axis, along Highway 85, anchored by the domestic airport on the Southeast, and the gateway to Jordan on the Northwest side. Overall, since 1985, the city has grown by 526% as its location at the crossroad of two important highways has impacted the growth. The Highway 85, crossing the city, runs North-South connecting the city of Skaka, 100 kilometres Southwest of Arar, and the city of Baghdad in Iraq, 300 kilometres Northeast of Arar. Crossing East-West is the Highway 80, connecting the town of Hafr Al Batin, 350 kilometres East of Arar, with the Jordanian border town of Tarif, 150 kilometres West of Arar. Most of the current built-up area of the city lies on the Northern side of Highway 85, while Highway 80 crosses the city and dividing the fabric of the city. These two highways are the major structuring elements of the city, having a strong influence on its development pattern, to the point of informing the geometry of the current built-up area, almost a perfect square measuring approximately six by six kilometres. Future developments and proposed city

POPULATION



POPULATION DENSITY on built-up area



POPULATION DENSITY on 1450 UGB



AGE PROFILE

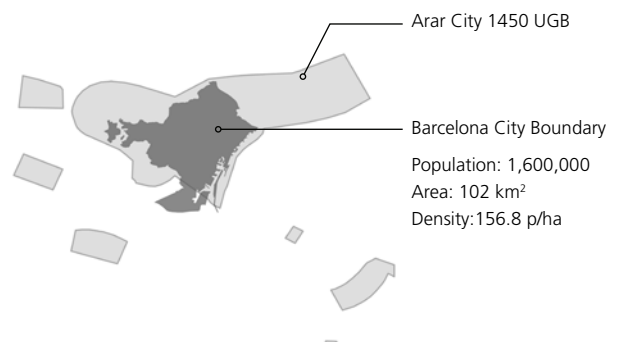


POPULATION GROWTH RATE



283,296 Expected population by 2030

ARAR CITY COMPARED TO BARCELONA



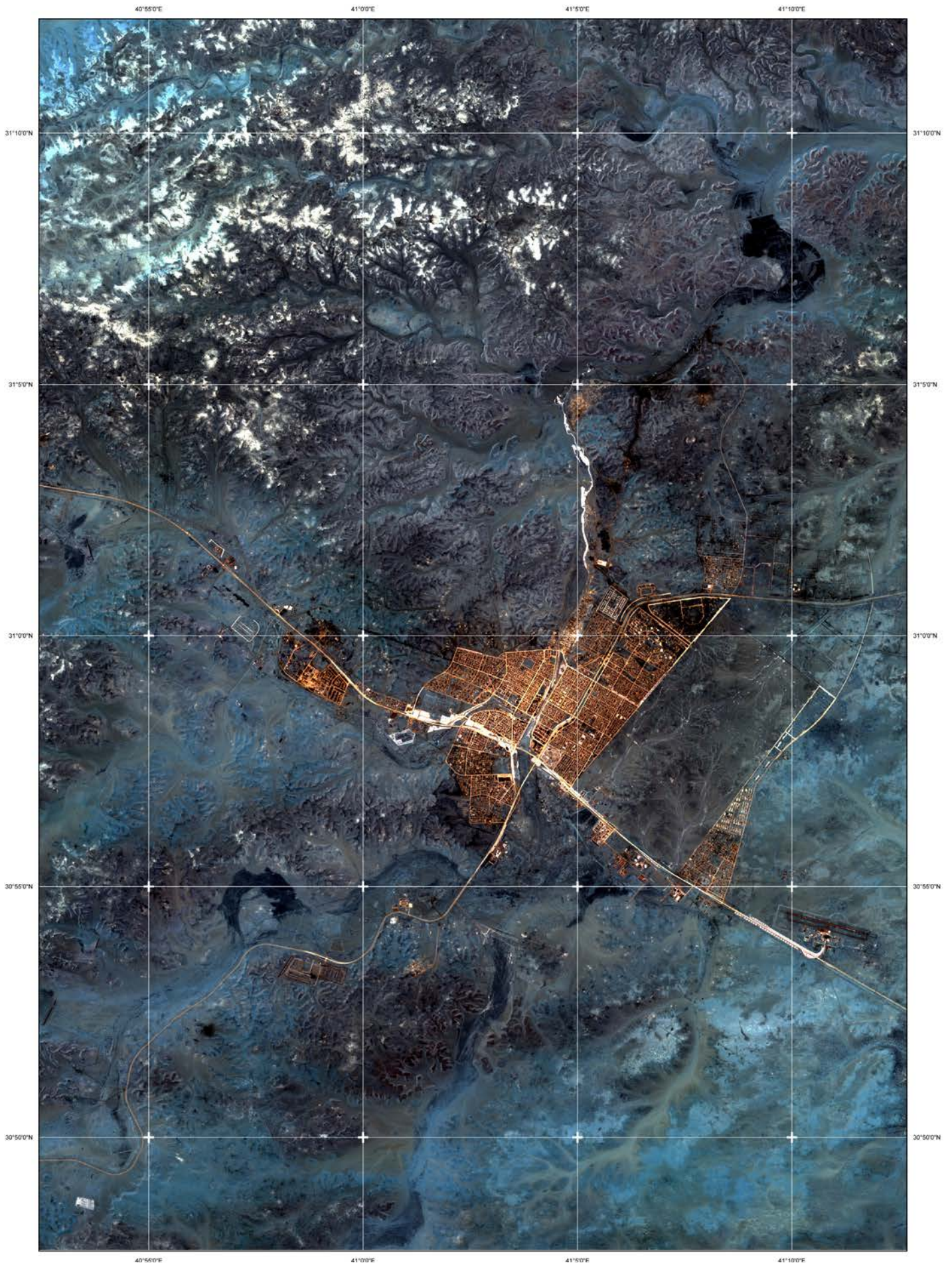


Fig. 21. Boundaries, neighbourhoods and key infrastructure



1972

Area: 52.23 ha
Population: 14,100



1985

Area: 989 ha
Population: 23,800

expansion plans currently continue to be strung along these two major highways, which hinder the overall connectivity of the urban fabric.

A substantial military reserve land, located along Highway 85 at approximately four kilometres East of the city centre, also plays a substantial role in the city's development pattern, reading like a fracture between the older part of the city and the most recent eastward expansions. Measuring approximately 4,200 hectares, the military reserve land restricts the sequential flow of development eastwards, causing the city's Eastern expansions to conform as a disconnected, fragmented, and therefore segregated, urban pattern. As a result of this disconnectedness, recent and future developments are pushed far to the edges, becoming catalysts for urban sprawl.

Major natural and geographic features also influence the city development pattern, primarily referring to the extensive network of wadis crossing the city in both East-West and North-South directions, running parallel to Highway 80 and 85. The extent and width of the wadi network currently divides the city into three distinctive zones of varying sizes, the old city centre, the industrial zone, and the Al Mosaediah Neighbourhood. The city sits on a plane characterised by gentle hills, rolling from the centre of the city outwards, generating varying high and low points, which create opportunities for interesting panoramas of the city, as well as for appreciating the natural landscape on the outer edges of the city.



2000

Area: 3,561.8 ha
Population: 141,833

2015

Area: 6,192 ha
Population: 219,079



Fig. 22. Urban growth stages

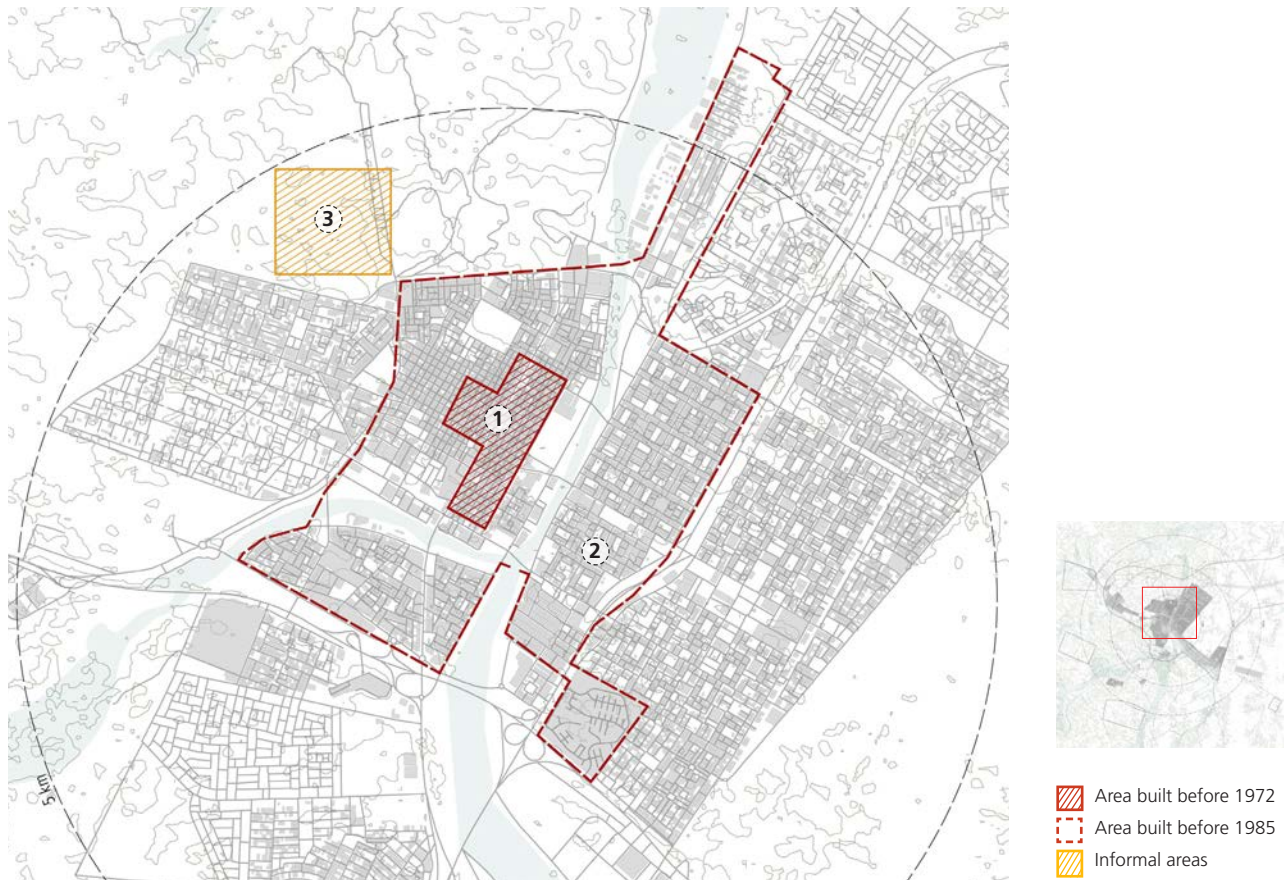


Fig. 23. Arar's urban growth patterns

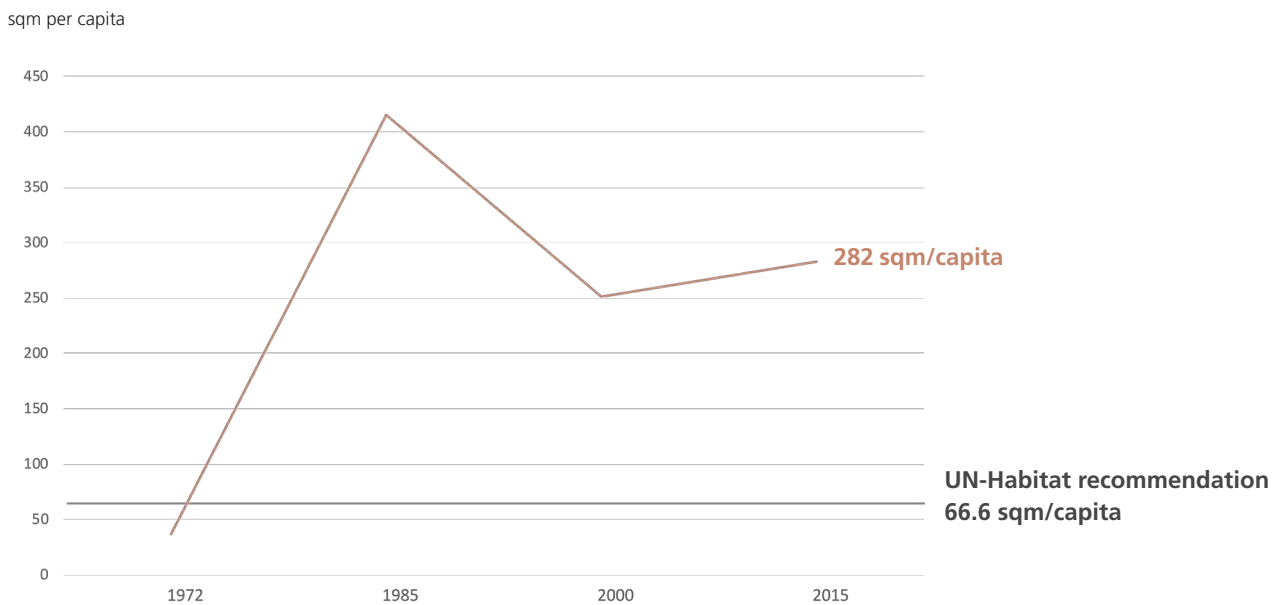


Fig. 24. Land allocated per capita



4.1.2 Administrative boundaries

The city of Arar has a population of 219,079 inhabitants, holding 55.5% of the region's population. Administratively, the area of the city covers approximately 131,300 hectares within the Development Protection Boundary, which defines the total size of the territory under the Amanah administrative authority, demarcating the edges of the city. The Development Protection Boundary, together with the 1435 Urban Growth Boundary, and the 1450 Urban Growth Boundary, are set by the Ministry of Municipalities and Rural Affairs (MoMRA) with the objective of controlling urban expansion from occurring without adequate urban infrastructure, and preventing urban sprawl in the outskirts of the city.

In particular, the primary function of the Development Protection Boundary is to manage development and city extensions, protecting and preserving key ecological assets and agricultural land. The current Arar Development Protection Boundary defines a vast area of land measuring about 58 by 44 kilometres, from edge to edge. The 1435 Urban Growth Boundary and 1450 Urban Growth Boundary are closely tied to current and future urban growth trends for the city, and established with the intent to support decision-making processes about land use, economic development and strategic governance. Like the Development Protection Boundary, the Urban Growth Boundaries need to be carefully planned in line with strategic vision and goals.

When looking at the area labelled as development zones between the outer edge of the built-up area and the 1435 Urban Growth Boundary, it is approximately 26,200 hectares. At UN-Habitat's recommended density of 150 p/ha, the area would have the capacity to accommodate an additional 3,930,000 people, and would take approximately 174 years to fully develop.

The area available for development in between the 1435 Urban Growth Boundary and the 1450 Urban Growth Boundary has an extension of about 4,600 hectares. Considering the UN-Habitat recommended density of 150 p/ha, this area has the capacity to accommodate an additional 690,000 people.

The area between the Development Protection Boundary and the 1450 Urban Growth Protection Boundary, amounts to 94,300 hectares. This area incorporates natural features, such as mountains, open desert, wadis, and patches of agricultural farming, and it is sparsely populated. In terms of urban density, considering the UN-Habitat recommended density of 150 p/ha, which targets a well developed and sustainable city, this area would have the capacity to accommodate approximately 14,145,000 people and, at the current growth rate, it would take 250 years to fully develop it.

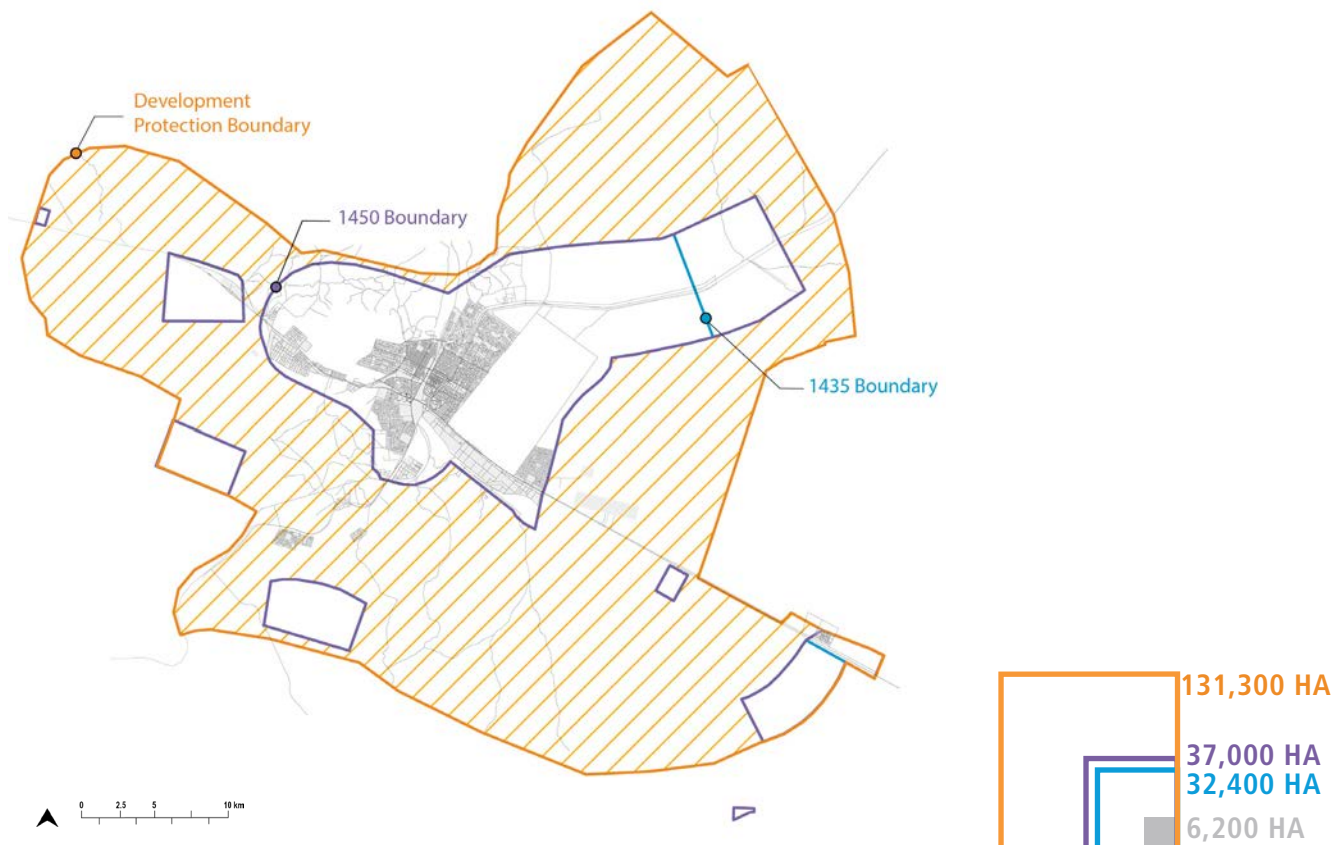


Fig. 25. Administrative boundaries



Overall, looking at the extension of land between the built-up area and the Development Protection Boundary the total available land is 125,100 hectares. This amount of land, if used for future development, could accommodate 18,765,000 people, taking 265 years to develop. The exceedingly extensive nature of these three boundaries renders them mostly ineffective as growth management tools, as, in many ways, it encourages urban sprawl and ineffective infrastructure investment.

4.1.3 Urban density

Over the first twenty-one years (1951 to 1972) of the city's existence, the population growth was steady and consistent, reaching 14,000 inhabitants. In the following decade, the city registered a rapid population growth, increasing its population by approximately 59% in thirteen years (1985), to reach 23,800 inhabitants. This was followed by another steep raise in the following fifteen years, as by the year 2000 the population ballooned to 141,833, and then to 219,079 by 2015. In the past 30 years, the population has grown by 820%, presenting a very high growth rate. At the current growth rate, the population will be 283,296 people by the year 2030, with a projected increase of about 64,217 inhabitants in the next twelve years. Importantly, within the current population of 219,079, 63.3% is under the age of thirty.

The overall population density within the 1450 Urban Growth Boundary is 35 p/ha, which, if compared to other cities of similar size within the Kingdom is an acceptable density level. However, a high-density pattern is found within the core of the city, estimated to be between 150-200 p/ha, therefore in line with the United Nations recommended density. This also means that 11.6% of the total built-up area accommodates 33% of the city's population. The urban fabric in this area is compact, buildings are generally three to five stories high and sited with mostly zero lot setbacks. The advantages of such development patterns are numerous, for example, the compactness of the buildings offer shading to pedestrians on

the streets as well as façade shading. Furthermore, this level of density makes the city more affordable as the service costs are shared across many p/ha. The public realm is vibrant and occupied for longer times of the day, supporting the various commercial activities.

A medium density ranging between 100 to 150 p/ha is also found in the city centre, defining a transitional zone between the old city core and more recently built areas. The medium-density development pattern provides the same advantages as the high-density pattern, with the added advantage of some residual space, which presents opportunities for providing interventions such as green spaces, parks, and parklets.

The low-density development pattern characterising the most recent expansions, reaching a maximum of 30 p/ha, is the least performing one within the city. However, this is an acceptable density for the outskirts of the built-up area, and considering the location and size of Arar, overall the city performs better in comparison to other cities in Saudi Arabia.

