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البلدية و القروية
Ministry of Municipal & Rural Affairs

NAJRAN
City Profile

مستقبل المدن السعودية
FUTURE SAUDI CITIES

UN HABITAT
FOR A BETTER URBAN FUTURE

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

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Ministry of Municipal and Rural Affairs
P.O. Box : 935 - King Fahd, Riyadh, 11136
Tel: 00966114569999
www.momra.gov.sa

United Nations Human Settlements Programme
(UN-Habitat)
P.O. Box 30030, 00100 Nairobi GPO KENYA
Tel: 254-020-7623120 (Central Office)
www.unhabitat.org

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City Profiles Series Editors:
Herman Pienaar
Salvatore Fundarò
Costanza La Mantia

Contributing Authors:
Maria Cielecka (urban planning & design)
Pinar Caglin (content editor)
Dennis Mwamati (regional planning)
Anne Klen-Amin (legal & governance)
Samuel Njuguna (legal & governance)
Dr. Mansour Helmi (legal & governance)
Giuseppe Tesoriere (economy & finance)
Elizabeth Glass (economy & finance)
Mazen Mokhtar (GIS)
Solomon Karani (GIS)

Layout Design
Hai Anh Nguyen

Cover Page:
UN-Habitat

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For UN-Habitat:
Mr. Robert Lewis-Lettington
Mr. Ayman El-Hefnawi
Ms. Manka Bajaj

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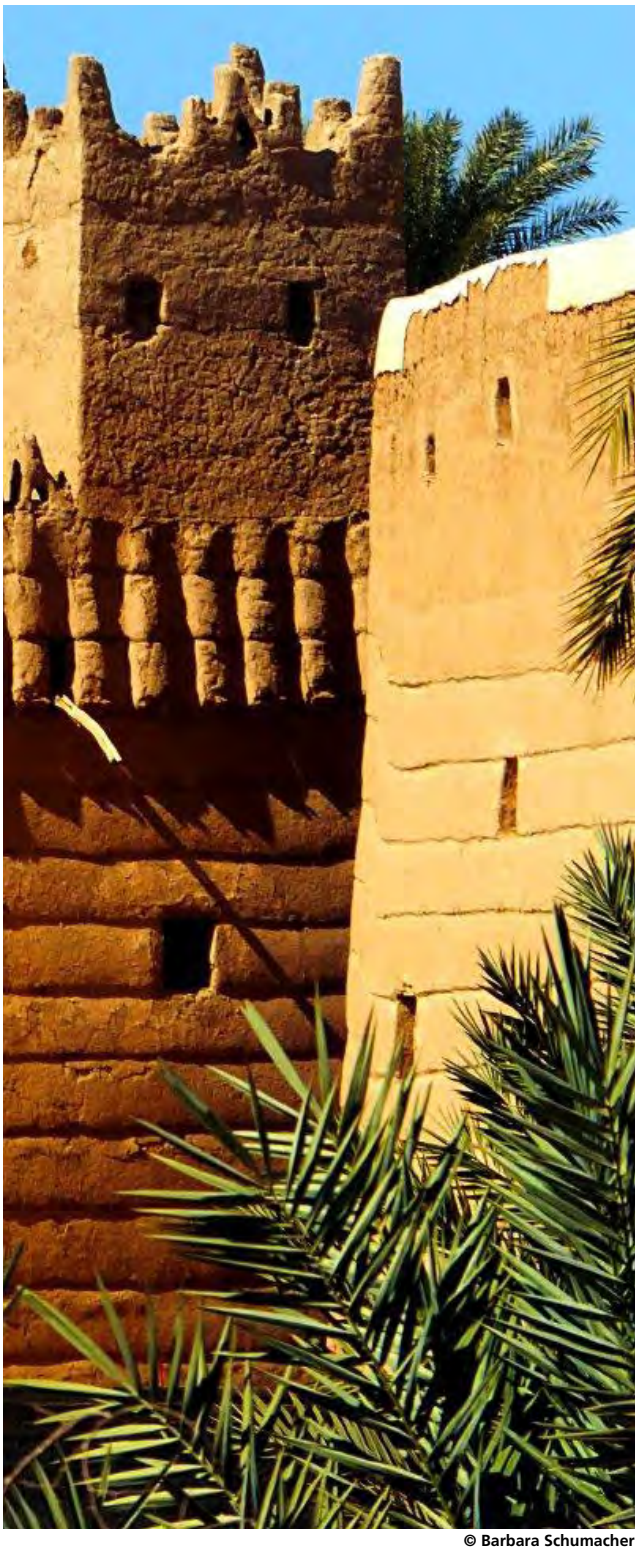
FUTURE SAUDI CITIES PROGRAMME

CITY PROFILE

Janbiyas - Daggers, the symbol of Najran

Contents

1 INTRODUCTION



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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

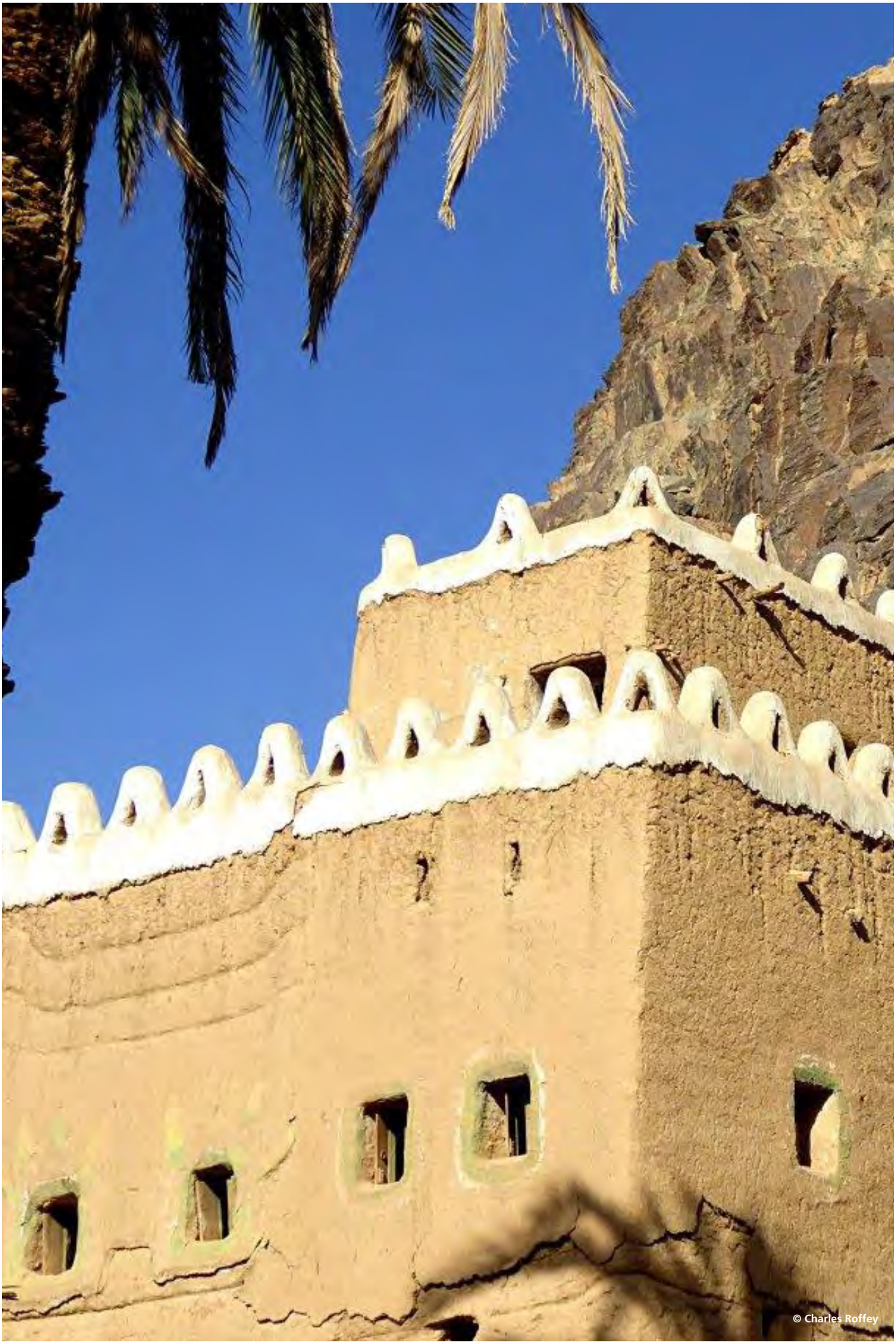
1.3.1 Scope of the city profile

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



Traditional adobe houses in Najran

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

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

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.

View on the As-Safa park from the Al-Aan Palace

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;
- Najran Regional Plan;
- Najran Sub-regional Plan;
- Najran Structural Plan;
- Najran Local Plan;
- Action Area Plans.

1.4.3 The City Prosperity Index assessment report

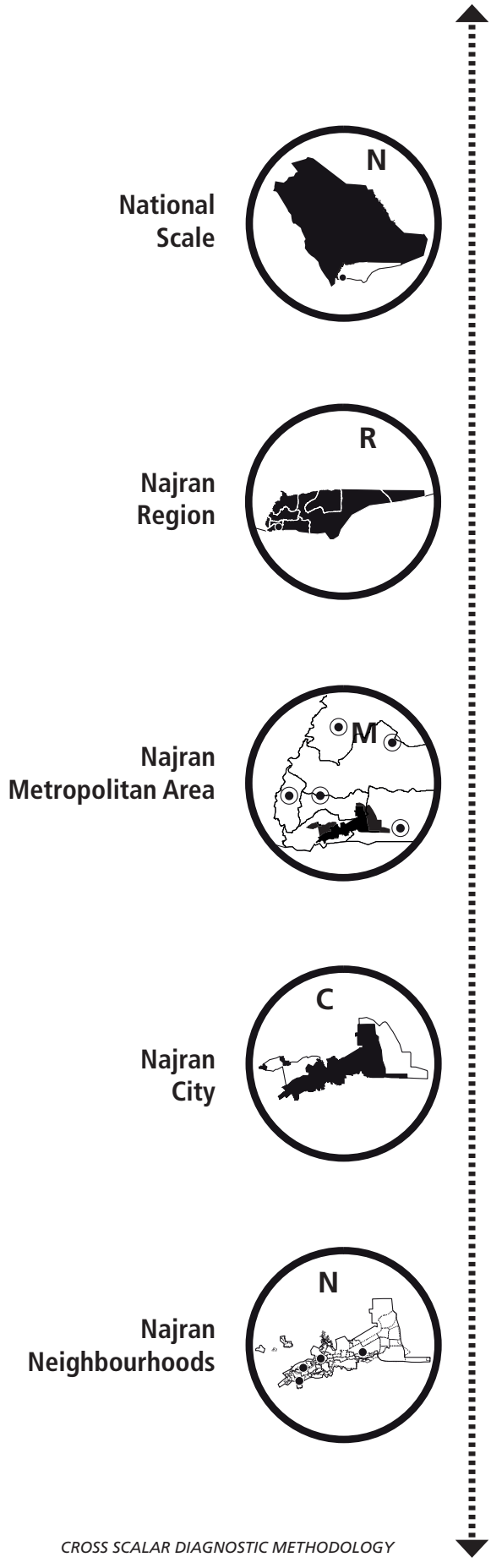
The City Prosperity Index is made up of six dimensions that serve to define targets and goals that can support the formulation of evidence-based policies. These include the definition of city-visions and long-term plans that are both ambitious and measurable. The six dimensions are:

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

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



CROSS SCALAR DIAGNOSTIC METHODOLOGY

2

NATIONAL AND REGIONAL SPATIAL CONTEXT

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2.1 The Region's Role In KSA

2.1.1 Historical background

This region of Najran is located in the extreme Southern part of the Kingdom, and hosts more than 100 sites of sincere historic importance. Much like many neighbouring areas in the historic Hejaz Region, Najran's history stretches back as many as 4000 years. Throughout history, Najran has been an essential point of contact between the North and West of the Arabian Peninsula and Yemen. Its significance is referenced in passages in many texts and documents from ancient history. Remnants of Najran's rich historical background are widespread in the region. The oldest part of the city is the Ancient Village of Al Ukhdood, which is mentioned in the Holy Quran. in the first centuries BCE, the oasis was a significant centre of frankincense and myrrh routes.

2.1.2 Geography and location

Najran is one of the Kingdom's most modern cities. It is bordered by Yemen to the South; Al-Silayel and Wadi Al-Dawasir to the North; Dhahran Al Janoub and the Asir Region to the West; and Oman to the East. It is geographically located between latitudes of 17 and 20 degrees North, and between longitudes of 44 and 52 East. Najran City is encircled by a range of rocky mountains, the highest peak of which belongs to the Abu Hamdan Mountain and reaches a height of 1450 metres.

The area is abound with scenic views, particularly in the Abi Al Rashras valley. Najran town lies at roughly 280 kilometres East of Abha and despite its historical interest, is one of the least visited towns in the Kingdom. Close to the Yemeni border, it extends along the Wadi Najran and, operated as an important trading centre for the majority of its 4,000 years of inhabitation.

2.1.3 Demographic background

As of the General Census of Population for 1431 (2010), the total population in the region of Najran, amounted to 569,000 people, representing an estimated 1.85% of the Kingdom's 2014 total of 30.8 million. The estimated ratio of Saudi and non-Saudi population in Najran was measured at 445,000 and 124,000 respectively.

The governorate of Najran holds for the largest proportion of the regional population at 65.3%, followed by the Sharorah Governorate at 17%, Khabbash 4.3% and Habouna 4%.[1] Najran City itself has a population of 350,000 as of 2015 which constitutes 61% of the regional population.