The lowest density is recorded beyond the edges of the urban built-up area, close to the 1450 Urban Growth Boundary. The density in these areas registers only 13 p/ha. These areas are considered to be underdeveloped, and it should be noted that underdeveloped areas, characterised by leapfrog development patterns, imply urban sprawl and presents the risk of a polarised and inefficient urban fabric. Low density and underdeveloped areas tend to not be walkable and pedestrian friendly environments, as these areas are more dependent on private car ownership. Similarly, the costs for providing services are much higher compared to the city. As a result, citizens in these areas often do not have adequate access to public facilities as well as efficient infrastructure such as water, sewage, and roads.



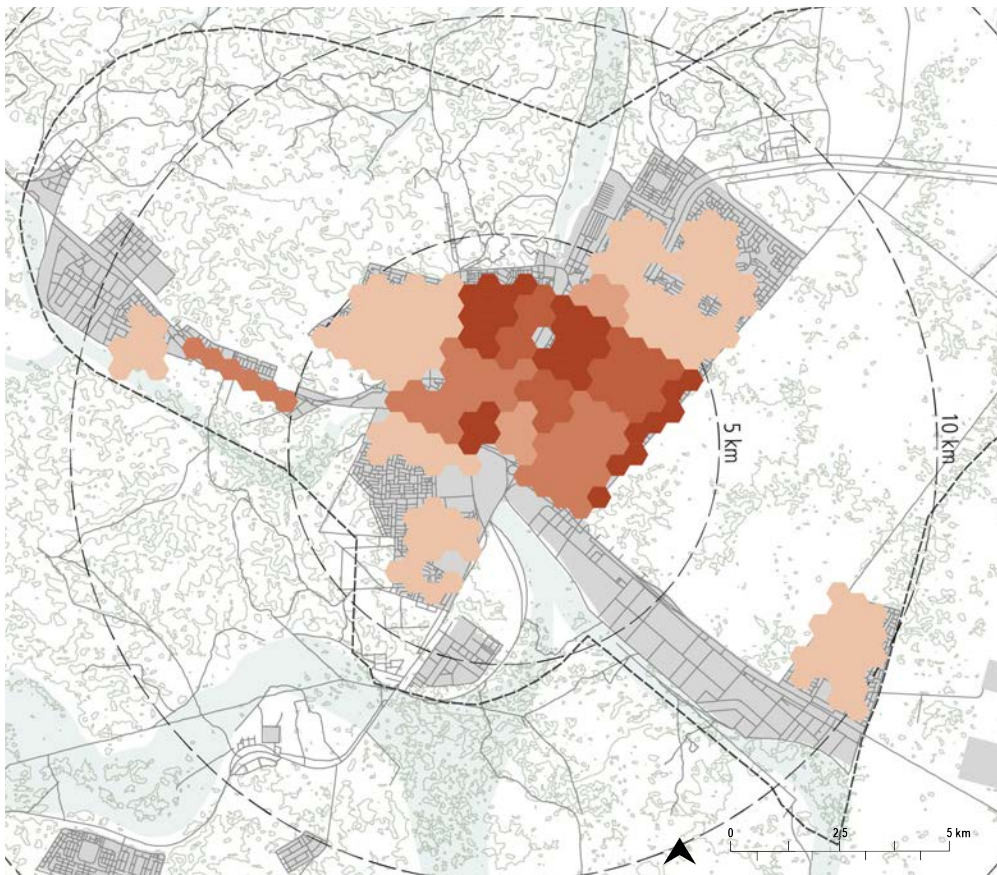
1. City core - high density
150 - 200 p/ha



2. Medium density areas
100 - 150 p/ha



3. Informal areas
0 - 30 p/ha

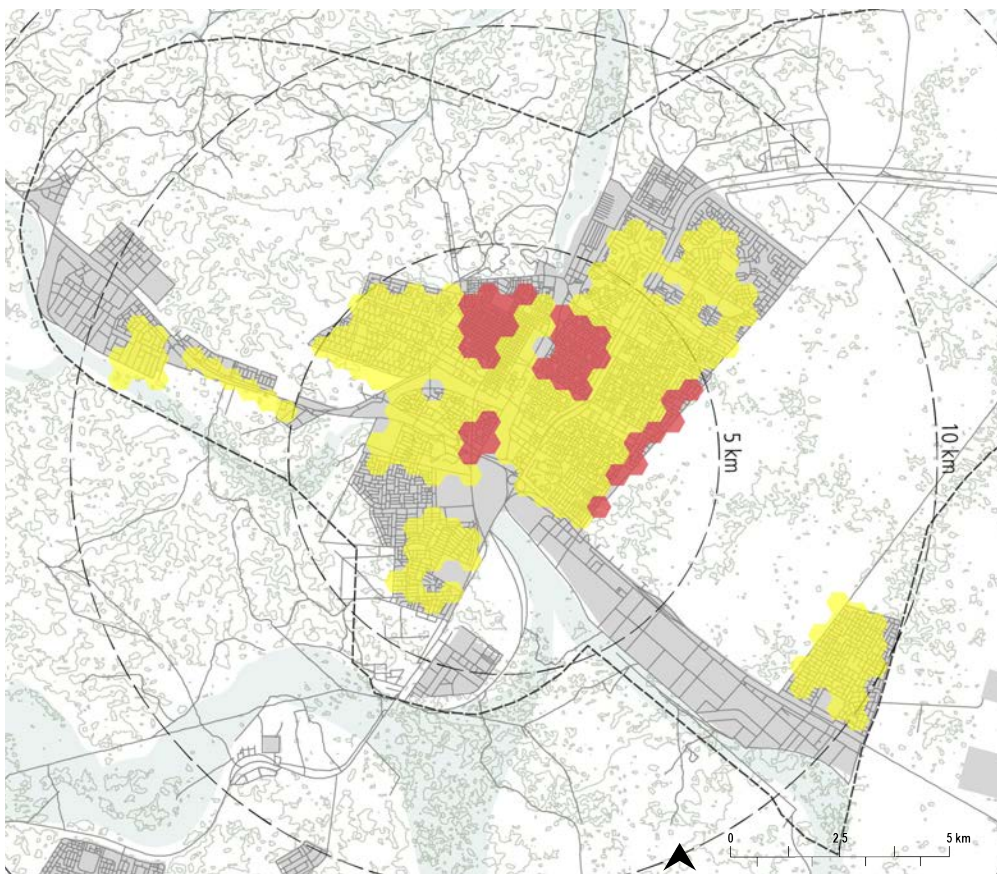


Residents:
219,079

Average population density:
35.3 p/ha

- 1 - 25 p/ha
- 26 - 50 p/ha
- 51 - 75 p/ha
- 76 - 100 p/ha
- 101 - 174 p/ha

Fig. 26. Distribution of population density



- Above 150 p/ha
- Below 150 p/ha

Fig. 27. Current distribution of population density based on UN-Habitat recommended average density



4.1.4 Land use

The largest land use in the existing plan is reserved for the National Guard Services, accounting for nearly 60% of the entire urban footprint. Most of this reserve land sits in the central part of the city, and as a result creates disconnection between neighbourhoods, fragmenting the overall urban fabric.

The second largest existing land use is the residential one, occupying 25% of the urban footprint and spreading across the central core of the city. Industrial land accounts for 4% of the existing land use, being the third largest monofunctional area within the urban footprint, while other major industrial land use areas, labelled as the new industrial city, are located away from the city centre, approximately 8 kilometres West along Highway 85. Some other light-industry activities, mainly consisting of warehouses and small workshops, are located in the city centre, but will soon be relocated within the new industrial city.

In comparison with the current existing land use plan, the future land use plan sees a significant residential expansion, a slight increase in recreational land use, and the reservation of large amounts of land for national and regional military services.

The proposed future land use plan for the city also appears to be heavily expanding beyond the 1450 Urban Growth Boundary, and the Development Protection Boundary. This is not a recommended development strategy, as there are large amounts of land currently available within the built-up area, as well as within the 1435 and 1450 Urban Growth Boundaries. As previously noted, low density and underdeveloped areas tend not to be sustainable, producing non-walkable and non-pedestrian friendly environments that are more dependent on private car ownership, increasing the cost for provision of services, and producing negative environmental impacts.



Sports field in a public playground in Arar

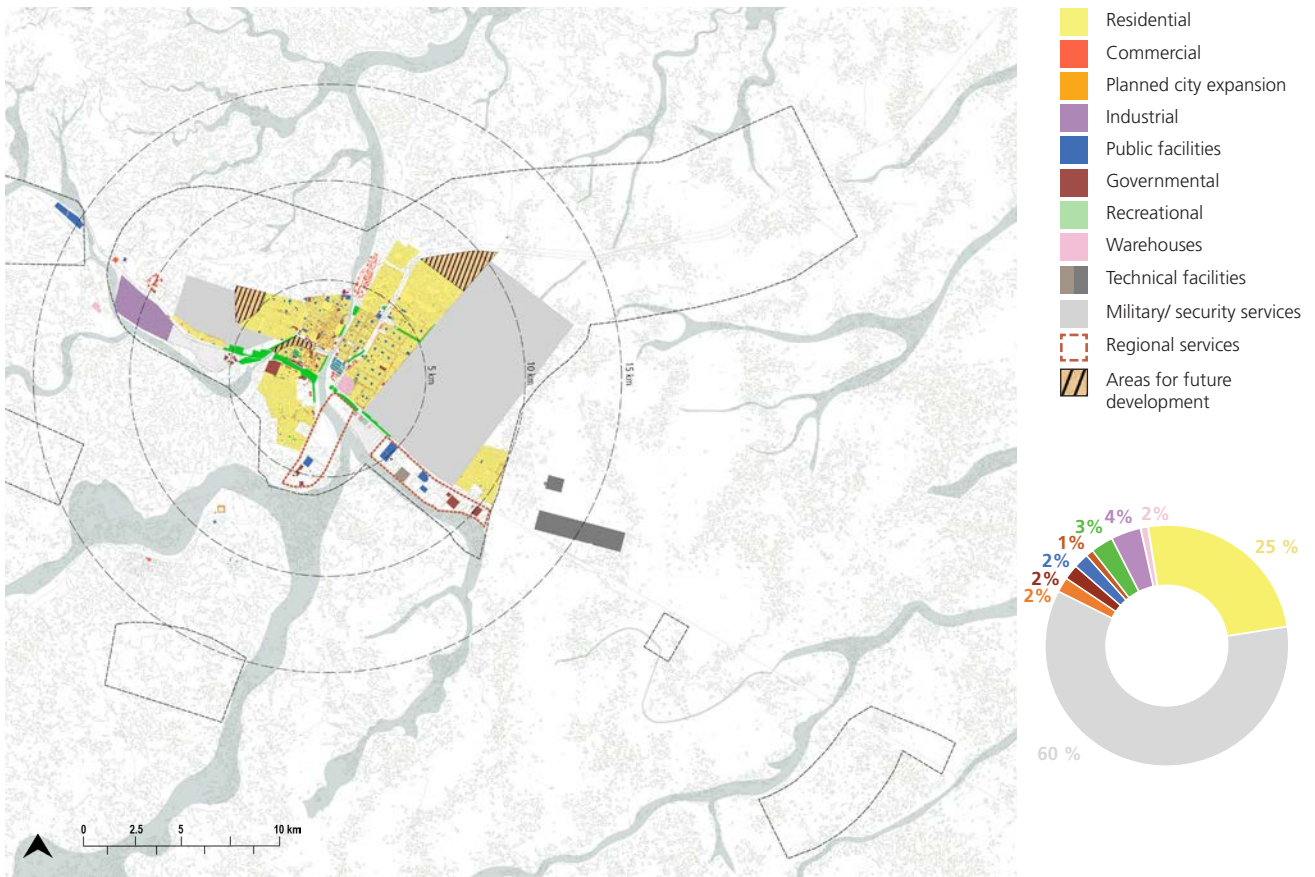


Fig. 28. Existing land use

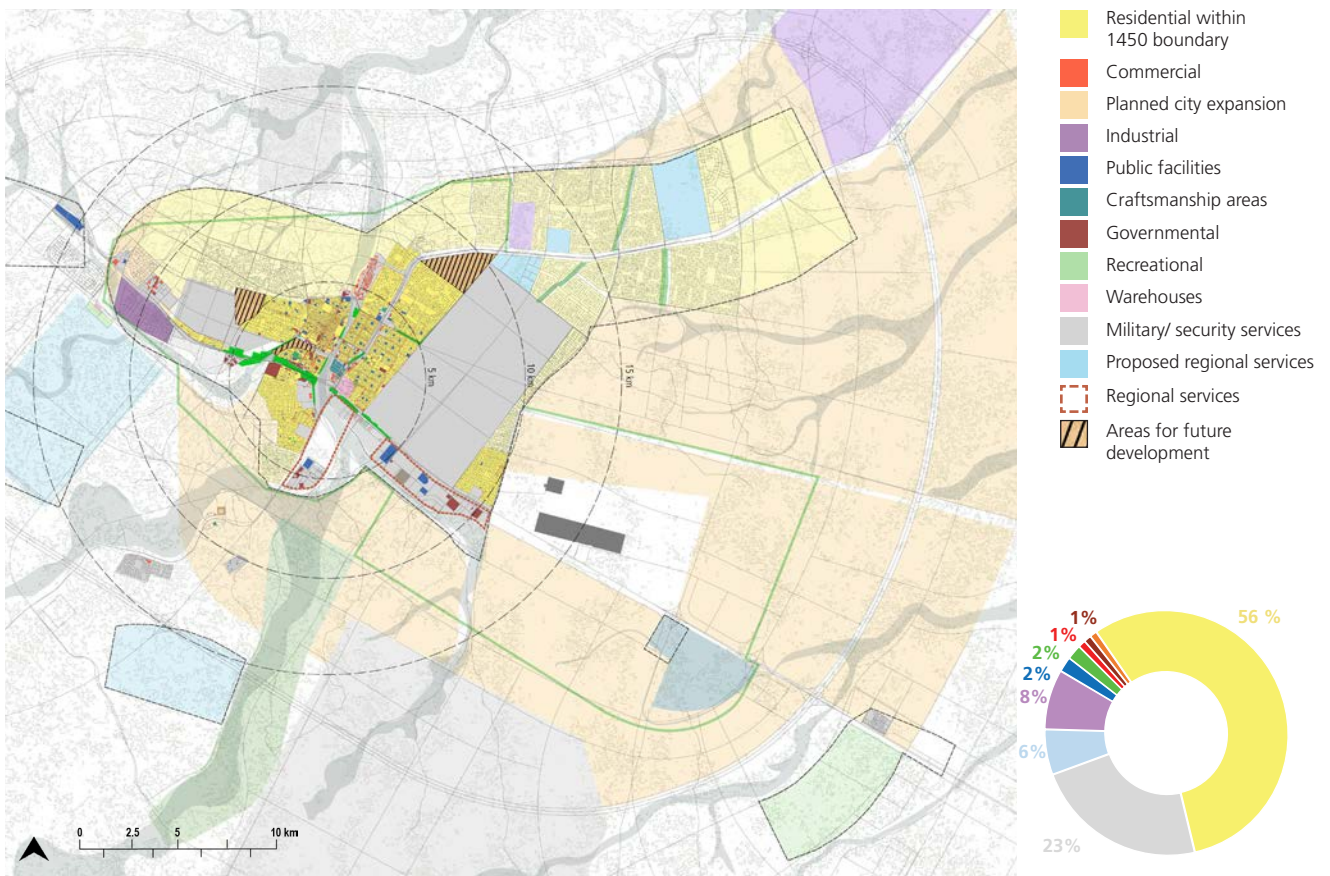


Fig. 29. Proposed land use by the Arar Plan (2014)

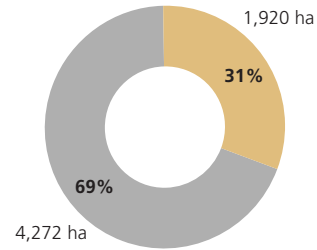


4.1.5 Vacant land

The amount of vacant land available within the urban built-up area amounts to 1,920 hectares, representing 31% of the total built-up land area. This large amount of vacant land can potentially accommodate 288,000 additional people at the recommended UN-Habitat density. This would bring the total population to 507,079 inhabitants within the next 50 years, an increase of 131% from the current population of 219,079. Filling in developable vacant land within the current built-up area should be part of Arar's urban development strategy. This would enable the city to increase its population without any urban expansion for the next fifty years, keeping the city compact and increasing its performances.

The amount of developable vacant land available between the edge of the built-up area and the 1450 Urban Growth Boundary is approximately 24,118 hectares, equivalent to 65% of the total area available. Following the UN-Habitat recommended density, this amount of land can accommodate approximately 3,617,700 inhabitants. This would allow the city the capacity to grow and accommodate additional population for a further 170 years after the built-up area is fully densified, by infilling the available vacant land. Future development should rather be focusing on the current built-up area of the city, utilising residual vacant land in order to increase the overall urban density and, therefore, effectiveness of infrastructure, economic vibrancy and, in parallel, lowering the costs for devising high-quality services to residents.

Vacant land within built-up area



Undeveloped land within 1450 UGB

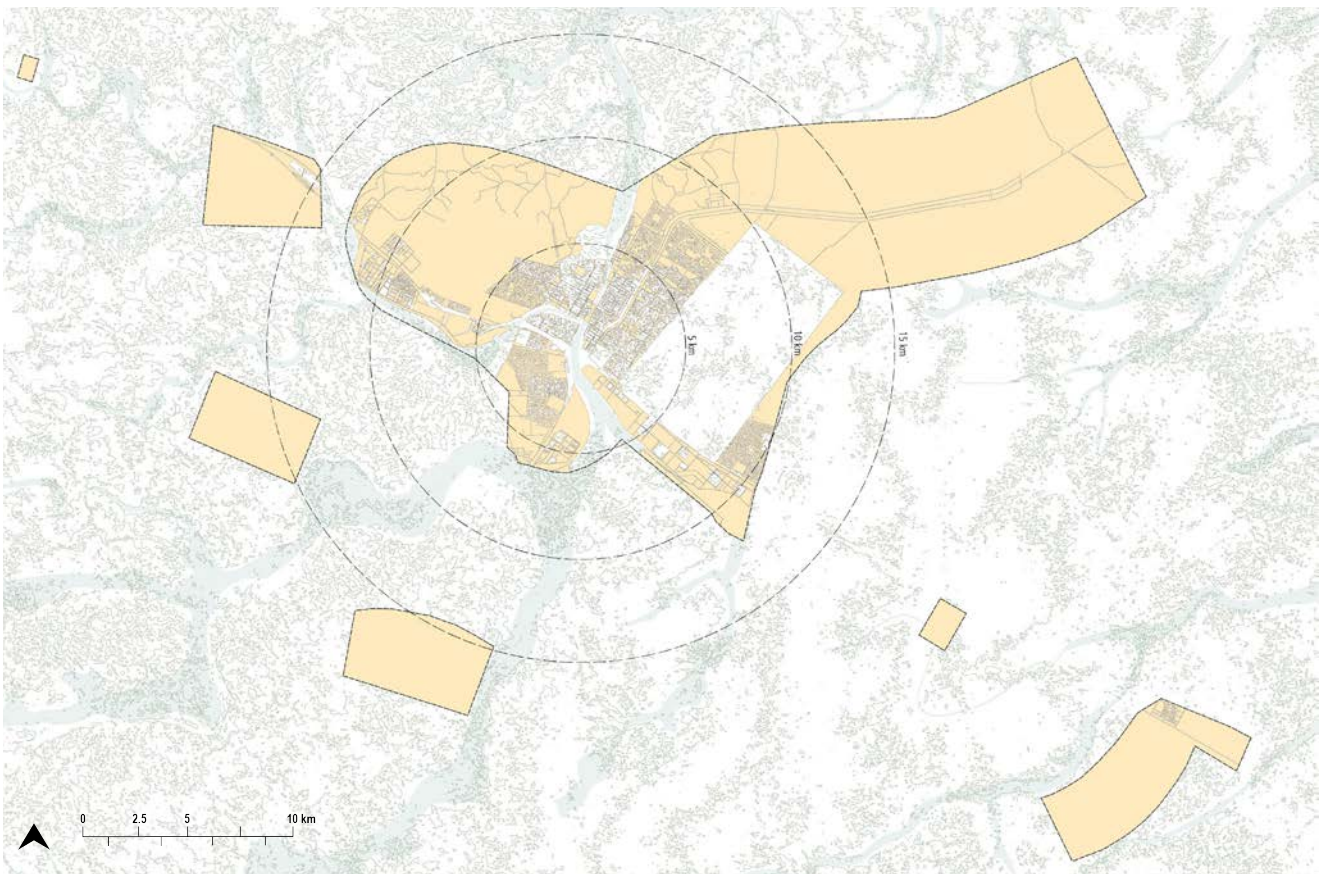
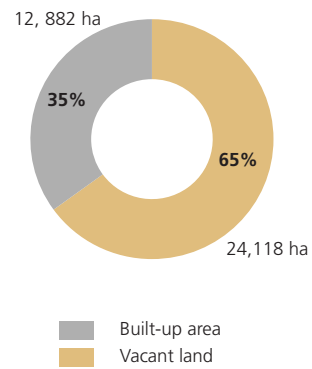


Fig. 30. Vacant land and undeveloped area



© FSCP

Old souk in Arar



4.2 Structuring Elements

4.2.1 Major infrastructure and economic nodes

Spatially, the main economic nodes are dispersed across the city, whereas commercial facilities, light manufacturing, healthcare, and military institutions are mainly located within the city centre. As per the main infrastructural elements, the airport, a major connector and economic driver for both the city and the region, sits 17 kilometres Southeast of the centre. The two major university campuses also contribute to the local economy. One is located 13 kilometres Northwest of the city centre and the other is located Southeast of the airport. Livestock markets and heavier production infrastructure are located towards the Northwest of the centre, on Highway 85, approximately three kilometres beyond the city's gate. In addition, two major tracts of land located along Highway 80, about six kilometres South of the city centre, are dedicated to the future construction of regional level services. These services include a hospital, a police station, a prison and another university campus, all important future contributors to the local economy.