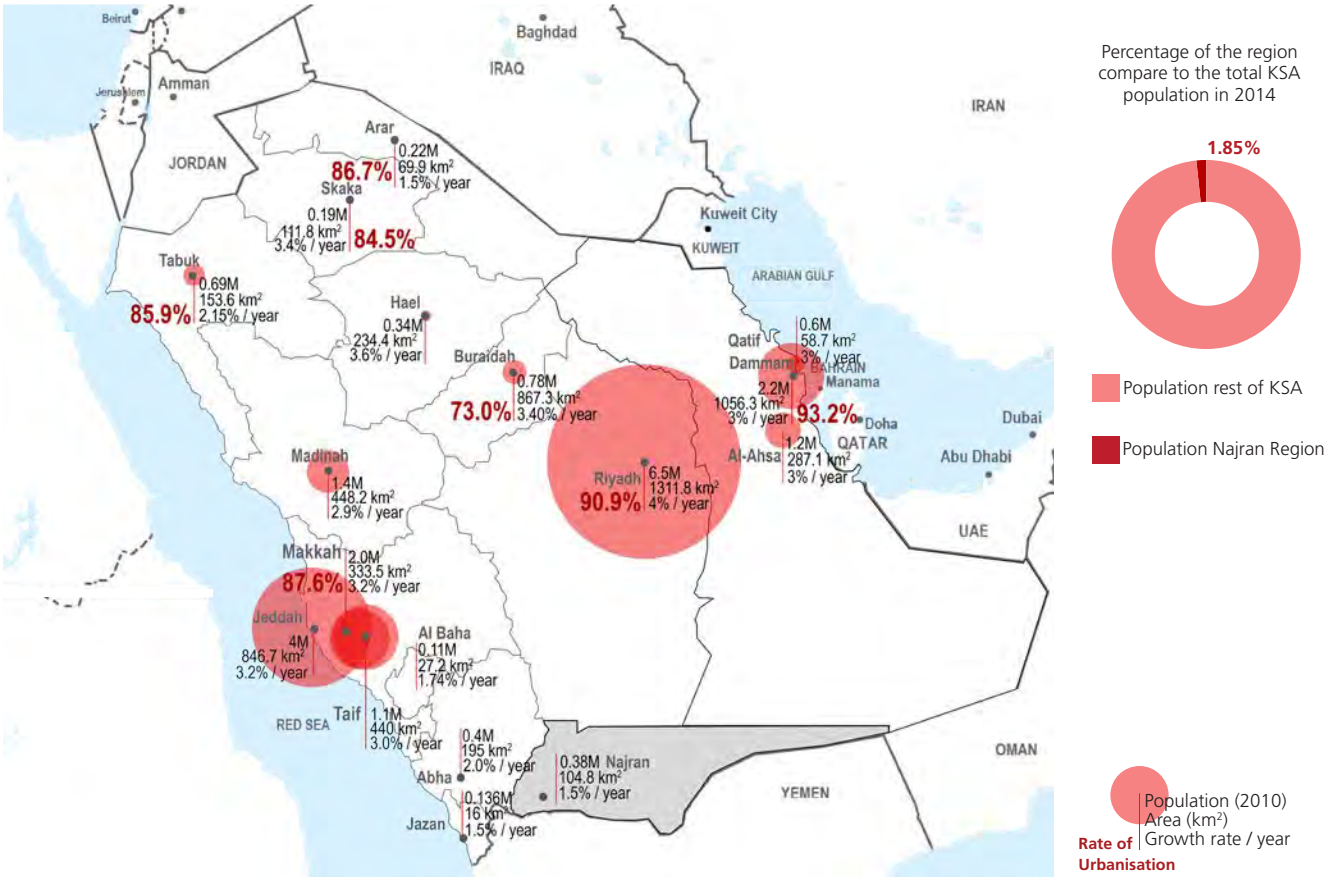

Fig. 1. Population distribution, growth rate and urban areas within the Kingdom of Saudi Arabia

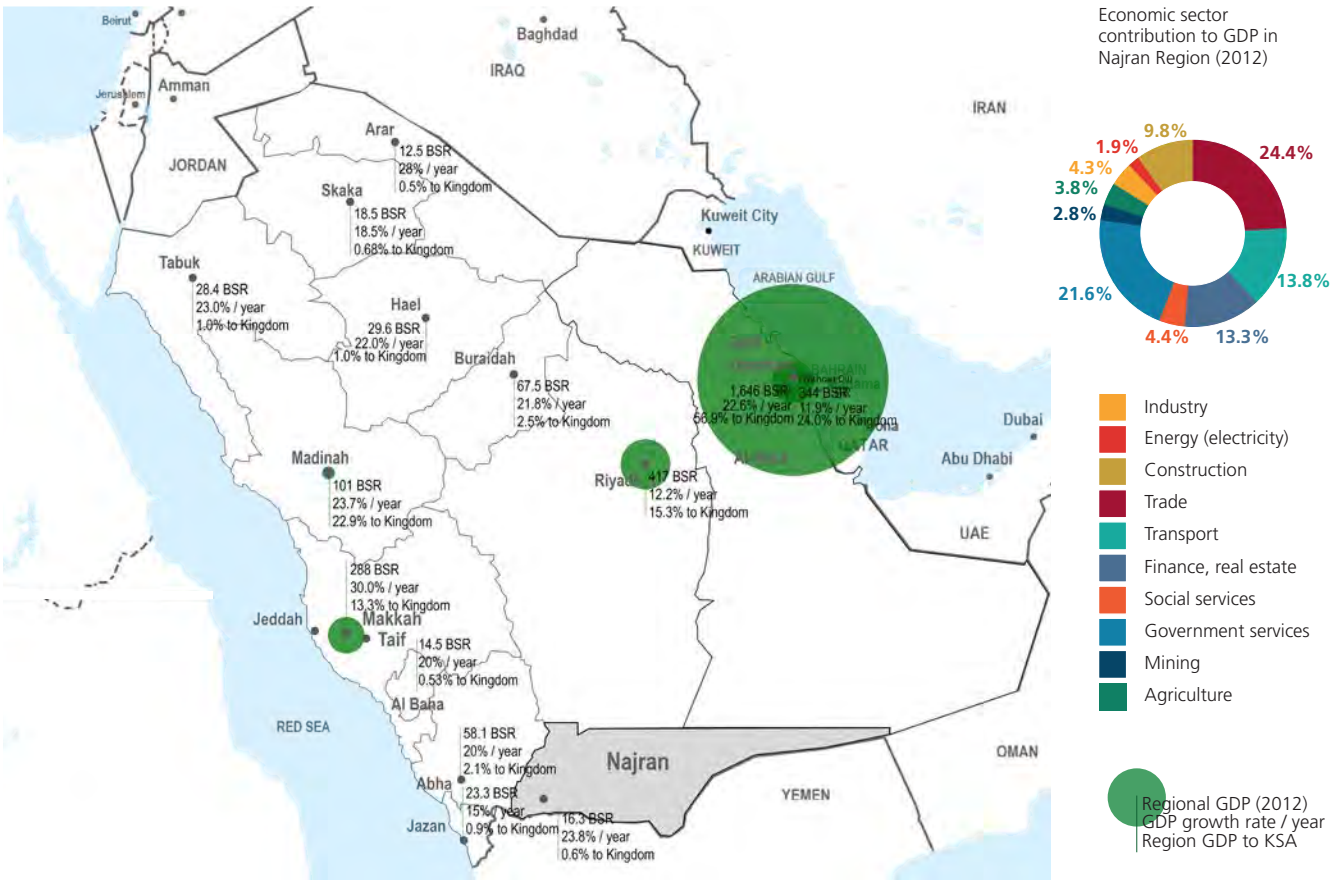

Fig. 2. Regional Gross Domestic Product and economic sector contribution

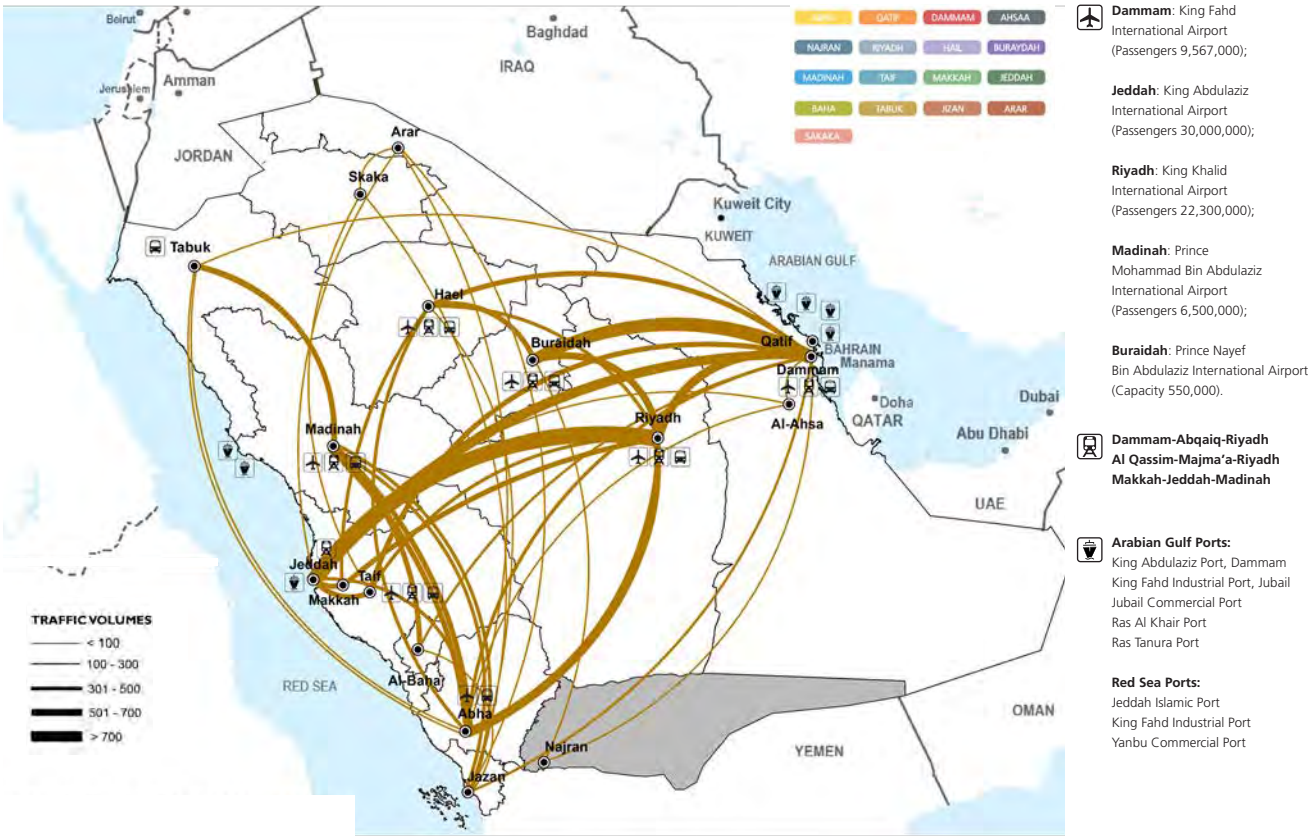

Fig. 3. Transport connectivity between Saudi cities

2.1.4 Socio-economic background

Historically, the region of Najran was best known as a focal point and stop-over on the Incense Route, which Najran prospered from during the first and second centuries B.C. All trade routes that left ancient Yemen to the North or West had to meet at Najran, where the routes branched into two directions; North through the Hijaz towards Egypt and the Levant, and Northeast towards Gerrha near the Arabian Gulf. This location played a key historic role in the development of the Southern portion of the Kingdom.

Despite efforts by all levels of the government to promote balanced regional-economic development in the nation, the apparent widening disparity in levels of economic development at both inter and intra-regional levels persists. The progression of polarised concentrations in population, employment and socio-economic activities in Saudi regions during the last forty years is also remarkable. The Government, however, understand that unless the polarisation trends in socio-economic opportunity on regional and intra-regional scales is rectified, and national development in the Saudi cities cannot be sustained.[2]

Najran's richness in minerals such as zinc and copper has been recognised as an important resource for future development. The Prince Mishaal has announced plans to construct a road linking Najran and Jazan at a cost of SR3 billion, in an effort to boost GDP and the socio-economic status of Najran.

In a parallel effort to fight unemployment in Najran, the region is opening lands to unemployed citizens to promote livelihoods in professionally managed agriculture. Unemployment has deemed these efforts necessary, as despite massive economic growth in region, output remains small and contribution to the national economy is measured at only 1.2%.

Gross Domestic Product

The Gross Domestic Product (GDP) of Najran Region amounted to 16.3 billion riyals in 2012, representing 0.6% of the Kingdom's GDP or 1.4% of Kingdom GDP, discounting crude oil and gas revenues. The average annual growth rate in the region's GDP was measured at 23.8% during the period from (2009-2012). Trade ranked first in regional GDP contribution at a proportion of 24.4%, followed by the transport, storage and communication sector at 13.8%, the real estate and financial services sector at 13.3%, the construction and building sector at 9.8%, the social and personal services sector at 4.4%, industry at 4.3% and the agriculture sector at 3.8%.