The existing and proposed land use plans support these economic sectors, however, extensive monofunctional land uses, such as industrial and military reserves, restrict the city's ability to have a flexible and adaptable spatial strategic framework. Both land uses, and especially the extensive military reserve land are cutting the city on the Eastern side, are currently under review to be modified in order to support a more integrated and cohesive development for the city.



Presentation at the urban planning workshop in Arar

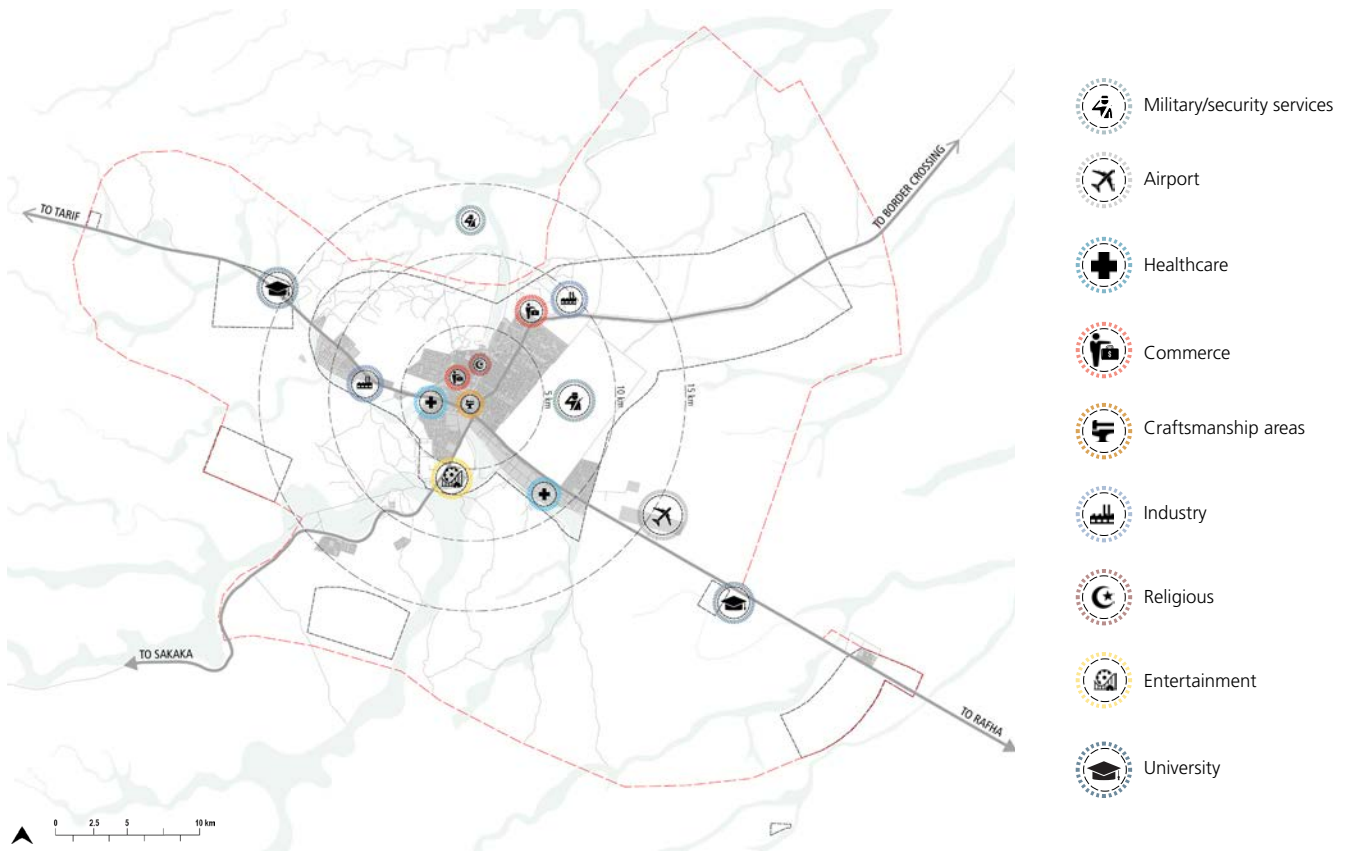


Fig. 31. Economic nodes and network

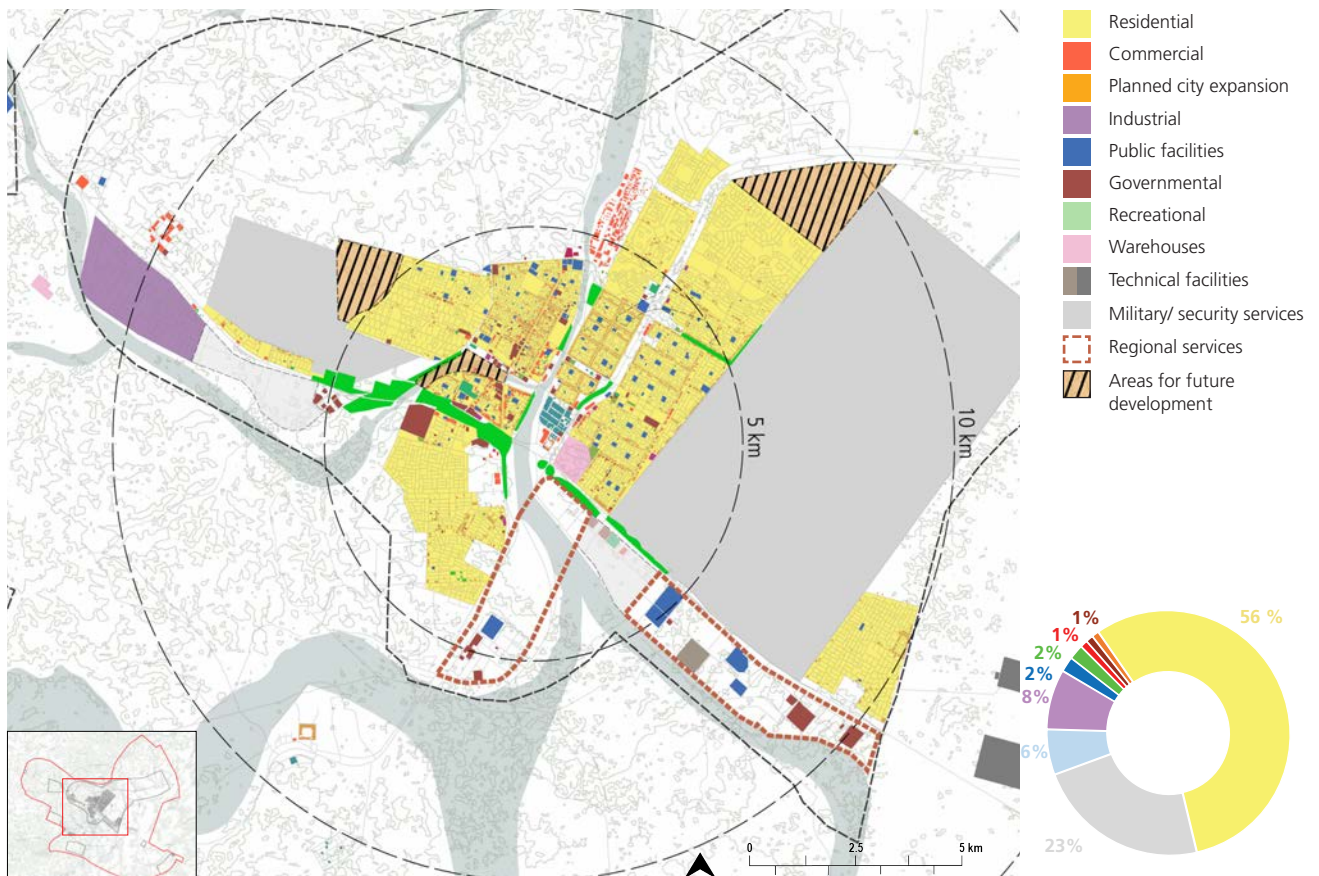


Fig. 32. Existing land use



4.2.2 Environmental and topographic elements

Arar sits in the middle of two major wadis, the Arar, and the Badanah. The Wadi Arar runs from Jordan in the North, towards the Saudi region of Al Jouf in the South. This wadi crosses the city for 114 kilometres of length, reaching at some points a width of 2.5 kilometres. Along these primary wadis, there are various ramifications in minor wadis and streams, sloping towards the Northeast. This results in a robust network of wadis generating a diversified urban landscape. The centre of the city is split by the crossing of Wadi Arar. If correctly integrated into the fabric and the functioning of the city, the benefits could be many, for instance being utilised as a water-catchment system during the rainy and snow seasons. At other times, the wadis could serve as a place for recreation and relaxation, forming a linear park where blue and green networks rejoin, performing important ecosystem services.

There is currently an overall shortage of green open spaces within the city. The wadis are therefore emerging as the central green space or park for the city, although they have been heavily artificialised, losing most of their natural green and water. This network needs to be re-naturalised as much as possible, and to be connected to the dense urban fabric as to give access to open spaces to a wide population. Such a network of natural green, and open spaces, would not only contribute to the health and wellness of Arar inhabitants, but would also positively impact the cost of operating the city

by, for example, reducing the heat island effect, increasing permeable surface for water absorption, etc. Currently, there are some initial projects to develop the wadis as multi-purpose urban spaces and destination for citizens to enjoy all year round. This is a positive effort to preserve the wadi network as an environmental asset for the city and region, considering it both as a natural resource, part of the ecosystems integral to the survival of the city, and as an attractive place for residents and beyond.

In all cities across the Kingdom, water is a scarce resource, and as such should be managed following the best possible practices and approaches promoting nature-based solutions. As such, environmental friendly infrastructure, such as waste management and water recycling plants should be integrated into an appropriate development strategy and supported by the city. Along these lines, it is worth mentioning that a recent initiative aims at building a water recycling plant to process and treat grey water for reuse, especially, but not exclusively, for irrigation purposes. The proposal includes a business opportunity to sell the treated water to nearby settlements and industries that have water intensive functions but scarcity of water resources.



View of Arar's old souk

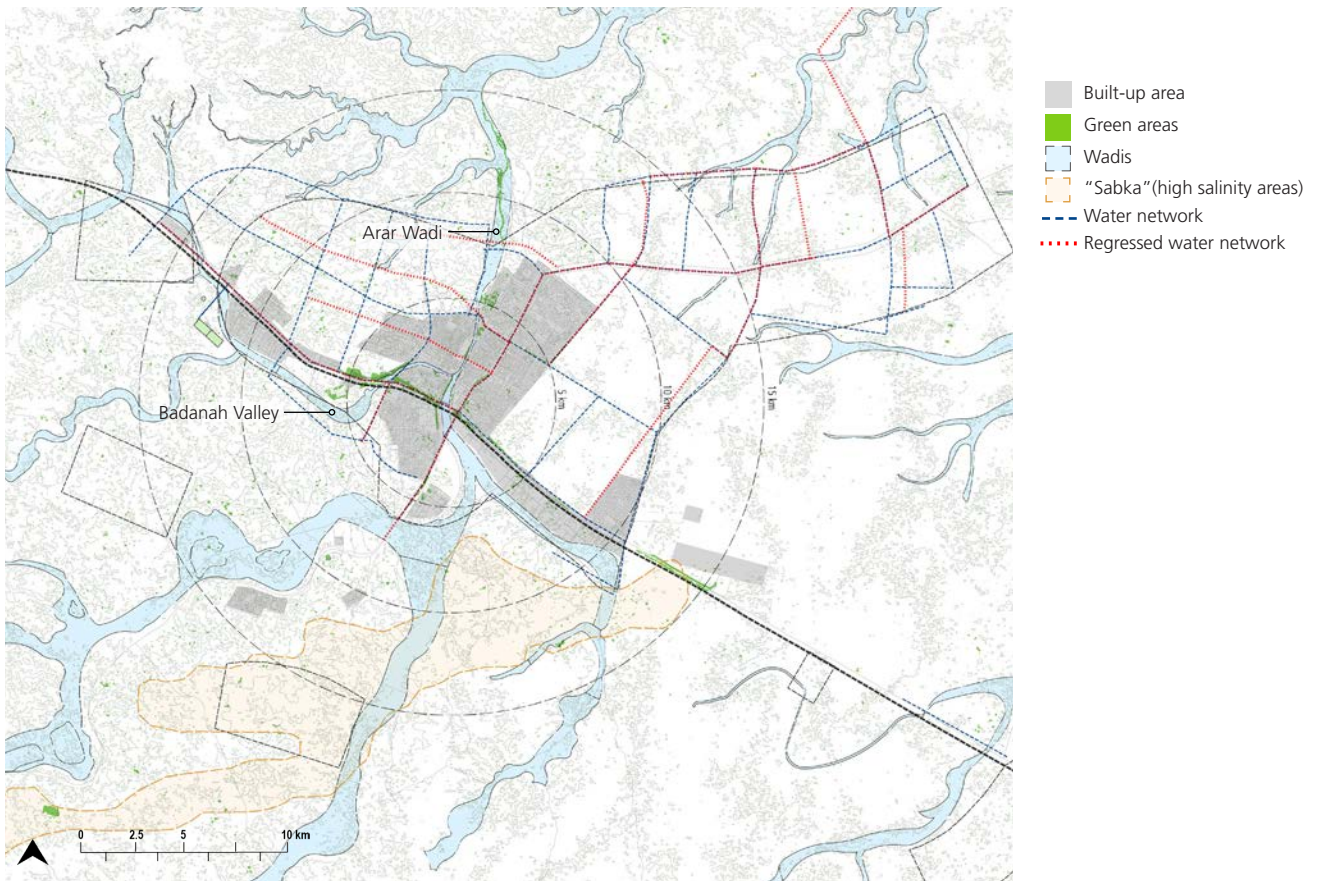


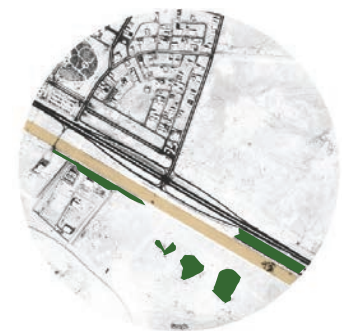
Fig. 33. Green and blue networks



1. The system of wadis



2. Current green network



3. Oil pipeline



4.2.3 Movement and accessibility

As previously mentioned, the city of Arar sits at the crossroad of two major highways, Highway 85 and Highway 80. Highway 85 which runs North-South connecting the city of Skaka, 100 kilometres Southwest of Arar and the city of Baghdad in Iraq, 300 kilometres Northeast. Running East-West is Highway 80, connecting the town of Hafr Al Batin, 350 kilometres East of Arar with the Jordanian border town of Tarif, 150 kilometres West of Arar.

The opportunities and the potential of these major highways position Arar at an advantage over other major Northern border cities. The regional airport, located along Highway 85 is 14 kilometres East of the city centre and is a major transportation hub for both the city and the region. The airport, which began operating in 1981, has connecting flights to major hubs within the Kingdom, such as Riyadh and Jeddah, served by Saudia Airline, and connections to Hael served by Nesma Airline.

At the urban scale, a robust network of secondary feeder-roads and tertiary neighbourhood roads sufficiently serve the current city. However, it must be noted that the same crossing highways, while well-performing as regional connectors, cut the city's fabric, operating more as urban barriers rather than connectors. In addition, there is a proposal for a major ring road just outside the 1450 Urban Growth Boundary.

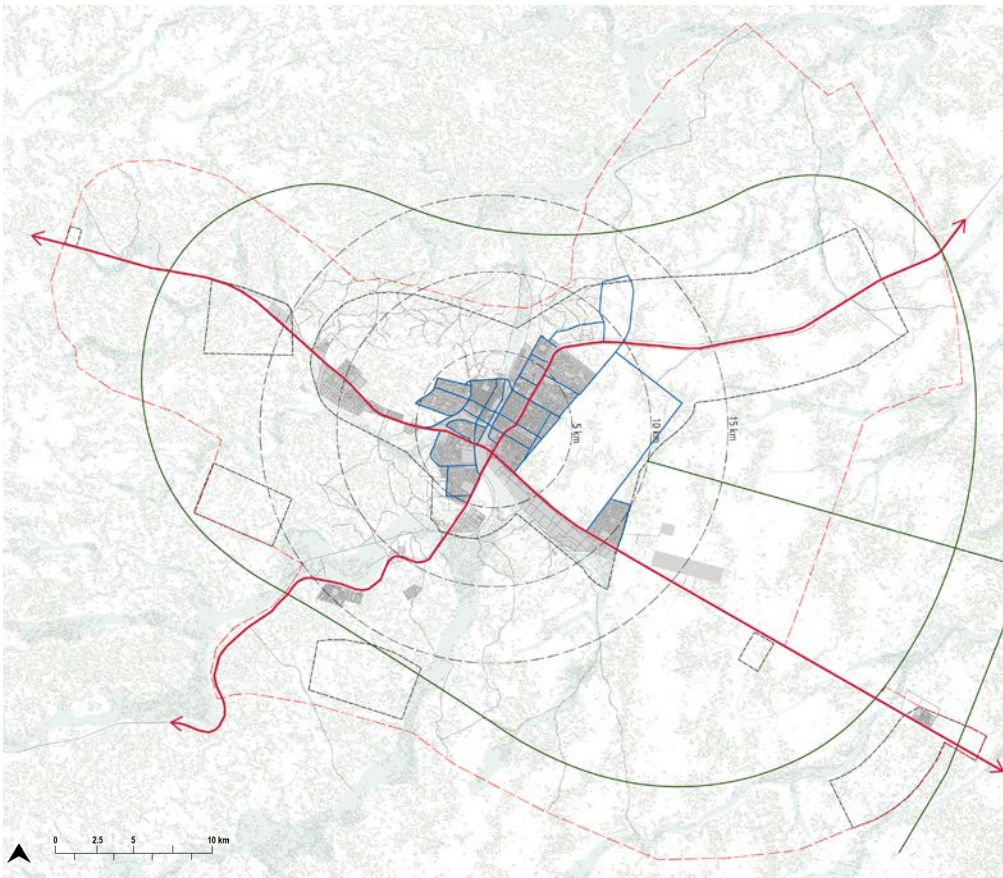
Currently, there is no public transportation available within the city, and citizens rely solely on private cars. In addition, there is a small fleet of taxis available as an alternative to private car ownership. As such, the city has quite an extensive road network, and the accessibility analysis by car (drivability), shows that 99% of the population can reach the city centre within 15 minutes, demonstrating the efficiency and capacity of the existing road network.

Unfortunately, there are no plans to develop a public transportation system for the city, which with the current growth rate, could have a negative impact on the future development of the city. As an example, amongst many other issues, high numbers of private vehicle ownership increases the rate of fossil fuel usage and therefore air pollution. Additionally, it impacts aspects related to inequality as the lack of affordable mobility weighs more on low income residents.