View of Najran Valley

Traditional mud house in Najran

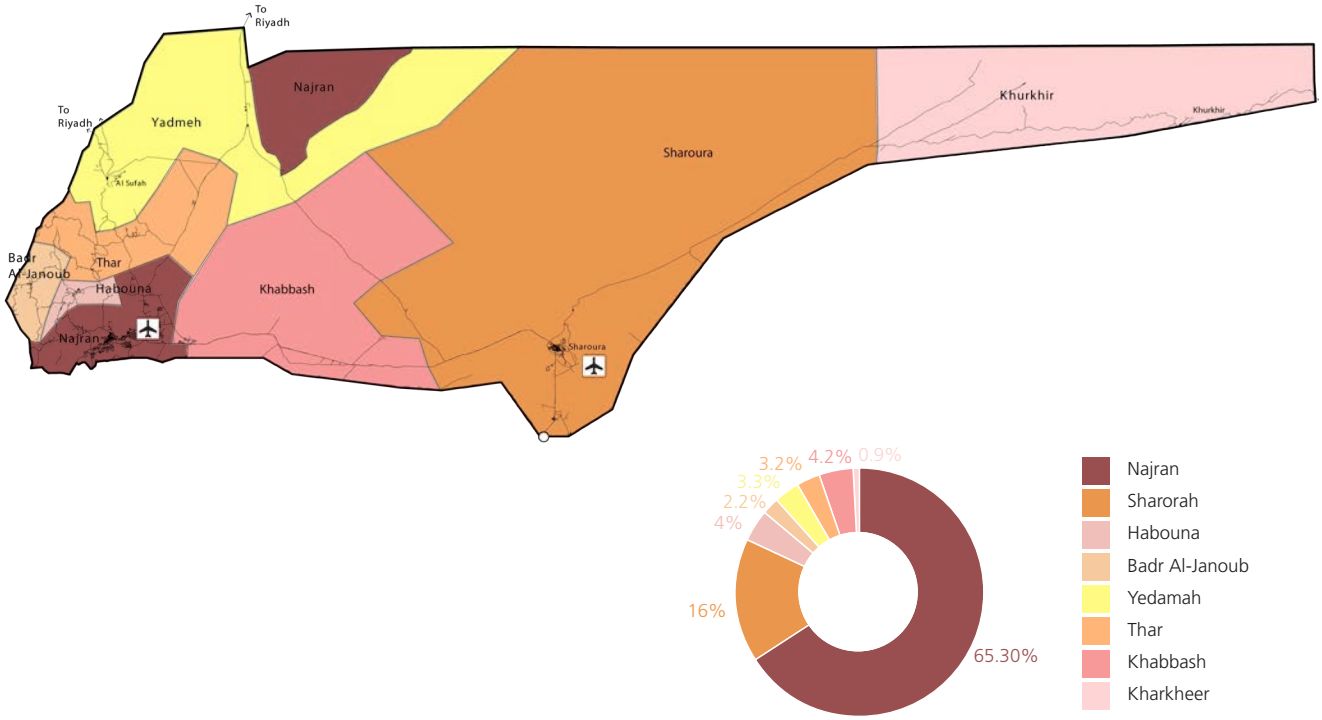

Fig. 4. Administrative boundaries

2.1.5 National connectivity

Road Network

The main regional trunk road, Highway 15 connects the Najran Region to the neighbouring Asir Region in the West via Khamis Mushait and Abha. It also functions as the main transnational trade route with Yemen, connecting via the border town of Al Wadidah. The region is also connected to Riyadh via a second, Northern orientated major road.

Air Transport

The Najran Region has two domestic airports: Najran and Sharorah. The two airports service passengers and goods transportation for the region and provide an inter-regional link to the rest of the Kingdom. The number of passengers using the two airports amounted to 574,000 and 646,000 in 2011 and 2012 respectively. This demonstrates a progressive increase of 13%, representing 1.71% and 1.68% of total passenger air traffic of passengers in the Kingdom, recorded at 33.6 million and 38.5 million in the same years. The quantities of goods transported through these airports amounted to 663,000 and 611,000 tons in 2011 and 2012 respectively, representing 0.14% and 0.11% of total air cargo in Saudi Arabia, recorded at 465,000 ton and 536,000 ton in the same years. Air traffic in Najran Region is a fundamentally important pillar on which the present and future economic development in the region can rely.

2.2 Regional Development Patterns and Dynamics

2.2.1 Regional organisation

Administrative Boundaries

Najran is situated in the Southwestern territory of the Kingdom and its capital is the city of Najran. It is bordered by the Riyadh Region in the North, the Eastern Region in the East; the Asir Region in West and the Republic of Yemen in the South, covering an area of 365,000 square kilometres. It is an important border region for the Kingdom, and is divided administratively into the Principality of Najran and seven governorates, namely: Najran, Sharorah, Habouna, Badr Al Janoub, Yadmeh, Thar, Khabbash, Kharkhir. The Regional Plan for Najran emphasises the need to form a link between the region's Southwestern side and the inter-regional sea port region of Jazan. Access to Jazan's sea port is intended to open Najran logistically to regional trade corridors.

Development Corridors

The regional plan for Najran identifies development corridors categorised by influential scope. The primary existing development corridor connects Najran on the to the Western side with Abha and Jazan. A second corridor extends to the Northeast, into the oil reserves of the Empty Quarters. There are also propositioned extension routes emanating from the main corridors to form connections with the smaller cities in the West.

Al Janabi Market

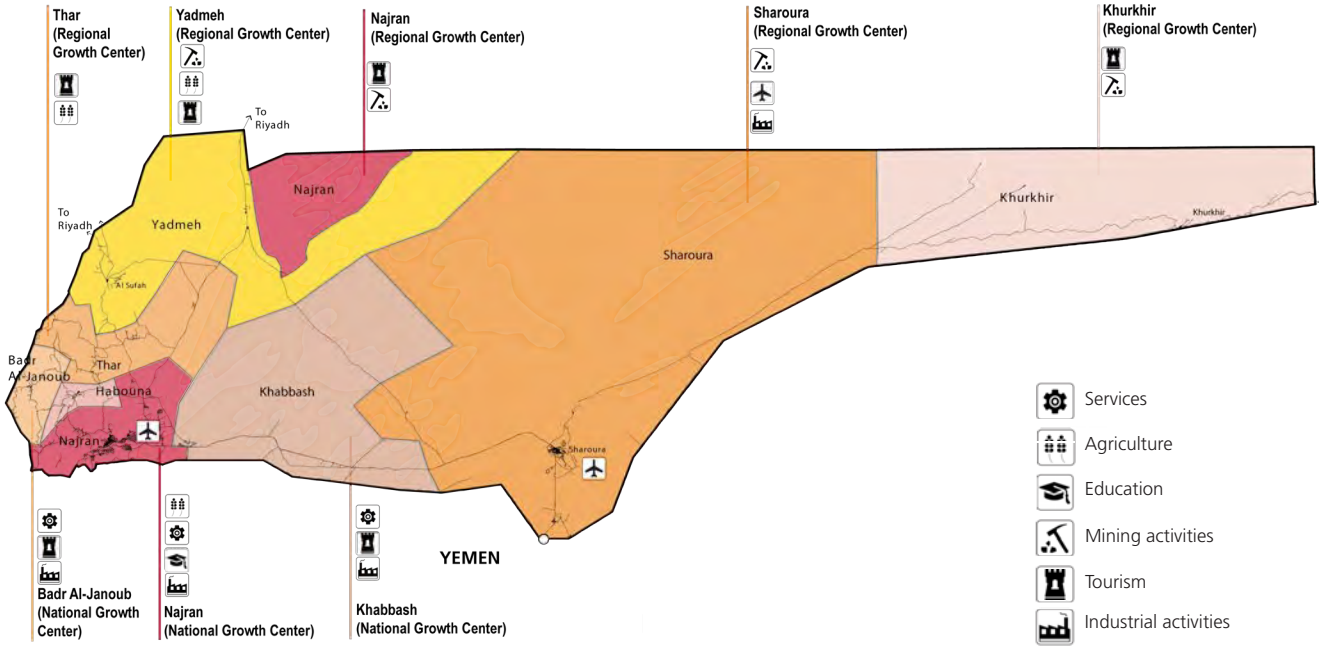

Fig. 5. Development sectors according to the Regional Plan for Najran Re

2.2.2 Regional structure and resources

Movement Infrastructure

This region is served well by a substantial network of paved and earth roads for both passenger and cargo/agricultural transit. The total length of municipally managed paved roads in the region is calculated at 1,483 linear kilometres, accounting for 1.6% of Kingdom - wide roads under the jurisdiction of the Ministry of Municipal and Rural Affairs. The lengths of expressways, two-way and one-way roads in the region managed by the Ministry of Transport is calculated at 617 kilometres, accounting for 3.9% of kingdom-wide roads under the jurisdiction of the Ministry of Transport, which recorded a total of 16,000 kilometres by the end of 2012. The total length of agricultural and earth roads in the region amounted to an estimated 4033 kilometres by the end of 2012. Currently, the region is undertaking new projects and expansions in its internal and inter-regional road networks.

Environmental and Topographic Elements

The climate in Najran varies across its topographies but in general, summer is hot on the plains and rainy in the mountains, and winter is moderate to cool across the region. Temperatures vary between 14° C and 37° C (57F – 98.6F) from winter to summer. Najran experiences an Easterly prevailing wind in the winter, East and Southeast winds in the spring and a Northeastern wind during the summer.

Depletion of underground water is an environmental concern as this resource is essential to the existing wells. The formation of fissures in the earth as a result of groundwater depletion has been reported in many places in North America, Europe, and Asia. In Saudi Arabia, this has been reported in the Najran Basin in the Kingdom's Southwestern territory, where groundwater extraction for agricultural activities has caused significant depletion.

An interdisciplinary study for evaluation of land use changes, hydrological, hydrogeological, and geophysical investigations was conducted to determine the reason for the formation of the earth fissures. The hydrological analysis revealed that groundwater levels have been markedly decreasing. This depletion will accumulate of subsurface stress, causing soil hydro-consolidation which creates the ideal condition for the formation of earth fissures.[3]

As in other areas of the Kingdom, the effects of climate change have been felt far and wide both in sea level rise and depletion of underground aquifers. Topographically, the region and the city of Najran are at risk of floods as valleys collect surface run-off from the highlands which act as catchment zones.