On the other hand, Arar's walkability and accessibility analysis of the city centre, specifically to the commercial district, are rather positive, especially when compared to other Saudi cities. Approximately 15.2% of the city's' population can access the city centre within a 5-minute walk, while 25.8% can access it within a 10-minute walk. Similarly, the accessibility analysis to public facilities, such

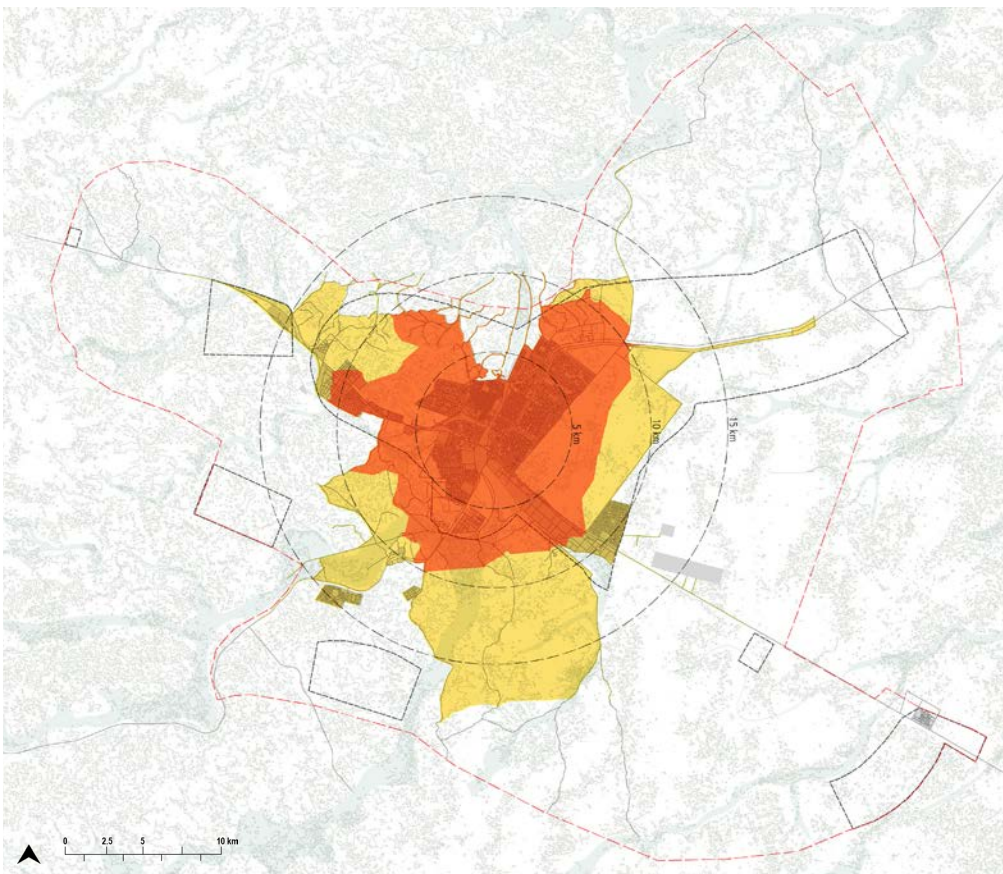


A view of Prince Abdulaziz Bin Musa'ed Road in Arar



- Existing main roads
- Existing secondary roads
- Existing local streets
- Proposed ring roads
- 1450 UGB
- Development Protection Boundary

Fig. 34. Major road network



- **15-minute** driving distance to the city centre
- **30-minute** driving distance to the city centre

Fig. 35. Driving accessibility to the city centre

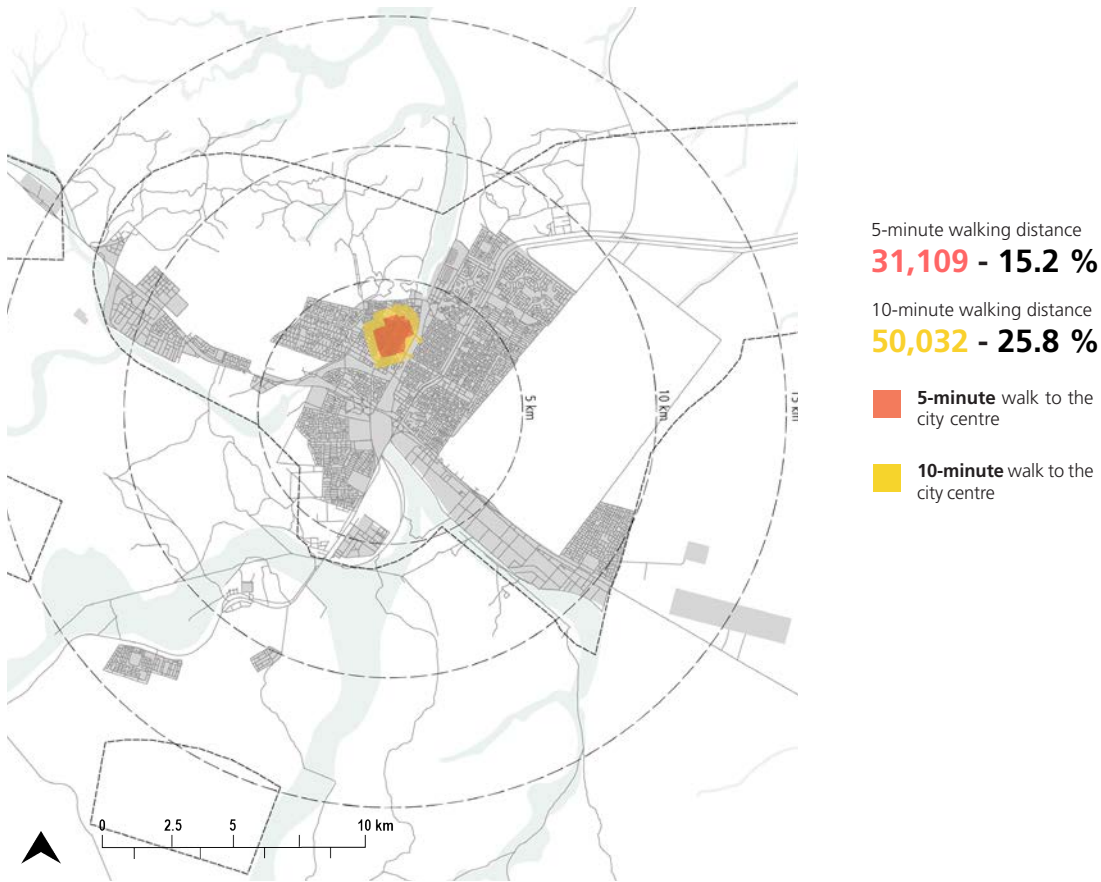
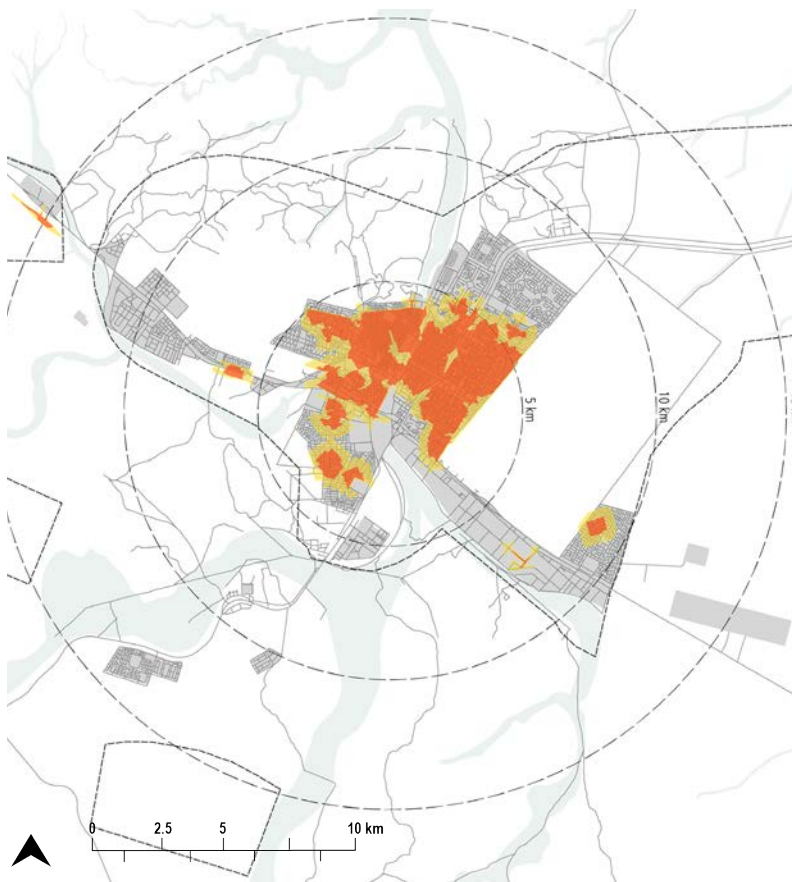


Fig. 36. Walkability access to the central area



as education and healthcare, critical for citizens well being and quality of life, shows very positive results. Over 96% of the population is located within a 10-minute walk to an educational facility, and over 79% within a 10-minute walk to a healthcare facility. Compared to many other Saudi cities, Arar has a very high walkability rate, an advantage the city should continue to build on, and develop sensible strategies to support walkability while the city grows.

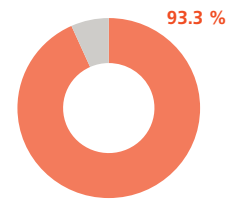
Another consistent advantage that can support the shaping of a walkable and pedestrian friendly city for Arar, is the moderate climate, which makes walking tolerable for most of the year, especially when compared to other cities in the Kingdom. As such, Arar citizens are potentially able to spend extended hours outdoors, especially if a well designed public realm is shaped in a way that supports this lifestyle.



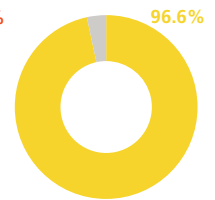
5-minute walking distance
180,928 - 93.3 %

10-minute walking distance
187,328 - 96.6%

- **5-minute** walk to educational facilities
- **10-minute** walk to educational facilities

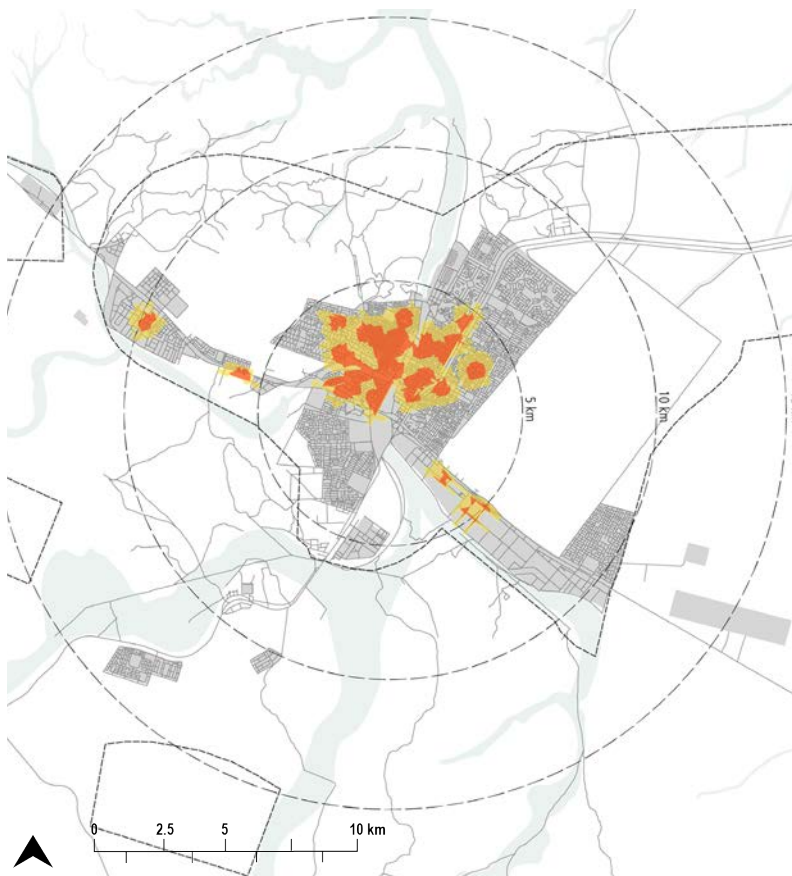


5-minute walk to educational facilities



10-minute walk to educational facilities

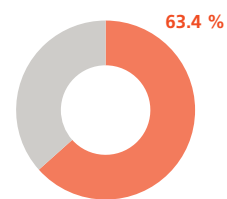
Fig. 37. Walking accessibility to educational facilities



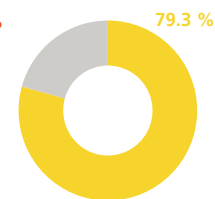
5-minute walking distance
122,946 - 63.4 %

10minute walking distance
153,779 - 79.3 %

- **5-minute** walk to health facilities
- **10-minute** walk to health facilities



5-minute walk to health facilities



10-minute walk to health facilities

Fig. 38. Walking accessibility to health facilities



4.2.4 Arar Local Plan

The Arar Local Plan aims to address future expansions, focusing on several major land use issues, and natural features. Natural features, such as the wadis are maintained and are organically meandering within the built-up areas of the city. As such, the main wadi acts as a blue spine, being a major structural element for the city while showing an attempt to start considering it as a positive and functional element for enhancing natural water management. A new large water reservoir is also foreseen to be located 10 to 15 kilometres West of the city centre, where several natural wells are fed by both underground water tables and a minor estuary of the Arar, becoming a critical element for the city's long-term water supply. This water reservoir should be protected and appropriately managed in order for it to function sustainably as a renewable source of water for the city. However, it is evident how the main wadis are not fully considered as an approach to an integrated water catchments system.

Two new large recreational and green areas are also envisaged in the local plan, one located approximately 7 kilometres South of the city centre and the other one 30 kilometres East of the it. Although the provision of public, green, and open space is always a positive factor, their location does not make them widely accessible, and does not impact the lack of green spaces in the consolidated city or the need to relink the green and blue networks, as they do not engage with the wadi's network.

Another important provision from the local plan is the new camel and sheep market, located approximately 15 kilometres Southwest of the city centre. The new market, building on and improving the traditional herding and livestock related activities, could become an important economic and cultural driver for the city, and the wider region. The foreseen new market is located in proximity and adjacent to the water reservoir, which could induce water contamination and other related hazards that may threaten the city's water supply, if not correctly monitored and appropriately managed.

Other major elements present in the local plan are a new extensive ring road, new military reserved lands, and a large dam related to Wadi Arar, and located within the city core. The ring road is proposed on the outer edges of the city with the goal of deviating heavy traffic from the two highways crossing the city, making it sensibly overdimensioned. In addition, the population projections and the foreseen urban growth are not sufficient to sustain and justify such a major capital investment on an infrastructure project of this scale. If implemented, the financial effort will possibly strain both the municipality and the related governmental agency, (Ministry of Transportation) and put them under financial stress to first build, and subsequently maintain, and operate the extensive ring road, taking resources away from more relevant and strategic needs, such as a public transportation system. If the goal of the local plan is to improve the city's transportation

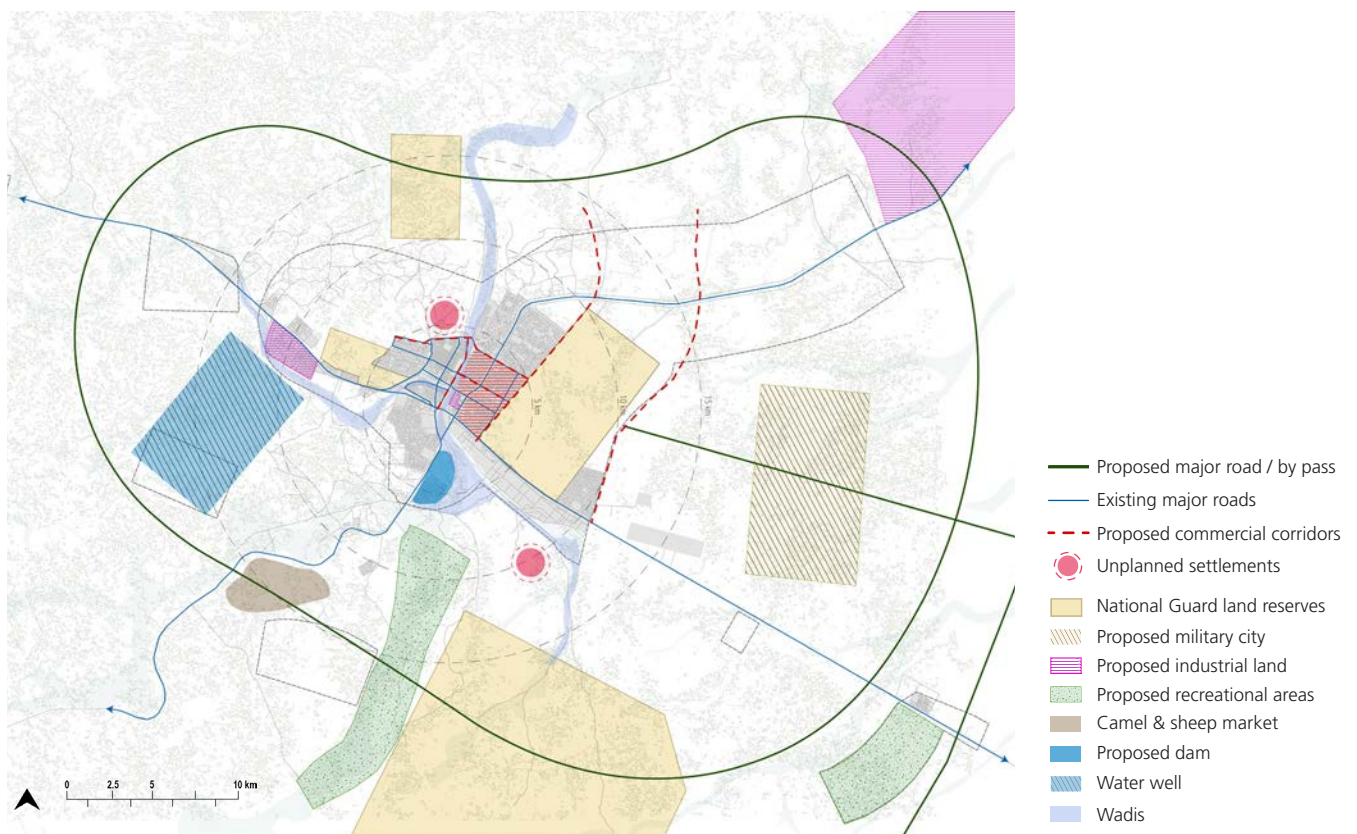


Fig. 39. Major recommendations of Arar Local Plan (2014)

and mobility system, reducing traffic congestion, dangerous high-speed and heavy load traffic from the crossing and dividing the city, then a different and phased mobility strategy should be put in place. As such, a new sustainable mobility programme should be implemented beginning with using the existing major transportation corridors within the city to provide public transport. Highway 80 and Highway 85 should be deviated from crossing the city through strategically designed by-passes, as part of the first phase of improvement and development, and their current partial path crossing the city core transformed in boulevards to support pedestrian and public transport mobility.

Military land reserves already occupies a large percentage of the city's total land area. In the current city there are large reserves within the urban fabric and on the outer edges, approximately 15 kilometres South of the city centre. As previously mentioned, the existing military reserve in the Eastern part of the city core impacts the continuity of the urban pattern, fragmenting the urban fabric and fostering urban sprawl. The future plan, currently being developed, foresees the partial relocation of the military reserve land from the urban core to approximately 20 kilometres East of the city centre. This is a positive step towards shaping a better city as ultimately, this would allow the built fabric to grow organically and as a continuous urban system, freeing land within the

city core and making it available for development, preventing further sprawl and reducing fragmentation.

The new dam connected to Wadi Arar proposed in the local plan, and located about five kilometres South of the city centre and adjacent to Highway 85, is also an important element to be considered in its possible impacts. The foreseen dimension and location of the new dam is a risk to further causing urban fragmentation. The design and impact of the dam should therefore be carefully studied, in order to avoid a project that is inefficient and overdimensioned, and to prevent worsening the aspects related to urban fragmentation, and dead-space zones.²⁴ Should the wadi dam project be implemented, it would need to be characterised by multi-functional and dynamic uses for the citizens of Arar. A multifunctional dam would benefit the city by becoming a year-round, multi-seasonal asset rather than a monofunctional concrete empty monument for many months of the year. An alternative solution based on the provision of a series of smaller and more articulated water-retention ponds along the wadi, rather than a massive dam, should be explored. Similarly to what is suggested for the dam, the retention ponds should be designed as multi-functional spaces, performing as water storage spaces during the rainy and wet seasons, while functioning as assets for the community in the form of recreational spaces, community gardens, and areas for the promotion of urban-agricultural programs in the dry season.



Historical assets in Arar



Each one of the described foreseen land use elements could potentially contribute to the development of the city, but at the same time, if not correctly designed and implemented, could generate unwanted negative impacts on both the citizens and the environment. Careful analysis and impact studies should be therefore conducted on these new projects to ensure possible negative impacts are avoided, rather positively impacting a healthy urban growth, the overall urban economy, as well as the wellbeing of the citizens.

4.3 Urban Density Scenarios

As previously mentioned, the current density of the built-up area in Arar is 35.3 p/ha, while the United Nations recommended standards for a sustainable city is 150 p/ha. However, the average density of Arar is acceptable if compared to other cities in Saudi Arabia, and considering the current urban dimension. Nevertheless, by applying the UN-Habitat recommended average density to Arar's available vacant land within the built-up area, which amounts to approximately 1,920 hectares, the existing urban footprint could have the capacity to host an additional 288,000 residents.

Referring to the current population growth rate of 1.7% annually, shows that by 2030, Arar's population is projected to be approximately 283,296 people. In parallel, the total amount of planned developable land within the 1450 Urban Growth Boundary is approximately 16,170 hectares. Based on the projected population for that year, as 1450 refers to the

Islamic calendar, and it is equivalent to 2030, spreading the population growth over the foreseen land to be developed would result in a density of 2.1 p/ha, dramatically decreasing the already low urban density for Arar.

Referring again to the UN-Habitat recommended density, it would only take an area of 1,700 hectares to accommodate the same amount of population for the year 2030 (283,296 people), an area that is equivalent to 1/10 of the developable land area available within the 1450 UGB. The projected population increase could in fact be comfortably accommodated within the current built-up area, by utilising the vacant land available for dense and mixed-use development.



View of old souk in Arar



CURRENT CONDITION



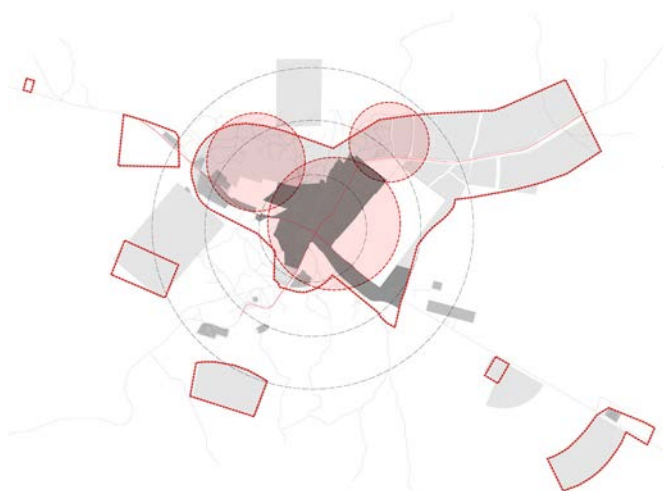
population **219,079**
 built-up area **6,200 ha**
 average density on built-up area **35.3 Pp/ha**

SCENARIO 1: THE ARAR PLAN



population **283,296**
 planned built-up area (within 1450 UGB) **16,170 ha**
 total built-up area (within 1450 UGB) **22,350 ha**

SCENARIO 2: UN-HABITAT RECOMMENDATION



population **283,296**
 built-up area needed according to UN-Habitat recommendations **1700 ha***
 vacant land needed to accommodate population growth **428 ha***
average UN-Habitat recommended density 150 p/ha

* 1/10 of the built-up area proposed within 1450 UGB

5

STRATEGIC DIAGNOSIS



5.1 Identifying and Defining Main Strategic Issues

During the evidence-based and cross-scalar analysis, four main issues affecting sustainable urban development in Arar 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 later contextualised by an examination of their spatial manifestation in Arar, at different scales.

5.1.1 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]

5.1.2 Division and lack of cohesion in city structure

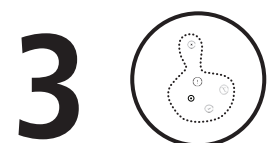
In cases of unbalanced growth, sprawl, and inharmonious development, forms of non-contiguous and non-cohesive city structures tend to co-exist, without integration. Pockets of leapfrog development are widespread. Undeveloped land, overdimensioned infrastructures and/or large extensions of monofunctional developments, hinder the continuity of the city's fabric, and therefore, its social, economic, and ecological performance. As in cases of sprawl, this renders the equal provision of infrastructure and services to the entire city difficult and costly. The fragmentation phenomenon also spatially affects the social dimension of sustainability, creating urban inequalities and segregation in areas that lie at a distance to the largest hubs, and become isolated by a discontinuous urban landscape.



[FRAGMENTATION]

5.1.3 Monofunctional and polarised development

When a city showcases a predominance of extended monofunctional zones and lacks in mixed-use areas, this implies a polarised development. This is particularly acute in cases in which monofunctional developments are distantly scattered and isolated from the rest of the city. In Arar, the urban structure is characterised by monofunctional clusters of economic or social activity that amounts to socio-spatial polarisation, creating inequality with highly variable levels of access between different urban areas. Overall, various forms of polarised development result in inequality in a city, the most obvious example of which can be characterised by socio-economic segregations such as private compounds and gated communities, with high quantity and quality of services when compared to the majority of the consolidated city, in which they are lacking.



[SPATIAL INEQUALITY]

5.1.4 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]



© Flashnet SRL

Night view of Arar



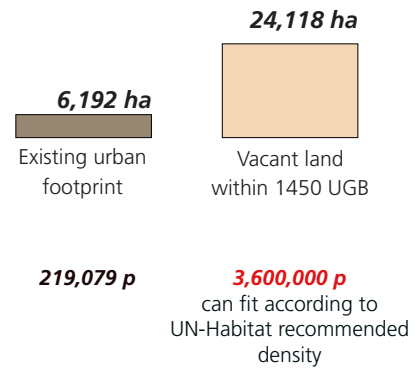
5.2 Analysing Arar’s Four Issues in Depth

5.2.1 Arar’s unbalanced growth and development patterns

The issue of unbalanced growth and development patterns appears clearly at the city level, where it is easy to identify areas that are sprawling towards the 1450 UGB and beyond, leaving a considerable amount of vacant land between parts of the built-up area. 65% of the total 1450 Urban Growth Boundary area is vacant land, where a larger percentage of this vacant land is reserved for the National Guard Services.

Arar is currently expanding more towards the Eastern part of the city and around the existing national guard reserve land, leaving many vacant spaces in the current built-up area empty. If this kind of leapfrog development expansion continues, the city will be more sprawled and less connected. Additionally, the current 1450 Urban Growth Boundary area contains satellite developments that are detached from the entire city structure, underlying the same issue.

Urban sprawl causes inefficiency in urban management and an elevated 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 for the municipality is higher than in a compact city, and maintenance capacity is also affected as infrastructure is more widespread.



Vacant land in Arar



Fig. 40. Arar's unbalanced growth and development patterns



1. Vacant land close to the city centre



2. Vacant land in residential developments



3. Sprawling pattern of new development



5.2.2 Division and lack of cohesion in Arar's urban structure

Various elements define the divisions and lack of cohesion in the Arar's city structure. At the urban scale, the lack of cohesion manifests itself with the presence of over-dimensioned infrastructure, large plots of vacant lands, and the wadi system. These elements define discontinuity and divisions in the urban fabric at various degrees, characterising Arar's urban landscape as an environment lacking a continuous dense fabric and the appropriate human scale.

Large-scaled infrastructure, such as highways and major transportation corridors, do not support the principles of a human-scaled, walkable city. They are frequently over-dimensioned without any proper pedestrian crossing points, within large superblocks. The quality and character of the public realm adjacent to the oversized infrastructure do not support a well-connected urban fabric. This is particularly true in Arar: a city structured by and grown along two highways, (80 and 85) that crosscut its fabric.

As for the wadi system, although potentially being a valuable natural feature for enhancing the quality of the urban environment, it currently divides the city's fabric. The heavily artificialised edges are treated with concrete and metal fences, limiting accessibility, natural functionality, creative, and diversified uses of the wadi space. While it should be

noted that the municipality is currently creating parks and open green areas on the edges of the wadi system, it is also important to note that this is not sufficient as an approach to better integrate the natural features into the urban fabric.

Lastly, isolated owned lands and development projects beyond the built-up area appear as a series of disconnected patches. These patches are generally monofunctional, lacking a variety of programs, and if not completely vacant, they often define significant cuts and disconnections in the urban fabric, as is the case of the National Guard reserve land. In other cases, they are internalised in their structure and layout and do not respond to the surrounding context, even lacking connectivity of the street grid with the neighbouring areas.

To heal the city of its fractures and disconnections, the municipality needs to develop proper urban design guidelines that support a pedestrian-friendly, walkable, and well-connected, human-scaled environment. In addition, appropriate incentives and regulations should be set in place and enforced with the goal of prioritising the development of residual vacant land, while discouraging the practice of land-banking by enforcing existing White Lands policies.



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Aramco Tapline in Arar

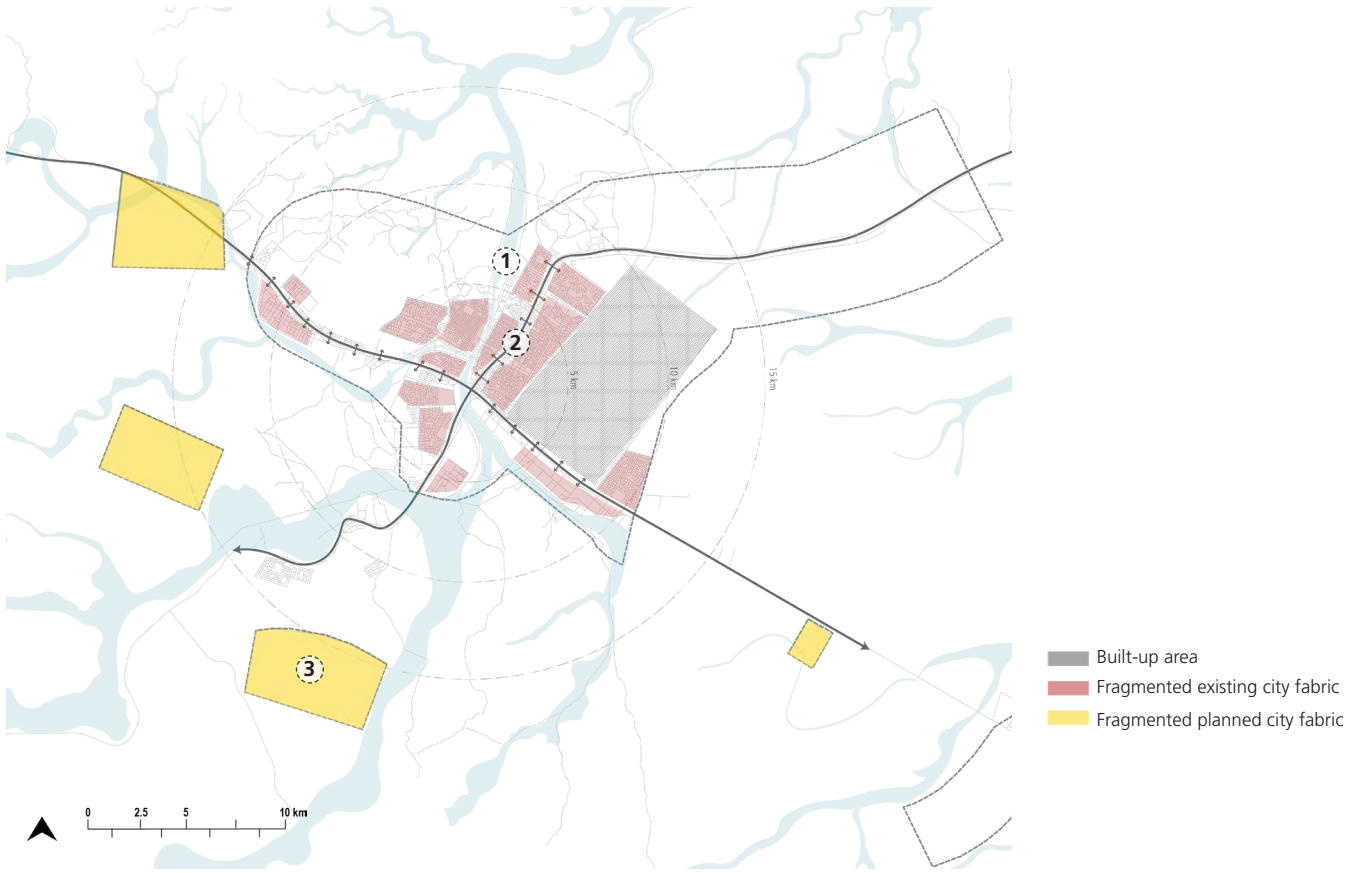


Fig. 41. Division and lack of cohesion in Arar's urban structure



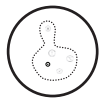
1. The edges of the wadi disconnect the city structure



2. The over-dimensioned highway infrastructure acts as a divider



3. New land uses are proposed in distant parts of the city



5.2.3 Monofunctional and polarised development in Arar

Overall, Arar is dominated by both residential and military reserve monofunctional land uses, Arar's old city centre presents commercial and public facilities, thus characterising it as a mixed-use environment, showcasing an active urban area that supports a vibrant city life. This mix of uses in the central area serves the basic needs of citizens, but cannot be considered sufficient as the city develops and grows.

On the other hand, extreme polarisations and monofunctional patterns are developing towards the outskirts, beyond the 1450 Urban Growth Boundary and within the Development Protection Boundary, in an area that is meant to be protected from development. Monofunctional developments are rapidly emerging in all directions of the current built-up urban fabric, referring, in particular, to large residential developments and a new University Campus with related facilities extending respectively towards the Southeast and the Northern border of the city. These new monofunctional planned extensions are additions to other developments that already exist in isolation and without any mixed-use, as shown in figure 42. In addition, extended monofunctional development creates an environment defined by the absence of economic activity and prosperity, lacking social richness and vibrant street activity. Should such development patterns continue, Arar would become even more fragmented and disconnected, rather than moving towards an interconnected and continuous urban fabric.

Another undesired effect of this kind of development is segregation. Segregation, in its broadest sense, refers to a situation where the elements of a system are not well mixed and adequately balanced in distribution, and therefore tend to disintegrate and polarise the entire system structure with elements of one nature in one area, and elements with other features in another area. Translated to populations, the concept is indicative of a specific group of people characterised by a certain economic and/or social status living in one area with high levels of services and facilities, while people of another socio-economic group live in areas that are far and deprived of the same kind of services. Policies need to be developed to support integration and mix of uses, as the city develops. The UN-Habitat recommends 40% of floor area allocated to commercial uses in any neighbourhood. Developments in the outskirts need to be discontinued, but if they are necessary, they must be designed and planned with best practice principles of medium to high density, and mixed land use planning.



View from Wadi Arar in the city centre

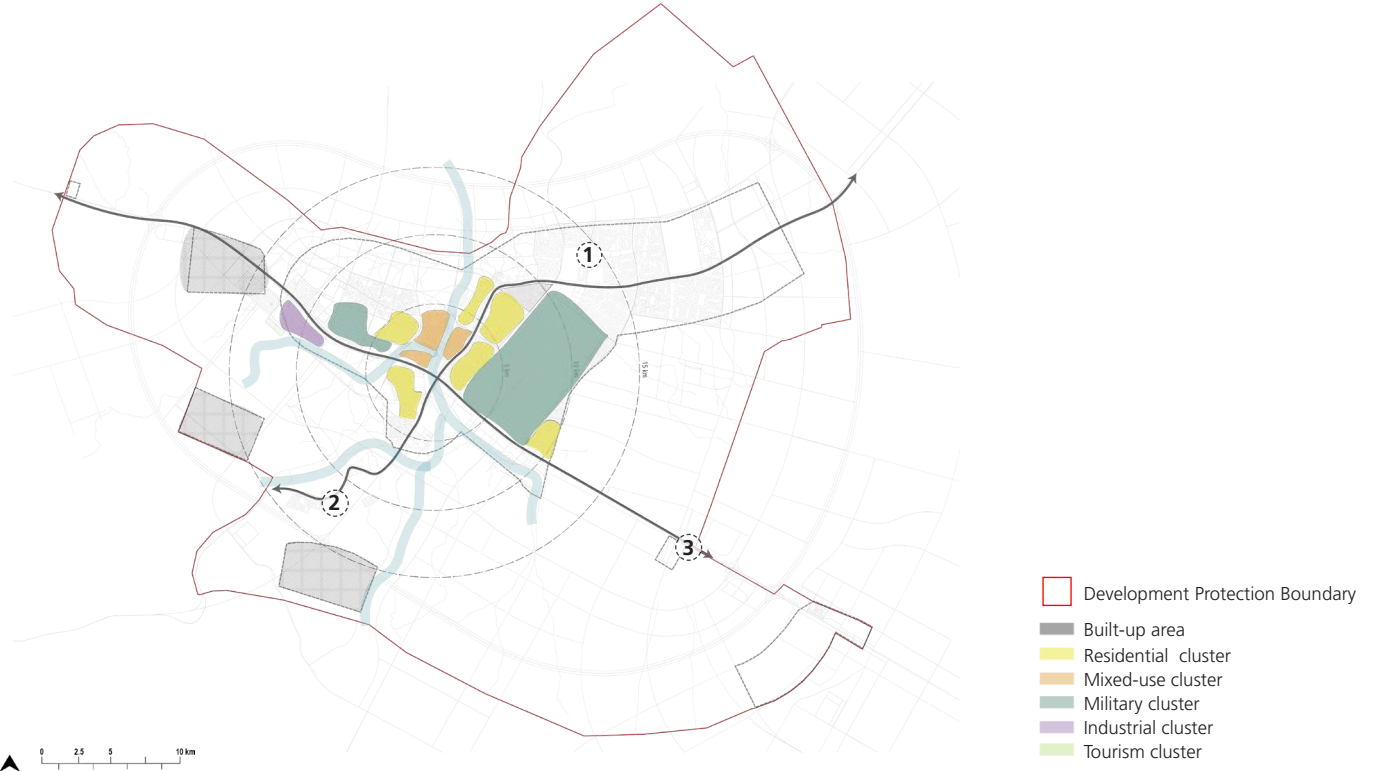


Fig. 42. Monofunctional and polarised development in Arar



1. Emerging monofunctional residential development and infrastructure



2. Emerging monofunctional residential developments



3. Northern Borders University area disconnected from the city



5.2.4 Socio-ecological and economic imbalance in Arar

While the system of Mosques and public facilities are well distributed across the city, the wadi system presents an opportunity to form a structure of open spaces, Arar lacks green, open spaces within the built-up urban fabric and city centre. The lack of green, open spaces within the existing urban fabric is a result of developing green spaces along several transport axes, disconnected from the city and neighbourhoods (see figure 43). In addition, the few existing green spaces are not well-connected amongst themselves, missing the chance of forming a consistent green network across the city.

The largest natural feature of the city is the wadi system; it should be envisioned as a social, economic, and ecological driver for the city. At the city scale, the wadi has a good presence across the city but lacks integration with the urban fabric, while its functionality as a natural infrastructure for water retention and stormwater management is hindered. Networks of neighbourhood parks and greenways should be introduced to connect and act as a link between the built-up areas and the large open wadis, relinking green and blue networks. This could be done by selectively converting available vacant lands within the built-up areas into green, open spaces, and linear parks, to serve the community. Along these parks and green connectors, pedestrian-scaled commercial activities and various social infrastructures should be introduced,

working as a comprehensive system and ultimately reducing the imbalance amongst social, ecological, and economic systems characterising the city.

Overall, protection and integration of natural resources in the planning of the city should be considered a priority, and all new developments should occur with respect for the local ecology of Arar. The wadi, the watersheds, the green networks, and public spaces, represent a potential source of economic growth and social development for the city. In these terms, a green economy approach could provide a useful framework whereby decisions and actions promote resources efficiency, effective environmental management and a better standard of living for residents.



View from Wadi Arar inside the city

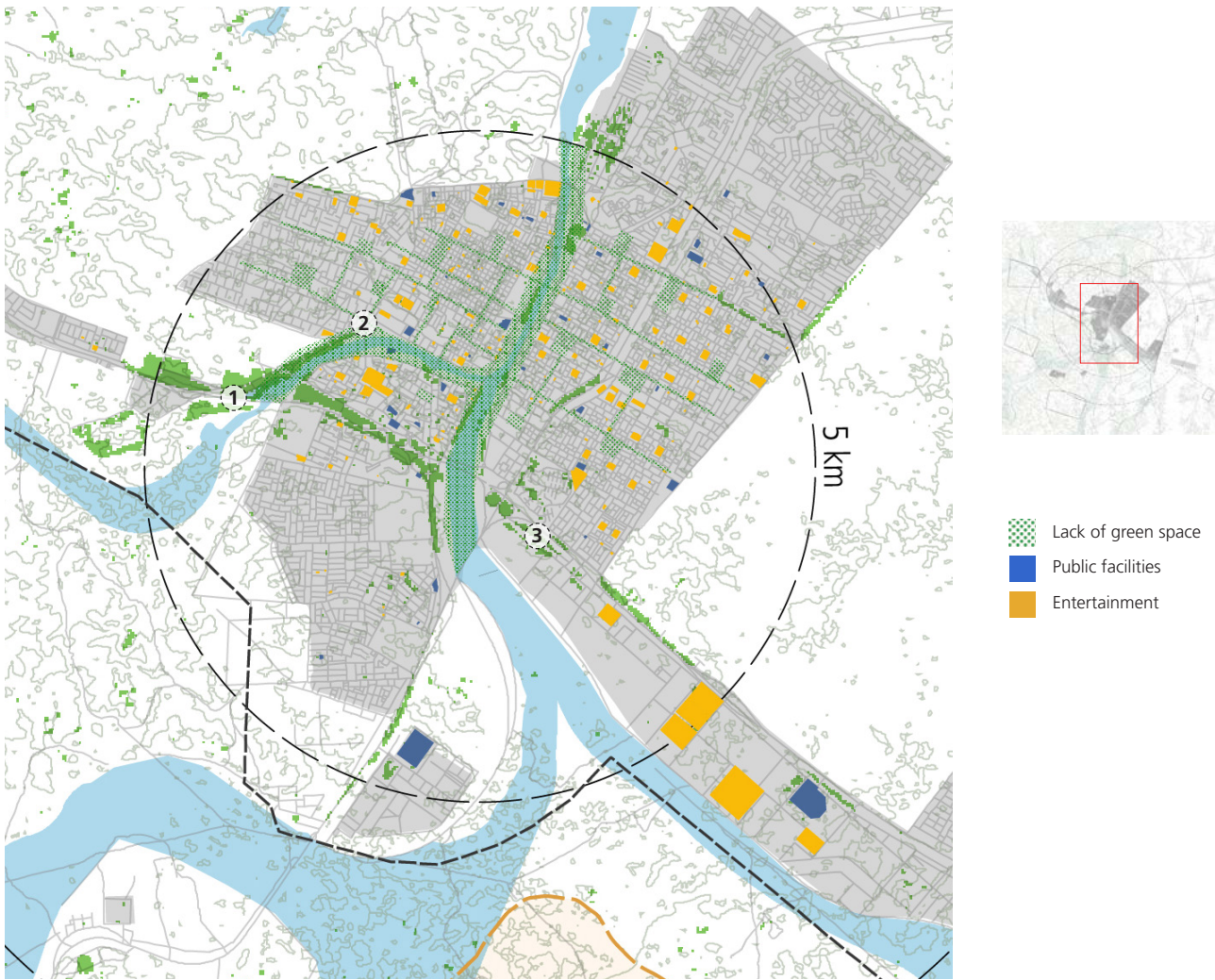


Fig. 43. Socio-ecological and economic imbalance in Arar



1. Green spaces within the transport loops, disconnected from the city



2. Green spaces along major roads and vacant land



3. Green spaces along transport axis, disconnected from the city

6

THE FUTURE CITY



6.1 Strategic Responses

After performing a strategic diagnosis, and identifying four main issues affecting the urban development of Arar, 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 Arar, at the various scales. This is followed by a roadmap to implementation, in the form of an articulated Action Plan.

6.1.1 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.