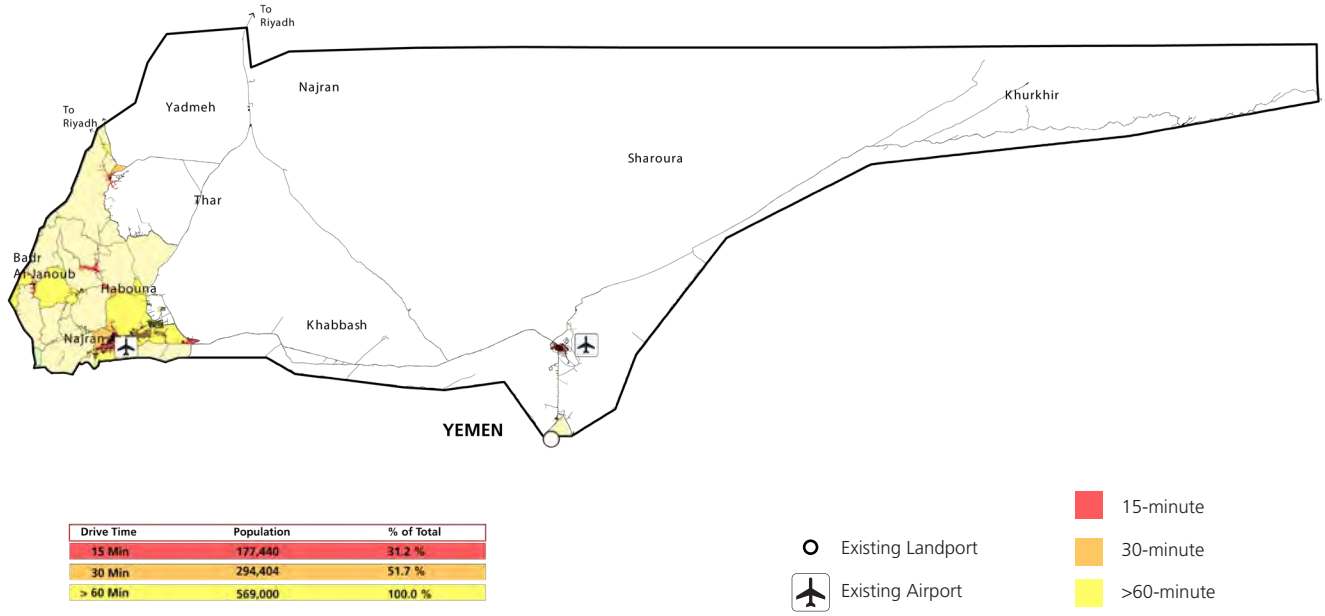

Fig. 6. Access and connectivity in the Najran Region

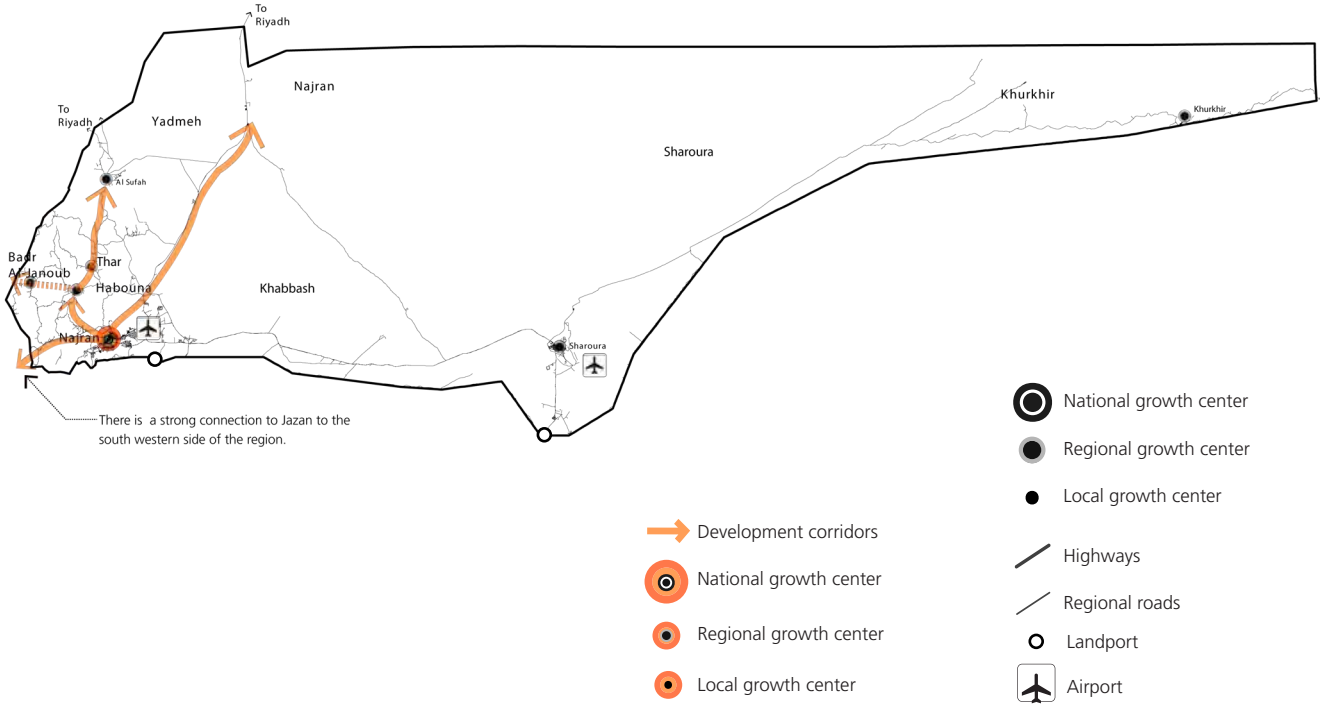

Fig. 7. Development corridors according to the Regional Plan for Najran Region

Studies have shown that flash floods in the cities have impacted water levels in the streets and roads, causing bridge collapse, building damage and traffic build-up. It is impossible to avoid risks of floods or prevent their occurrence, however it is plausible to reduce their impacts or the losses which they may cause.[4]

Economic Resources

Industry

The region of Najran is host to an industrial city that occupies a total area of 6.5 million square metres. The first phase of this city has been completed and work is under way in the development of the remaining phases. The number of existing productive plants is 27 representing 0.42% of the total number of factories in Saudi Arabia, which amounted to 6364 by the end of 2013 .

Total industrial investments in the region amounted to 2.75 billion riyals in the year 2013, representing 0.31% of total investments in the Kingdom, which amounted to about 873.2 billion riyals in the same period. The number of factory workers in Najran were recorded as approximately 2,800 representing an estimated 0.34% of the total industrial manpower in the Kingdom, which was calculated as 828,000 by the end of 2013.

Agriculture

Agriculture is one of the important economic sectors in Najran. The total crop area amounted to approximately 11,000 hectares in 2011, representing an estimated 1.4% of the total crops in the Kingdom, which was calculated at 788,000 hectares in the same year. It can be noted that there was an increase in the production of green fodder during the period between 2007 to 2011, to an annual average of 2.1%, while the annual growth rate of wheat, vegetables and fruit production decreased by 2.7%, 0.6% and 2.6% each year, respectively. Livestock numbers of camels, sheep and goats also decreased by 5%, 11%, and 15% respectively in the same period. The number of cattle and poultry in the region increased by 7.7% and 49% annually, which are considered good rates.

The Najran Region produces 50,000 tonnes of citrus fruit a year, a figure that is rising and making an ever-growing contribution to the national demand for citrus. Consumption is currently approximately 700,000 tonnes a year, 20,000 tonnes t of which is imported. As 250,000 inhabitants work in the agricultural sector, most families have benefited from the boom, enjoying an improved standard of living that includes more schools and public institutions. Najran is therefore identified with citrus fruit, nicknamed the "Desert Orange".[5]

Mining and Quarrying

The mining and quarrying sectors in the Najran Region are important and promising activities which fully support the raw material needs of local construction and industrial activity. Almosane mine, operated by the Almosane Alkubra Mining Company, has become one of the largest and most important copper, zinc and lead ore site in the Kingdom. Important quarrying revenues are also produced in the extraction of granite rock, which is commonly used as ornament stone in construction finishings. Key natural resources and their sites in the region include: copper, zinc and allied metals in Almosane, limestone and medical sandstone in Arouq Almendafin, lastly Granite in Bi'r Askar, Alnajof, Waleh Mountain, Tea'lebiya Valley, Alhamra, and East of Ala'reen.[6]