1 [CONSOLIDATE]

6.1.2 The Connected City

The New Urban Agenda asks cities to commit to creating access to public spaces, public transport, housing, education and health facilities, public information, and communication. The Connected City is envisaged as a continuous, well-connected, and well-balanced network of neighbourhoods, each with parks and public spaces, and accommodating a diversity of overlapping private and public activities, shaping a healthy and vital urban environment. The street network has a major role in shaping the urban structure which, in turn, sets the development patterns and scales for blocks, connective nodes, buildings, open spaces, and landscape. This involves development of a well-organised street hierarchy with arterial routes and local streets that is based on different modes of transport and traffic speeds, acting as connectors that should be considered both in terms of accessibility and of social interactions. In this scenario, public transport can provide fast cross-town connections linking public areas and functional cores of the city to the surrounding neighbourhoods. Most importantly, these neighbourhoods in turn, should provide opportunities and conveniently located facilities that are accessible locally by the community, which in turn reduces the dependency on private vehicles.



2 [RE-STITCH]

6.1.3 The Inclusive City

The New Urban Agenda (NUA) requests commitment from cities in the promotion of diversity in cities and human settlements, to strengthen social cohesion, intercultural dialogue, understanding, tolerance, mutual respect, gender equality, innovation, entrepreneurship, inclusion, identity, safety, and the dignity of all people, while fostering liveability and a vibrant urban economy. Arar needs to implement UN-Habitat Principles and develop a vibrant, sustainable and inclusive urban economy, building on endogenous potentials, competitive advantages, cultural heritage and local resources, as well as resource-efficient and resilient infrastructure; This can be achieved through the promotion of sustainable and inclusive industrial development and sustainable consumption and production patterns. This should be considered in parallel with fostering an enabling environment for businesses and innovation for provision of sustainable livelihoods.



3 [REBALANCE]

6.1.4 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. As such, a Resilient City can be defined as a sustainable network of physical systems and communities,²⁵ in which these physical systems consist of both the constructed and environmental components of the city. According to the New Urban Agenda (NUA), cities need to ensure environmental sustainability by promoting clean energy and sustainable use of land and resources in urban development, protecting ecosystems and biodiversity, promoting sustainable consumption and production patterns, reducing disaster risks, as well as mitigating and adapting to climate change. These elements amount to resilience. A Resilient City also supports and is mutually supported by its territorial systems, activating positive urban metabolism mechanisms, ensuring a reliable supply and balanced value chains. For Arar, this means re-assessing the city's relationship with its natural features and their functions as social, ecological, and economic infrastructure, with specific reference to the blue and green networks.



4 [PROTECT & IMPROVE]



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A pedestrian street "walking track" in Arar



6.2 Appropriate Models for Arar's Urban Development

6.2.1 The Compact City: Consolidating and densifying Arar's development

A Compact city has several benefits. A Compact City is less dependent on private vehicular mobility, which in turn reduces emissions, reduces energy consumption, and allows for better public transport services. A Compact City also provides increased accessibility, allowing for the re-use of existing infrastructure and previously developed land, favouring regeneration of existing urban areas by improving urban vitality and quality of life. Currently, Arar presents some potential to consolidate its development by building on the compactness of its existing core, by limiting the urban sprawl and, in parallel, using available vacant land in areas with lower density to plan high-density and mixed-use infill developments. As such, the focus of this strategic recommendation is on the containment of growth and expansion, while applying an incremental strategic densification process. In order to implement such a strategy, development should be strongly restricted within the current built-up area through policy aimed at establishing a reduced development boundary. This new boundary should mark the current edge of the urban fabric as the limit for approval of new projects, aiming at utilising all the available vacant land within it before expanding. In parallel, incentives promoting mixed-use, dense developments on existing vacant

land should be set in place, while actively enforcing the "white land tax" to push for its active development. Lastly, to address the bifurcation of the Eastern edge of the city caused by the current National Guard reserve, it is recommended that the Amanah negotiate a land swap with the respective military authority. This would substantially increase the city's development capacity to the West, along Highway 85, to prevent future expansions from happening outside the current urban footprint. In addition, by annexing the Southern part of the National Guard reserve land, currently separating the Eastern side of Arar into two distinct parts, to the rest of the city, the overall urban fabric would be re-consolidated, building the preconditions for further densification. These initiatives would accommodate the increased density within a more compact and efficient city, relieving the Amanah from the pressure of providing an extended network of infrastructure to sprawling and scattered areas of new development. In the long term, this will be cost-effective, making infrastructure efficient, reducing resource-consumption, and reducing costs for the overall city's functioning, while providing opportunities to redirect this investment towards improvements and upgrades on the existing urban fabric.

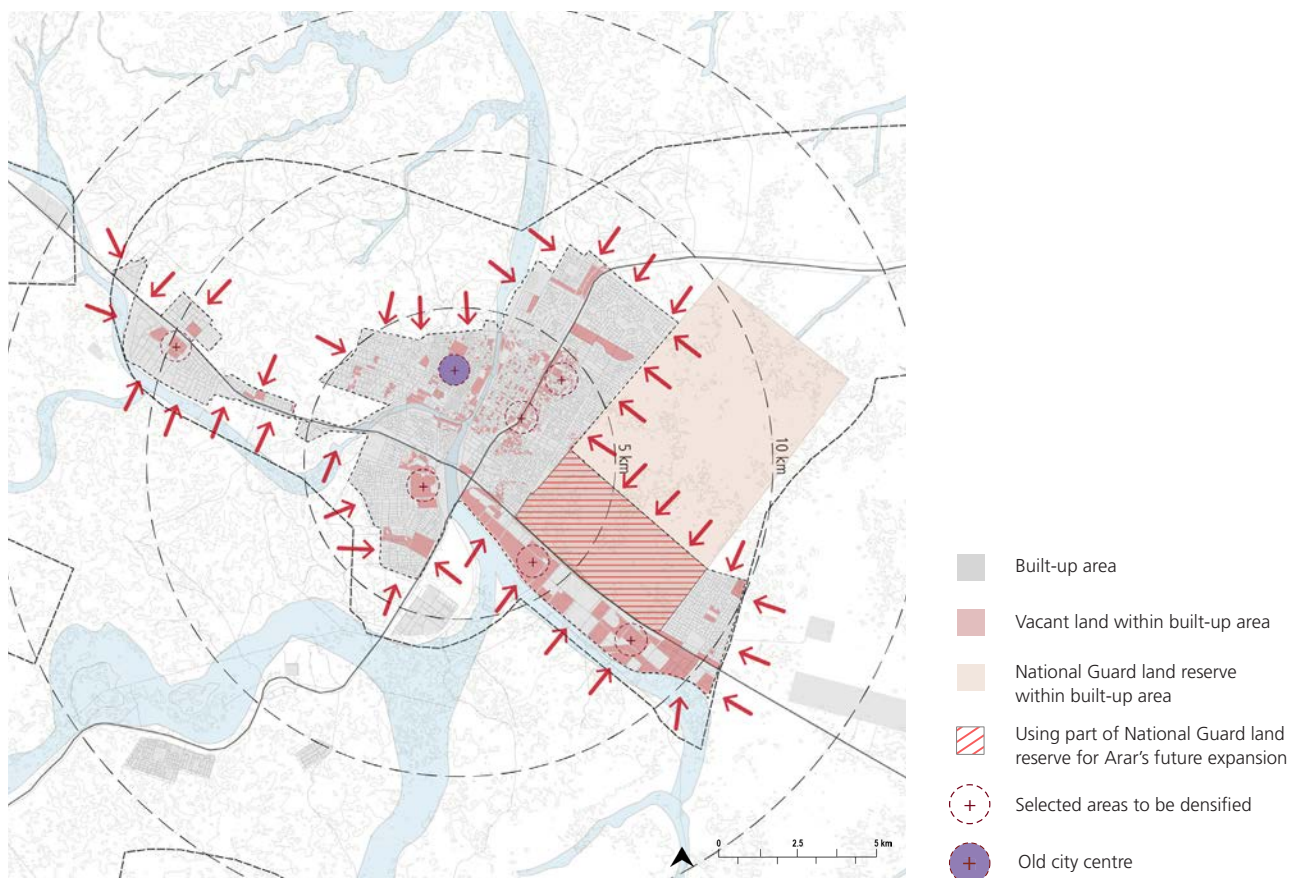


Fig. 44. The Compact City: Consolidating and densifying Arar's development



6.2.2 The Connected City: Restitching and defragmenting Arar's urban fabric

This strategy deals with the need to counteract a divided urban structure and reduce spatial fragmentation, resulting in more pervasive accessibility for all citizens. The current city is divided into four quadrants by its two major transportation corridors, Highway 80 and Highway 85. The emerging urban structure is fragmented and prevents Arar from being a cohesive and livable city. Not only do the oversized highways cut the fabric, acting as barriers and separating parts of the city and neighbourhoods from each other, but they are also entirely disconnected from the secondary and tertiary road networks.

This depicts a city where the road patterns lack hierarchy and character, further impeding connectivity and integration. For this reason, the strategy suggests that the transects of Highways 80 and 85 currently cutting the city, should be radically restructured in both size and function, transforming them into boulevards. New peri-urban bypasses for the deviated highways should be set in place to support current and future increases in regional vehicular traffic while discharging the central spines from non-urban vehicular traffic. Furthermore, a public transportation system (such as a BRT or Tram) should be integrated within their renewed sections.

The pedestrian realm of these new boulevards should be developed with the goal of offering users and citizens a safe, well-connected,

walkable network of interwoven pedestrian, vehicular, and public mobility. Adding longitudinal and transversal connections towards the existing fabric (currently missing as they are highways and not urban roads), and completing them with a secondary public transport system (feeder bus system), will help to restitch the city, complementing the new role of the boulevards. The overall transformation of the highways into green and pedestrian-friendly public transport spines will redefine them as sutures for the previously fractured urban fabric. The area that was previously part of the National Guard reserve land, now repurposed for city expansion, should also be included in this strategy, structuring a road network which contributes to stronger linkages between the Eastern and central parts of the city, as well as to the public transport spines. To complete the transformation of the urban fabric towards a more cohesive and less fragmented one, the relation between the network of wadis crossing the city and the built-up area will also need to change. The wadis will need to be the object of interventions aimed at re-qualifying them as connectors, extending as a fluid system of spaces to the adjacent neighbourhoods, giving access to public, open, green spaces along and beside them and between the different parts of the city. The connected city strategy leverages these existing elements currently dividing the city (Highways 80 and 85 and the wadi network), turning them into agents of radical transformation for the entire urban structure.

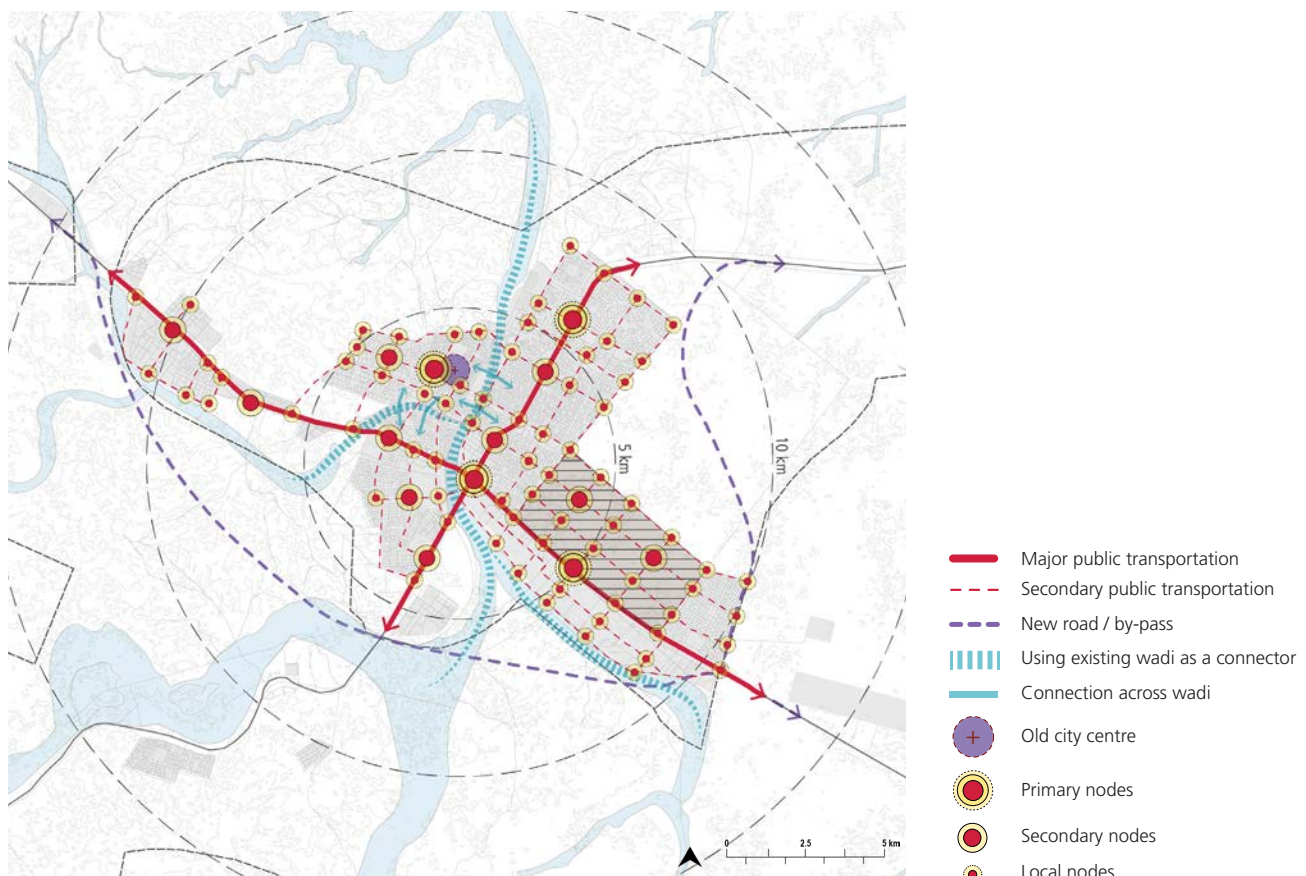


Fig. 45. The Connected City: Restitching and defragmenting Arar's urban fabric



6.2.3 The Integrated City: Equalising access to services and opportunities of Arar

Arar is currently highly polarised in its distribution of mixed-use, commercial, and public facilities. While there are areas of high concentration of public and commercial activities, most notably in the old city centre, other areas are drastically lacking. Monofunctional residential development, located in the South-East and South-West, and parts of the North-East, are representative of this condition. To respond to the polarisation and lack of integration issue, this strategy builds on the two previous ones, aiming to shape a more integrated, therefore more inclusive and equal city, by redistributing access to public facilities, jobs, and economic opportunities.

This implies that, together with densification, Arar should accompany its development with the creation of new centres, leveraging the new public transport system depicted in the Connected City strategy. Once the main public transport is in place, completed with an efficient feeder system, a concentration of new public and commercial facilities around the network's nodes should start emerging, defining a new hierarchy of functional centralities characterised by mixed-use and medium-high density. Such an operation will make it possible to maximise accessibility for all citizens and urban users, bringing more people, services, and amenities together in close proximity, and within high-density mixed-use areas. Major nodes and centralities at strategic points across the road network will further support a robust and efficient

system. These nodes should be appropriately dimensioned to encourage higher density commercial and mixed-use activities. The network of nodes should be aligned with population density allowing citizens easy accessibility and proximity to services and opportunities.

In addition, the relocation of a series of small factories, warehouses, and workshops from their current location in the central part of the city to the new industrial city, offers an interesting opportunity for the redevelopment of this land into a new CBD, a possibility already envisaged by the Local Plan and fully supported by this strategy. This would start rebalancing the accessibility to main services, commercial facilities, and job opportunities while the city densifies and its population increases, linking new public spaces and services to the rest of the city through an efficient transportation system. With these systems in place, it will be easier to limit the cost of movement for citizens, increasing walkability and accessibility while decreasing polarisation will offer an indirect stimulus for rebalancing socio-economic factors in the city, and will increase interaction within society, gradually turning Arar into an Integrated City.

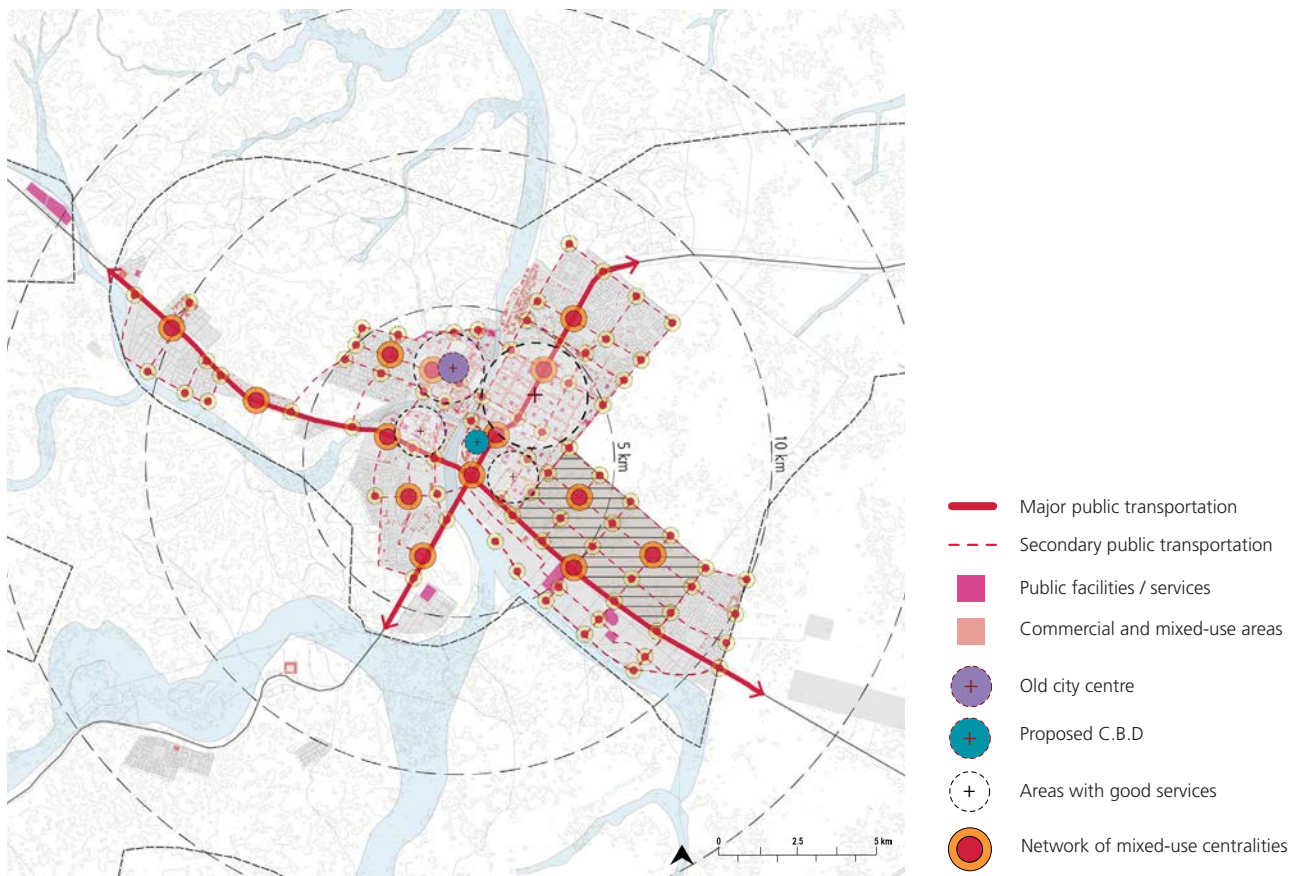


Fig. 46. The Integrated City: Equalising access to services and opportunities of Arar



6.2.4 The Resilient City: Rebalancing Arar's socio-ecological and economic systems

Arar needs to be understood as a complex system of spatial and functional relations amongst its economic productivity (as related to the urban infrastructure), its social systems, and its environmental resources and natural ecosystems. This strategy aims to promote the development of urban spatial frameworks that support sustainable management and use of natural resources and land. Building on the Connected City strategy, the Resilient City strategy aims at building a positive and functional relationship between the urban fabric and its natural features.

To achieve this, the city needs to embrace and revitalise its natural hydrological system, as this will enhance the natural setting by reframing the extensive wadi network as a continuous and open linear park. Additionally, the new linear park should be linked and well-connected to an extensive network of new smaller and diffused green public spaces, spread across the urban fabric. Furthermore, some of these punctual interventions on public spaces should be set where the natural hydrological system or the drainage system overlays with vacant land or small existing public spaces, focusing on areas in close proximity of the wadi network. Not only will this help to create a system of linear open spaces along the body of the wadi and across the urban fabric, relinking blue and green networks, but, by appropriately designing these public spaces as multi-functional, floodable areas, it will also

allow these spaces to act as a water storage system. Using public spaces in proximity or adjacent to the wadis as, for instance, retention ponds, will allow for overall improved water management, while preventing large dams to be built within the city's fabric, providing instead spaces that are more contained, spread across the city, and usable as public spaces by the population. Some of these spaces, including parts of the wadi bed, could also be used to promote urban agricultural activities and programme.

Overall, protection and integration of natural resources in the planning of the city should be considered a priority, and all new developments should occur with respect for the local ecology of Arar. A green economy approach could provide a useful framework whereby decisions and actions promote resources efficiency, effective environmental management, and a better standard of living for residents. In these terms, the wadi, the watersheds, and the green, public space networks, should be reconsidered as potential socio-ecological infrastructure, representing a potential source of economic growth and social development for the city while reducing the imbalance amongst social, ecological, and economic systems.

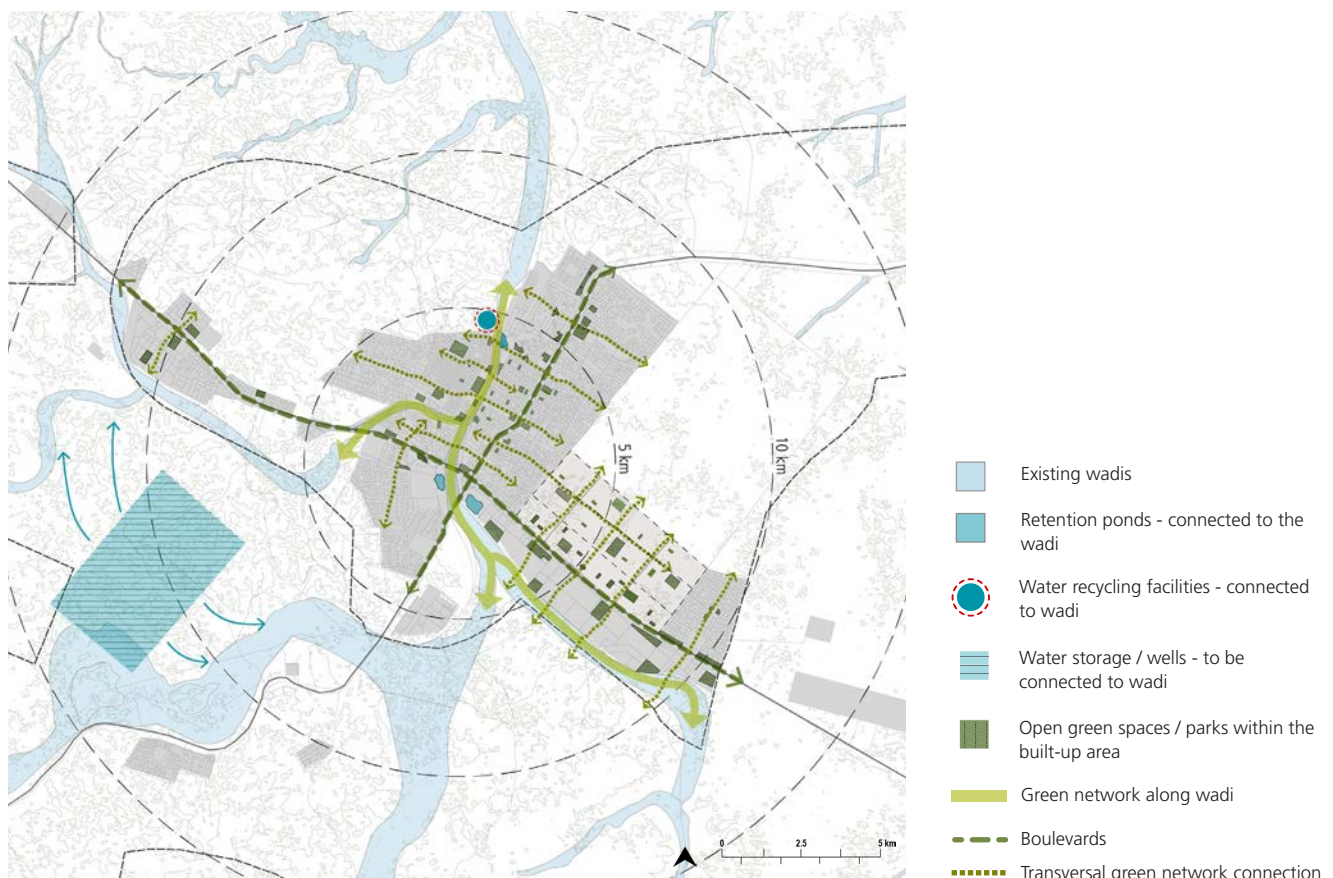


Fig. 47. The Resilient City: Rebalancing Arar's socio-ecological and economic systems

6.3 An Action Plan for Arar

6.3.1 From strategy to action

Transforming conceptual recommendations into concrete and implementable strategies requires detailed actions that can trigger the envisaged spatial, economic, and social transformations. An Action Plan that is rooted in the four strategic recommendations and grounded in a series of systemic and incremental interventions for Arar serves to guide the building of a compact, connected, inclusive, and resilient city.

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 and livable spaces at the neighbourhood scale. In essence, the Action Plan outlines three systemic actions explicitly envisaged for Arar, and constituted by incremental steps:

- **Action 1: Create an efficient public transportation backbone.**
- **Action 2: Densify, connect and create new centres.**
- **Action 3: Create a diffused and well integrated blue and green infrastructure system.**

Action 1 addresses the need for a profound infrastructural transformation of the city, partially turning the highways in boulevards and through the implementation of a public transportation network along them, to better connect the various neighbourhoods. Action 2 focuses on the compaction, densification, and integration of the city through the creation of new centralities around the main public transport nodes. Action 3, while addressing the socio-ecological rehabilitation of the linear elements of the wadi, also promotes punctual interventions by targeting diffused micro public space networks at the neighbourhood scale.



FSCP Workshop in Arar with stakeholders



© FSCP

Road infrastructure in Arar

6.4 Three Systemic Actions for Structural Change

6.4.1 Action 1: Create an efficient public transportation backbone

Action 1 focuses on the need to restructure the city, starting from its street networks and mobility patterns. Fostering a radical proposal for a new public transportation system, Action 1 guides priority setting for its phased implementation, starting with a structural and stepped transformation of Highways 80 and 85 in urban boulevards and main public transport spines. Furthermore, it guides toward the restructuring of the road network by establishing a new hierarchy of roads and linking it to new and diversified mobility. Turning portions of the two highways into urban boulevards is essential for an efficient urban structure and creates the conditions for grafting a viable public transport system. The flow of heavy traffic across the main regional roads network (currently crossing the city), will still be granted passage by adding the two by-passes. This way it will be possible to change functionality and road sections for the two-main urban axis, turning them into boulevards. These two axes will be re-signified as public transportation corridors and identified as pleasant and walkable street landscapes with diverse commercial activities. As such, the boulevards must be designed to include main public transport spines (e.g., BRT or Tram), non-motorised mobility networks, and reduced and reorganised vehicular roads, all embedded in a rich a variegated street landscape and pedestrian-friendly public space. In these terms, turning a physical barrier into a unifying and connecting element is key for an effective structural urban transformation of Arar's development patterns, and a healthier growth of the city. However, as the overall objective of Action 1 is very complex and challenging, from both a logistical and a financial point of view, there is a need for implementation to happen through subsequent steps, incrementally moving towards this much needed transformation.

1.1. Develop a North-South bypass and turn part of Highway 80 into a boulevard and major public transport spine

The first step concerns the development of a new bypass for Highway 80, to free what is currently a major urban axis from heavy traffic, and transform it into a boulevard hosting a first North-South public transport spine, (e.g., Tram or Bus Rapid Transport). The proposed public transport line will provide citizens with an alternative to vehicular ownership while encouraging pedestrian mobility and favouring accessibility across the city. The new boulevard will have to be designed to incorporate diversified mobility, vibrant commercial activities, recreational open spaces, and an overall pedestrian-friendly public realm.

1.2 Develop an East-West bypass and turn part of Highway 85 into another boulevard and public transport spine

The following step concerns the implementation of the second bypass for Highway 85, to free the other major urban axis from heavy traffic. This portion of the highway, now free from non-urban traffic, will be transformed into another perpendicular boulevard that is also a major public transport corridor, hosting a second BRT / Tram line running East-West. The additional BRT / Tram line will provide further transportation alternatives, having a wider reach, therefore serving more citizens and improving the overall city's accessibility.

1.3. Reorganise street hierarchy and link it to a transversal /secondary public transport network

Once the new boulevards and the main public transport system are in place, the following step needs to focus on reorganising the overall street hierarchy of the city with the purpose of link the new main public transport system to a transversal / secondary network. This secondary network will provide a more capillary access to the various neighbourhoods, connecting the inner built-up areas of the city, and resulting in alternative routes and flows of traffic across the city.

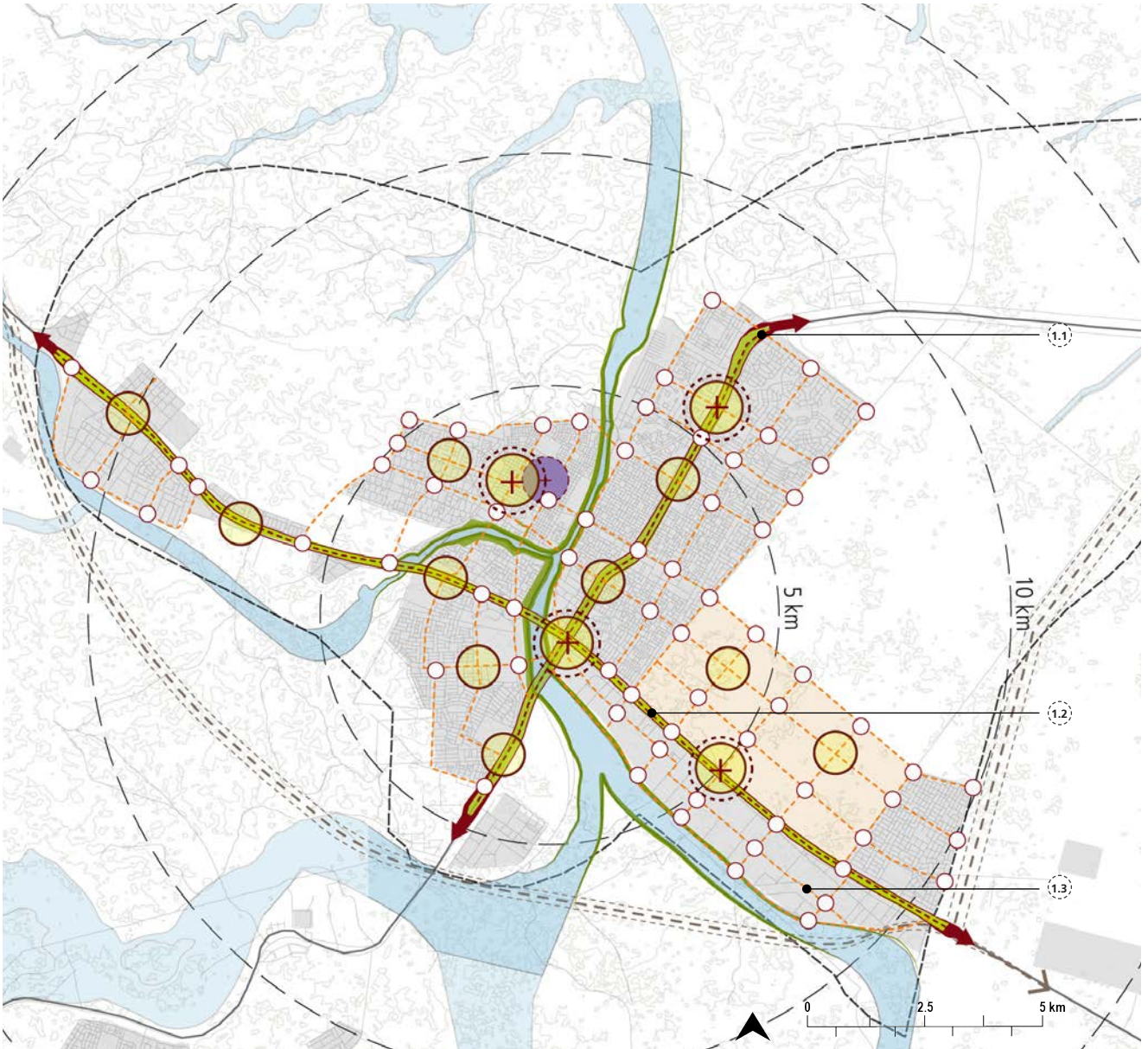










Fig. 48. Action 1: Create an efficient public transportation backbone

- ①.1 Develop a new bypass for Highway 80 to free major urban axis from heavy traffic and transform it into boulevard hosting a first new BRT spine running North-South.
 - ①.2 Develop a second bypass for Highway 85 to free the other major urban axis from heavy traffic, transforming it into another perpendicular boulevard that is also a public transport corridor through a BRT line running East-West.
 - ①.3 Develop and link a transversal /secondary public transport network across the city.
-  Major public transportation / boulevard
 -  Secondary public transportation
 -  New road / by-pass
 -  Primary nodes
 -  Secondary nodes
 - Local nodes
 -  Part of National Guard land reserve to be developed & integrated
 -  Built-up area
 -  Old city centre

6.4.2 Action 2: *Densify, connect and create new centres*

Action 2 focuses on promoting an incremental increase of urban density and on the creation of a system of new centralities around the emerging major transport nodes. Action 2 builds on Action 1, which had set the preconditions for establishing a dense, well-connected and rebalanced urban fabric. As such, following the implementation of the public transportation network, the city should start actively promoting TOD development and incentivise residential densification in the areas with walkable access to public transport. A system of first and second tier centralities will need to be developed in relation to the public transport system.

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. In support of this strategic densification, economic incentives, and legal instruments will need to be set in place to promote redevelopment of existing fabric into mixed-use centralities around transport nodes, as well as for the development of appropriately located vacant land, while enforcing strong development boundaries that limit the extension of the city.

2.1 Develop a hierarchy of mixed-use nodes and define new main centralities at strategic points along the public transport system

Once the public transport lines are in place, selected major nodes need to start emerging as new main centralities, by structuring a hierarchy of nodes that concentrates on services, facilities, job opportunities, and residential development. The first tier of nodes, hosting high-density mixed-use development, will need to be located at the extremities of the two major boulevards and at their intersection, including in this central node the creation of a new CBD in place of the warehouses currently being relocated. This way, both a new and highly connected central core and two new gateways on the urban edges, will emerge stronger, acting as new landmarks for the city.

2.2 Densify around the secondary nodes creating second-tier centralities to rebalance access to public services and facilities

Secondary centralities will be distributed around minor public transport nodes, following the criteria of rebalancing access to jobs, public services, and facilities (educational, healthcare, and commercial areas) in currently underserved areas of the city, while being linked to the public transport system. Densification around public transport systems should be done both by using available vacant land and by redeveloping the existing fabric. Therefore, appropriate incentives for the promotion of multi-functional land use programs should be set in place, targeting the strategic densification of existing neighbourhoods around secondary public transport nodes.

2.3 Redevelop part of the current military reserve and develop available vacant land to restitch the city

To complete the restitching, recompacting, and defragmenting of the city, part of large military reserve should be redeveloped into a new Eastern district, relinking the extreme urban edge, currently disconnected and segregated, to the rest of the urban fabric. This will partially contrast existing and future sprawl, providing an alternative within the current built-up area to future expansions on the edges and beyond the 1450 UGB. In addition, developable vacant land (exclusive of waterways, slopes, hills, and other critical natural features) within the built-up area should be incrementally developed to prevent sprawl, thus hosting future growth through densification and mixed-use development.

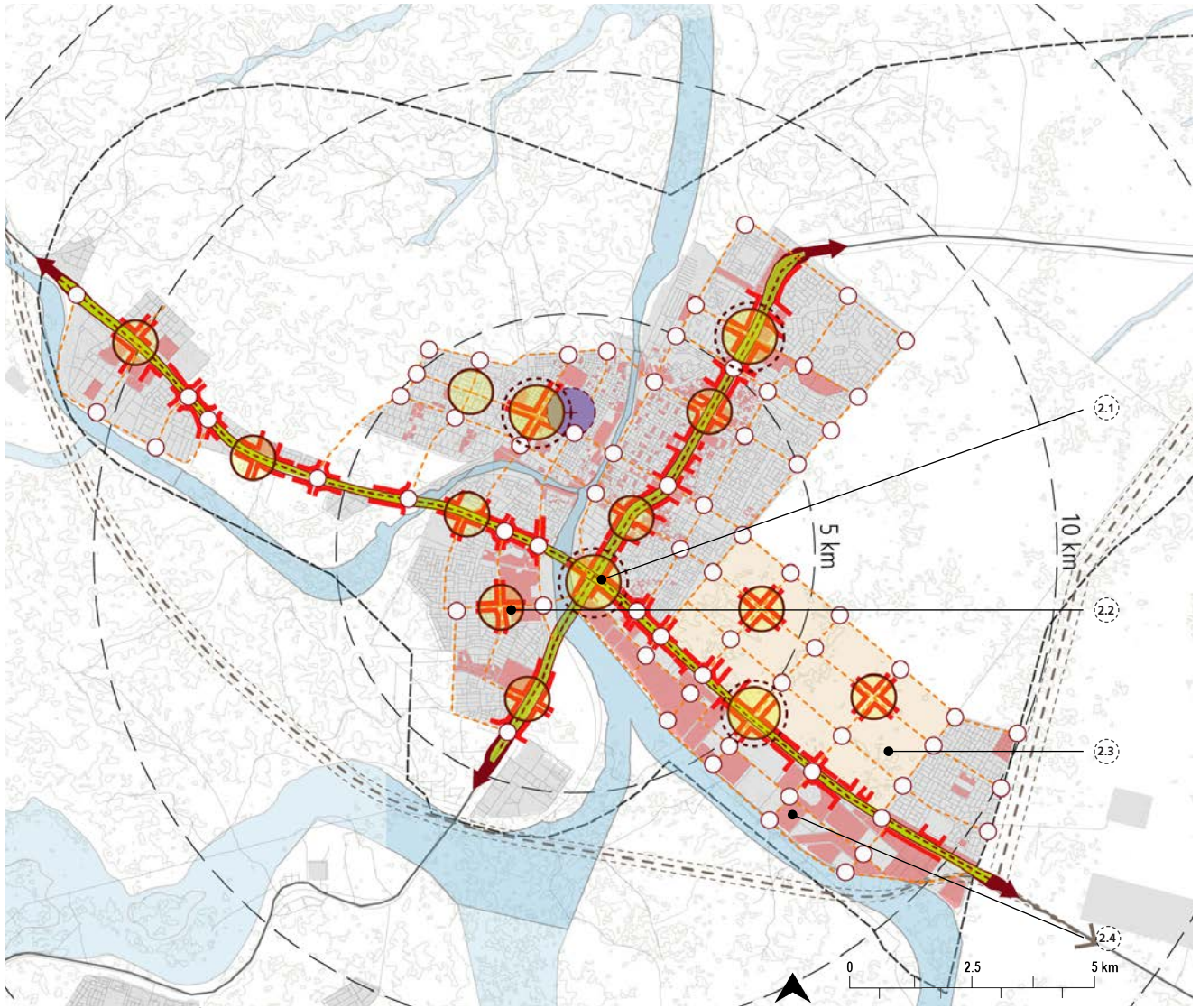


Fig. 49. Action 2: *Densify, connect and create new centres*

- 2.1 Develop a hierarchy of mixed-use nodes at strategic points along the public transport system.
- 2.2 Densify around some of the secondary nodes creating new centralities to rebalance access to public services and facilities.
- 2.3 Redevelop part of current military reserve to re-stitch the city.
- 2.4 Incrementally develop available vacant land within the current built-up fabric



6.4.3 *Action 3: Create a diffused and well-integrated blue and green networks*

Action 3 aims at making the city more resilient, more sustainable, and enjoyable by its residents. 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 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. Wadis should be reopened and re-linked to the surrounding urban fabric to provide opportunities for the establishment of new linear parks and public spaces crossing the city.

By reinstating underground water-table recharge mechanisms, and by creating a capillary distribution of water retention ponds that function as public spaces when empty along the wadis bed, the alluvial overflow in sustainable and natural ways, while simultaneously increasing water security and resilience to floods. In addition, incentivising urban and peri-urban agriculture programs along the wadis where possible, would contribute to the relinking of green and blue networks, reducing overall evapotranspiration phenomena along the waterways while strengthening food security and resilience.

3.1 Re-naturalise and redesign the Wadi system as a socio-ecological infrastructure

A gradual process of renaturalisation and redesign of the wadi system should be set in place to transform it into a natural water management infrastructure by protecting and integrating the wadi into the existing urban fabric, developing non-critical areas for public open spaces, and creating other floodable public spaces acting as water retention ponds connected to water recycling stations. This system of interventions will have the goal of transforming the wadi system into a multi-functional linear park, to be used as natural water management infrastructure during the wet season, but hosting alternative services, facilities, and recreational uses during the dry season.

3.2 Create a consistent green network by using vacant land to increase major green areas

An articulated and well-linked system of both large and smaller public spaces needs to be set in place, using available vacant land, residual land along transportation networks, and wadi systems converted into green, open spaces, parks, and parklets for public use. Increasing green areas to reduce the heat island effect across the urban fabric and improve the ratio of green open space pro-capita, is also recommended.

Hence, in parallel to the strategic densification process of Arar described in Action 2, some of the vacant land will have to be selectively preserved for the creation of green public space, especially in areas subjected to densification.

3.3 Complete the green network by greening streetscapes

The greening of the overall streetscapes will complete a well-linked green network, linking major green spaces to the public transport system through tree-lined streets that encourage pedestrian mobility. Trees and plants along major and minor transportation corridors will have to be chosen amongst local species, to conserve resources and reduce maintenance cost, focusing on shading pedestrian areas and waterways to reduce heat island effect and the evapotranspiration phenomena, therefore, mitigating the urban microclimate.

This will encourage overall pedestrian mobility and outdoor life at the urban scale, and better protect the city against high temperatures and sandstorms.

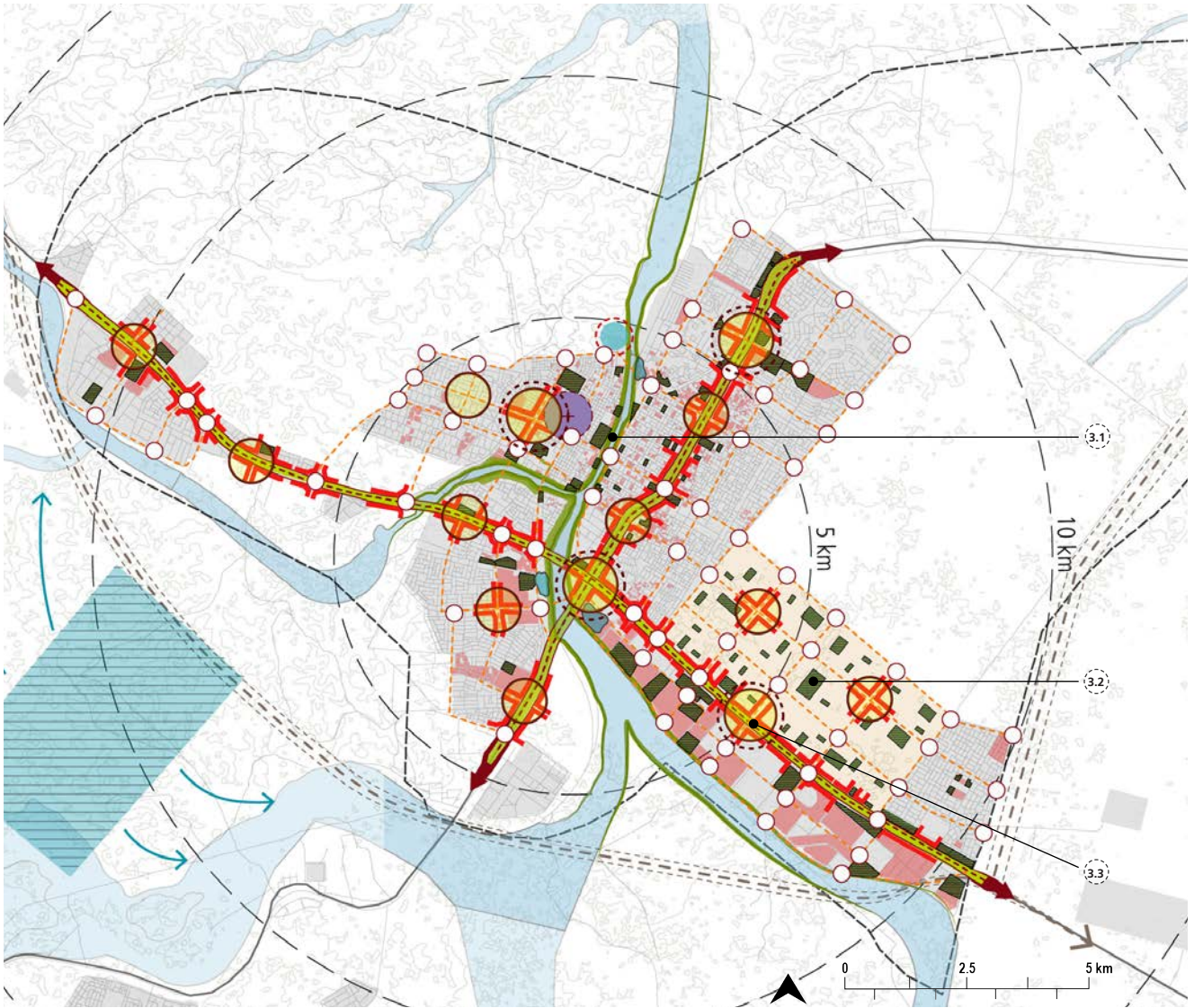


Fig. 50. Action 3: Create a diffused and well integrated blue and green infrastructure system

- | | |
|--|--|
| <ul style="list-style-type: none"> ③.1 Establish a natural water management infrastructure by protecting and integrating the Wadi. ③.2 Create a consistent green network by using vacant land to increase major green areas. ③.3 Complete the green network by greening streetscapes and linking major green spaces to public transport system. | <ul style="list-style-type: none"> Major public transportation / boulevard Secondary public transportation New road / by-pass Built-up area Vacant land within the built-up area High density / mixed-use development Wadis Retention ponds - connected to the wadis Water storage / wells - to be connected to the wadis Open green spaces / parks within the built-up area Water recycling facilities - connected to the wadis Green network along wadi Old city centre Proposed C.B.D |
|--|--|

FINAL RECOMMENDATIONS: THE THREE-PRONGED APPROACH

7



7.1 Spatial Recommendations

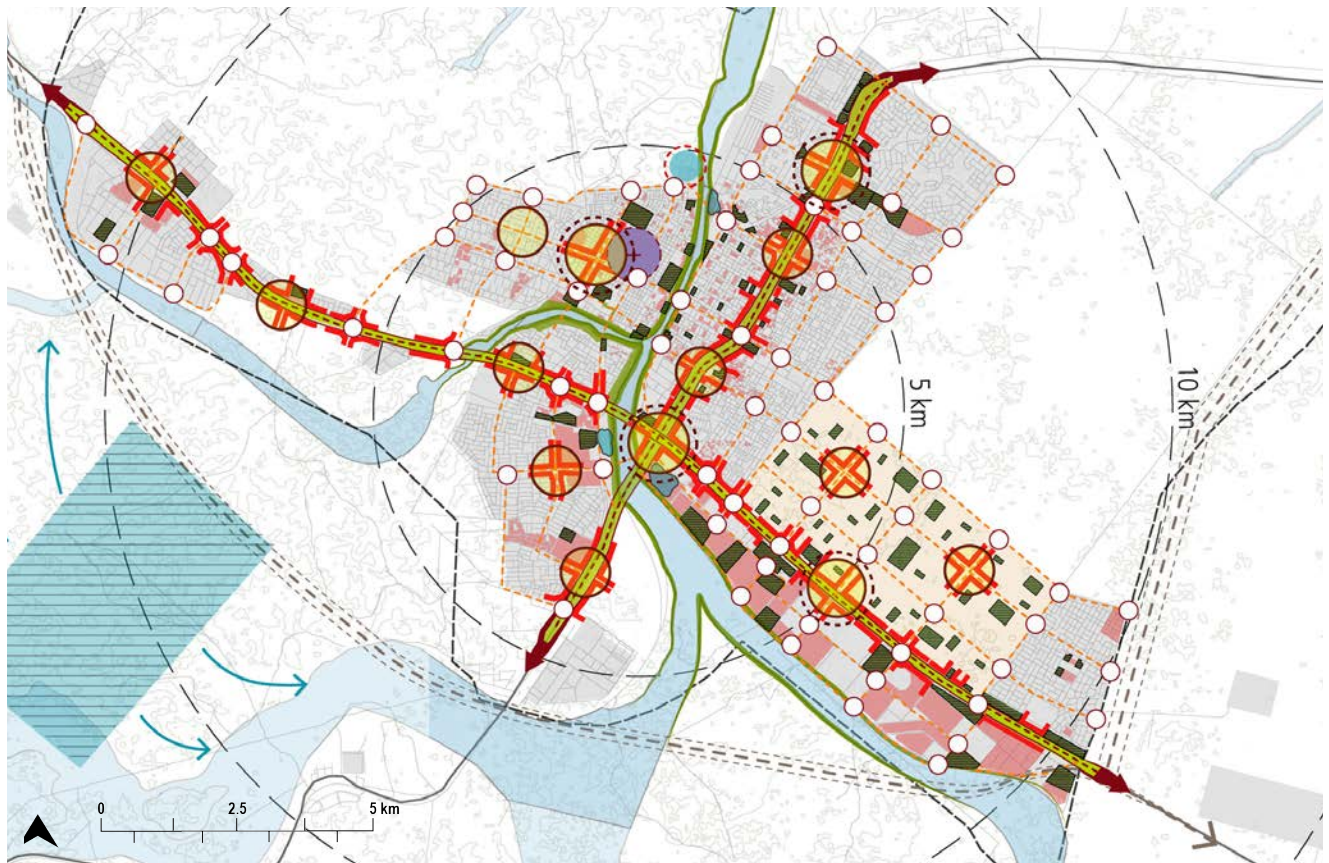
7.1.1 A strategic view of the Northern Borders Region

Most of the regions have recently registered an increased population migration, due to their capacity in increasing the levels of opportunities and attraction factors, whereas the Northern Borders Region is regarded as one of the least attractive in the Kingdom. This interesting phenomenon relates to the fact that the region's average annual growth rate in the period between 2002-2014 stands at 2.55%, of which the Saudi population stands at 2.17%, and the non-Saudi at 0.38%.²⁶ This means that although Arar is a border city, it does not attract enough foreign population. Nevertheless, this is expected to improve with the reopened trade link between the KSA and Iraq via the Arar Port, and it will require to plan in anticipation for increased migration rates. Along these lines, the transnational Baghdad-Arar-Skaka route, which is a new cross-regional artery, will be key in triggering and acting as an anchor for economic activities along this route.

On the perspective of the economic activities, the Northern Borders Region Economic Report from 2014, proposes to capitalise on the sectors with a competitive advantage in the region. These include mining, transportation, and tourism, together with a general strategic attempt to diversify the economic activities of the region. This will, in turn, increase

the GDP contribution of the region to the Kingdom, which is currently weak. A good example could constitute the strengthening of the tourism industry by providing recreational opportunities for camping and practicing desert sports on the sand dunes in the Nafud desert, and by the enhancement of the role played by the Turaif domestic airport as a tourism entry point to access the nature reserves surrounding Turaif. These strategic actions are important to increase the revenue base for the region, as well as to enhance synergies to boost tourism regionally and Kingdom-wide.

Along similar lines, the presence of the Zubaida Trail, or Al Kufi pilgrimage route, which is an important UNESCO Heritage Site in the Northern Borders Region running from Kufa in Iraq to Makkah, and through the East, has a great potential to contribute to the growth of the tourism sector.²⁷ This trail, together with other archeological sites, are key elements of the region's heritage and should be not only preserved but enhanced and leveraged as resources. Enhancing the tourism sector by increasing projects related to heritage, leisure, and sports, bridging the nature reserves to the North and the cultural tourism to the South, will also attract private sector investments in Arar City, as the gateway to the regional offer.



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Currently, the products of the Northern Borders Region economic sectors are not export-oriented commodities, so they do not contribute to the Kingdom's exports. However, the region is expected to increase its contribution to the overall exports in the Kingdom once the Northern Region cement factory, which was set up recently, starts exporting. This, together with the phosphate mining activities in Hazm Al-Jalameed and the export of ore concentrates, would open up the region to new economic opportunities.²⁸ In addition, as the region increases its production of raw materials, it is foreseeable that lateral development related to accommodation, trade, and other economic activities will also increase. In these terms, the rail connection from the North, between Hazm Al-Jalameed, (mining centre) and the Al Jouf Region, will become a key artery that could strengthen trade between the two regions, as well as with Hael, Al Qassim, and the Eastern Region, where it transits through. This would also reinforce the trans-national route going from Baghdad through to Tabuk.

Lastly, most of the topsoil in the Northern Borders Region is unfit for agriculture, except for the lands located in the Northwest of Rafha Governorate. The agricultural activity in the region is limited in terms of the cultivated land and the quantity of agricultural production. However, according to the economic projections, there is potential to increase agricultural productivity, both in terms of grazing and cultivation, to the Northwest of Arar and Rafha City. This will strengthen the functional and economic link between the region and Al Jouf, especially between Skaka and Arar cities, both experiencing high population growth rates, supporting food security.

7.1.2 Towards Arar, a Transnational Eco-city

The strategic vision for the future of Arar aims to promote the development of urban spatial frameworks that redistribute appropriate compactness and density around polycentrism and mixed-use, diversifying its economic base. 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. 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:

- Compact,
- Connected,
- Inclusive, and
- Resilient.

Overall the city will become more livable and pleasant, vibrant and attractive. This will allow Arar to better capitalise on its strategic location, at the crossroad of international commercial fluxes and pilgrimage access routes, becoming a destination rather than a passing-through point, and attracting a new population. Defining a Transnational City as a city at the convergence of different cultures, people and ideas, the vision envisages the future Arar as a Transnational Eco-City: a vibrant modern capital for the Northern Borders Region and the Kingdom, where this convergence fuels economies, creativity, diversity, innovation, and identity. Most importantly, both the strategic vision and the Action Plan strengthen two fundamental aspects, previously overlooked in Arar's development: the natural environment, and a coherent, integrated, and well-articulated urban structure. The restructured urban development patterns, grounded in a well-distributed and efficient public transport network supporting a new system of mixed-use centralities, and will entirely transform the way the city functions. In parallel, by incrementally greening the city while re-establishing a healthy and functioning relationship between the built and the natural environments, Arar will be able to enhance and rebalance the ecological, social, and the economic dimensions, providing a healthy and productive urban environment for its citizens, while becoming more attractive to tourism and increasing job opportunities.

7.2 Institutional and Legal Recommendations

In terms of legal reform, Arar 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:

- i. 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;
- ii. 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;

- iii. 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.

Administratively, the Legal Department within the Amanah of the Northern Borders Region, which is involved in assessing the efficacy of planning laws, as well as its supervisory body, (Monitoring and Control Authority) should be strengthened through staff training initiatives. This is to ensure that they are both functionally equipped for their role and have enhanced capacity to address complaints from the community regarding the application of rules and regulations.

Consolidation of the legal planning instruments would also support development intervention of Arar, 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 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 Arar relies on.

Revising the Urban Growth Boundary Law to include clear criteria on how it is set 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 to not only prevent haphazard development but also avert private interests from taking advantage of the laxity in the legal text. These initiatives will strengthen policy formulation designed to make the city more sustainable, compact and dense. Primarily, a 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.



Clock tower in Arar

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7.3 Financial Recommendations

In 2015, the government began enacting a series of reforms with the hopes of creating a more self-sustaining public financial system through diversified revenue sources, efficient tax administration, and private investment in strategic economic sectors.

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

International experience with own-source tax mechanisms can inform the optimal set of financing tools for increasing local revenues that also support sustainable development projects, such as renewable solar energy plants, aqua-farming, tourism, and training programs in partnership with the Northern Border University. At the national level, Saudi Arabia has already adopted new property taxes, such as the White Land Tax and should continue to explore other tax instruments that are suitable to the needs of Arar.

There are a variety of tax instruments available to local governments interested in expanding own-source revenues.

Land-based taxes, in particular, benefit local governments by establishing a stable and constant revenue source, and by addressing local development needs. Introducing a variety of different land-based taxes based on land use can strengthen them further. In addition to land-based taxes, other fiscal instruments, such as waste management fees and PPPs could help Arar boost own-source revenue and tackle other challenges, such as recycling. The government can maximise the benefits of different tax instruments by:

- Coordinating and collaborating with different levels of government to connect national strategies with local priorities;
- Investing in capacity building and improving tax administration; and
- Tailoring fiscal instruments to local needs (e.g., fiscal cadaster).

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.

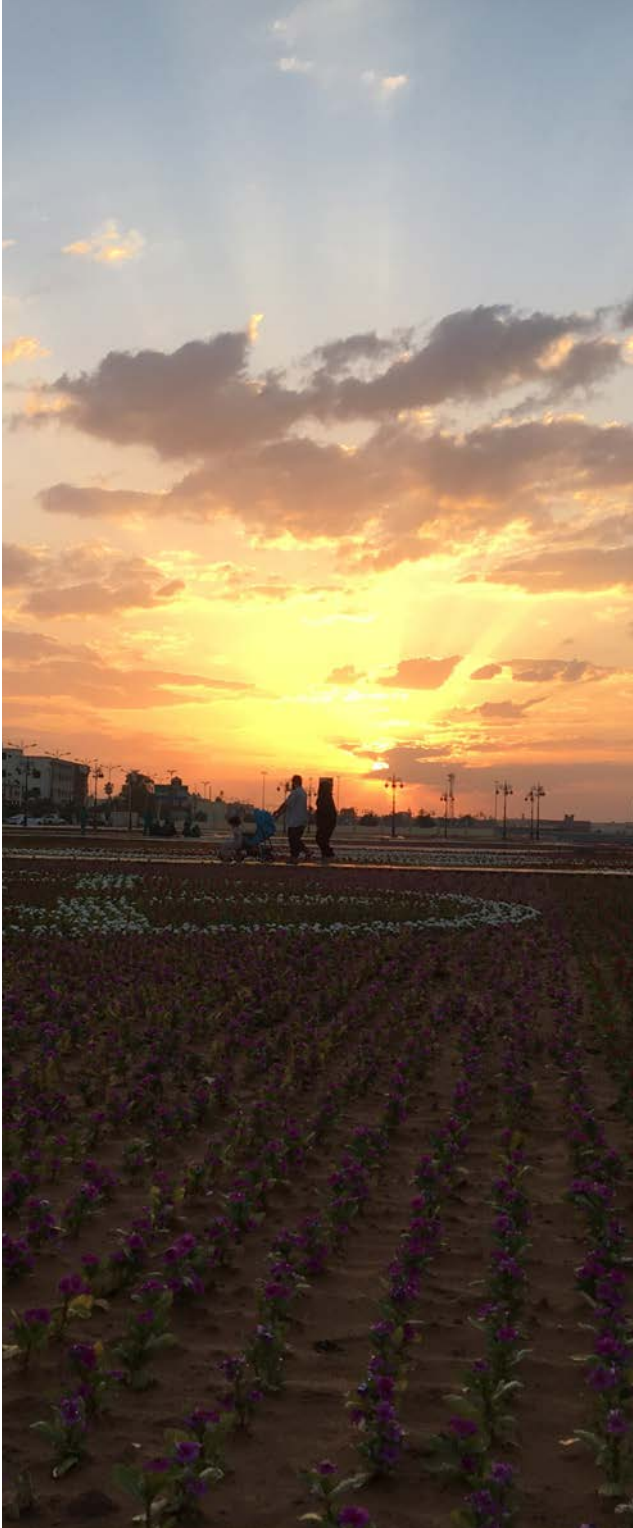
PUBLIC-PRIVATE PARTNERSHIP

In Vancouver, greenhouse gases emitted from the city's landfill are managed and operated by a private company that transforms the gas emissions into useable energy for the city. The municipal government requested that the private company selected be responsible for designing, building, operating, and financing the project. Heat generated from the city's waste is recovered and used by village farm greenhouses to produce vegetables and also to heat the landfill's administrative and maintenance buildings.

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). *The Canadian Council for Public-Private Partnerships, & PPP Canada.* (2011). *Public private partnerships: a guide for municipalities.* The Canadian Council for Public-Private Partnerships. Canada.

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8.3 Notes and References

- 1 SAMA Annual Report 2013, Estimates of the study.
- 2 Statistical Yearbook 2012, CDSI, Saudi Airlines.
- 3 Saudi Railways Organisation, Saudi Railway Co.
- 4 Report of Industry in KSA 2013, Ministry of Commerce and Industry.
- 5 Major national and international highways are under the authority of the Ministry of Transportation.
- 6 Statistical Yearbook 2012, CDSI, Ministry of Transport. Reports and statistics of Ministry of Municipal and Rural Affairs.
- 7 Oil and Gas Statistics, SAMA Annual Report 2013, Ministry of Petroleum and Resources, ARAMCO Annual Report.
- 8 The Al- Kufi pilgrimage route, also known as "Darb Zubaydha", was one of the most important among the historic pilgrimage routes (Hajj). The Zubaydah trail runs from Kufa to Makkah, and is named after Zubaydah bint Jafar wife of the Abbasid Caliph Harun Al-Rashid for her charitable works on the numerous stations along the trail (UNESCO).
- 9 Saudi Commission for Tourism and Antiquities, Tourism Information and Research centre (MAS).
- 10 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.
- 11 The General Indicative Plan of 1985 has been superseded by the Master Plan of 1992.
- 12 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 Structure Plan but in the context of Arar, it is referred to as the Structural Plan.
- 13 The Plan is being considered for approval by the Minister of MoMRA.
- 14 Royal Decree No M/4 dated 24 November 2015 (the "Law") and Council of Ministers Decision No. 377 dated 13 June 2016 (the "Regulations").
- 15 UN-Habitat workshop held in Arar 2018.
- 16 Royal Decree of 1975.
- 17 See Royal Decree No. (1663) of 1976.
- 18 The other big four regional capitals (Riyadh, Jeddah, Madinah and Makkah) are also 1st Class Amanahs.
- 19 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.
- 20 Chapter 5 of the State of Saudi Cities Report, "Managing Urban Transformation in Saudi Arabia - The Role of Urban Governance (2018)" pg. 16.
- 21 See Article 5 of the Law of Regions to Royal Order No. A/92 (1993).
- 22 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.
- 23 See *ibid* n.15, Article 23.
- 24 As dead-space is intended a space that is mostly empty and underutilised for most part of the year. This is a possible risk if the dam is overdimensioned as well as lacking multiple uses as a public and community space for the residents.
- 25 D. Godschalk (2003) Urban Hazard Mitigation: Creating Resilient Cities, *Natural Hazards Review*, Vol. 4, Issue 3.
- 26 Results of KSA's Population Census 2004-2010, CDSI.
- 27 The Zubaida Trail Tourism Project is listed among the projects for the enhancement of the Kingdom's cultural heritage, as part of the Two Holy Mosques program, and executed by the Saudi Commission for Tourism and National Heritage among the initiatives under the National Transformation Program.
- 28 SAMA Annual Report 2013, Estimates of the Study.