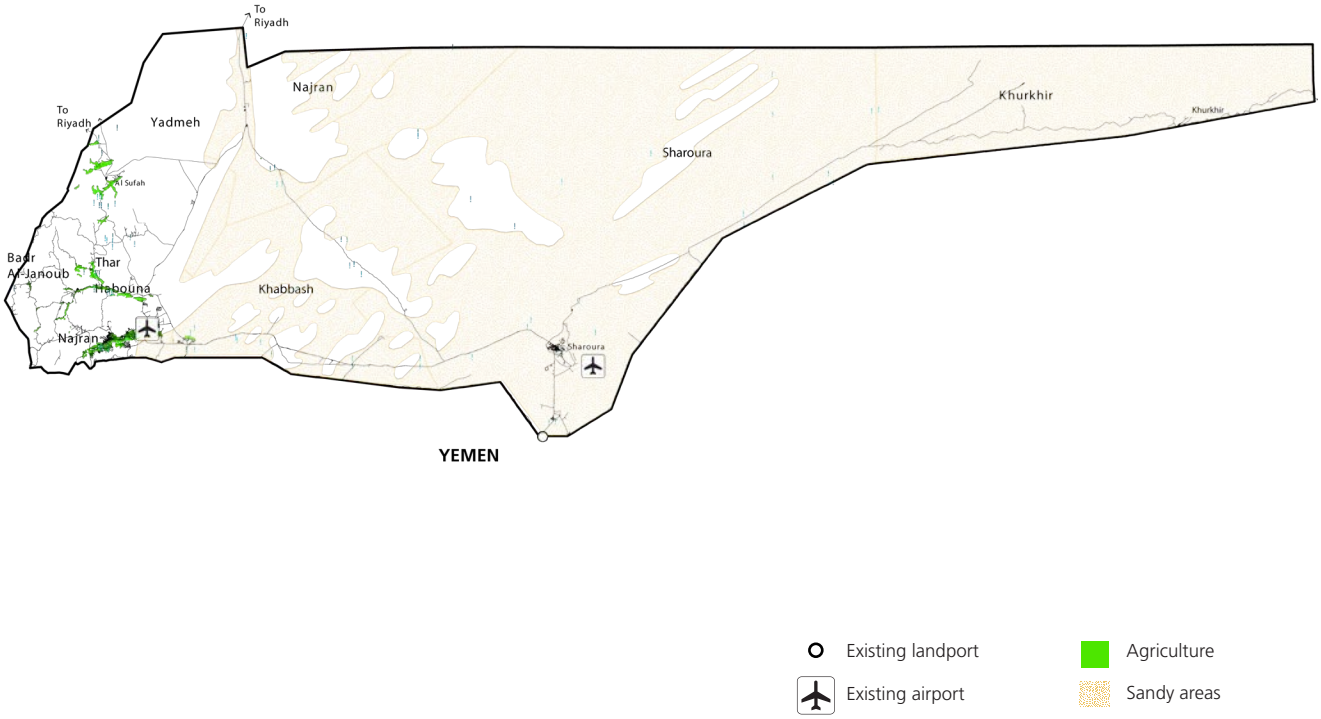

Fig. 8. Natural resources

Fig. 9. Functional connectivity

GOVERNANCE AND FINANCIAL FRAMEWORKS

3

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3.1 Legal and Institutional Context

The legal planning legal framework of Najran 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. The non-centralised law-making process has given rise to over 500 urban planning related instruments. However, the majority of these are promulgated at the lowest administrative level (Circulars)[7] and therefore lack authoritative legal force.

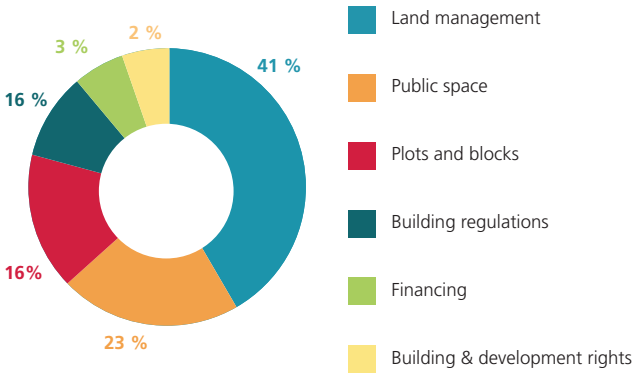

Fig. 10. Number of urban laws in KSA based on the Main Themes of Urban Planning Legislation (UN-Habitat)

The Ministry of Municipal and Rural Affairs (MoMRA) is legally entrusted with the task of urban planning and provision of all construction permits in the Kingdom's cities. MoMRA therefore plays a significant role in Najran's growth and development patterns. The Municipality of Najran Region (Amanah), as the local level actor for Najran, acts solely as an implementing arm for MoMRA. The institutional budgetary system is also centralised, meaning that Najran's development intervention is reliant on funding allocation from MoMRA, through the sole fiscal resource of an annual line item budgeting.

The Kingdom's planning system that Najran is subject to, follows a spatial hierarchy and is predominantly top-down. The National Spatial Strategy (NSS) of 2001 is the guiding plan for the Kingdom and the Comprehensive Rural Development Strategy which, as part of the NSS, guides the development of rural areas. The Najran Regional Plan, which was prepared in 2006, but not approved, highlights the role of Najran, as the capital and economic engine of the Region. The Sub-regional Plans for the governorates of Najran Region provide a planning framework for their spatial development. The Najran Local Plan, prepared in 2014, identifies land uses, roads and infrastructure networks within the metropolitan area. The three phases of the Urban Growth Boundary (2014, 2019 and 2030) aim to prevent urban sprawl in the outskirts of cities without adequate provision of accompanying infrastructure while the Land Subdivision Plans constitute the basic building blocks that guide Najran's development.

The NSS is the only plan that is enshrined in law. The remaining planning instruments are defined by procedural manuals (issued by MoMRA) which compromises their legitimacy. By nature, these instruments cannot construct a system of legal accountability and transparency among the relevant actors.

Najran 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, though their implementation will require coordination with all spheres of government and participation from civil society, the public sector and other relevant stakeholders.
- Re-defining the roles of both the administrative leadership (represented by the Emirate) and the technical leadership (the Amanah) which will improve the quality and timely delivery of urban projects.
- 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.

Consolidation of the legal planning instruments would also support development intervention in Najran and lend legitimacy. These laws additionally require review, with the aim of updating and modernization in order to bring them in line with the current development paradigm. This should also entail adjustment to the lawmaking process to limit the number of actors. The mere existence of the laws in KSA will not guarantee sustainable urban development as they must also be functionally effective. They should be 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:

Al Hamra Palace in Najran

- Is sensitive to participatory city-wide upgrading, particularly to manage the 30% unplanned districts which are mostly located in Al-Shorfah;
- Outlines a system of titling that clarify approaches to land tenure and land use classification, with particular reference to farmlands;
- Streamlines the conversion of agricultural land based on legitimate demand for urban land uses;
- 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;
- Increases meaningful public participation and engagement in planning

The legal framework also needs to enshrine an acceptable mode of public participation in decision making to foster equality and inclusion. The consolidation of the urban legislation would also lend legitimacy to the plans that Najran relies upon. Najran urgently requires a regional plan to guide balanced regional development as well as a structural plan that defines land uses, road networks and applicable zoning standards to generate a robust urban design.

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 densely populated future. Primarily, a post-legislative scrutiny of the urban growth boundary law should be undertaken to assess whether it has met its policy objectives. This could, in turn, inform the legal reform process and planning policy options.

3.2 Planning Instruments and Procedures

3.2.1 Hierarchy of plans

The planning system of Najran is derived from the de facto planning hierarchy of the Kingdom. Within this framework, there are four different levels of spatial plans: national, regional, local and district. Figure 11 highlights the planning instruments in force in Najran.

3.2.2 National Spatial Strategy

The National Spatial Strategy (NSS) of 2001 is the guiding plan for the Kingdom. However, the National Spatial Strategy has only been partially implemented in Najran. The Comprehensive Rural Development Strategy, which is part of the NSS and guides rural areas in the Kingdom, has not been effective in Najran, most notably with regard to the provision of services in the villages.[8]

3.2.3 Najran Regional Plan

Regional planning represents the second-tier of spatial planning in KSA which aims to address the natural, urban, social and economic regional development aspects. The Najran Regional Plan of 2006 was prepared by the Regional Council but it has not been approved. The Plan aims to:

- Take advantage of the region's strategic location, with particular reference to tourism;
- Enhance the contribution of the region's non-petroleum resources in national development to achieve balanced growth;
- Expand industrial projects particularly those that are non-dependent on the region's petroleum resources;
- Enhance the participation of the private sector in the provision of education and training across the region;
- Address the developmental concentration on the coastal strip to achieve a balanced urban development in the region; and
- Support a balanced pattern of cities in the region that confirms the hierarchy of functions and population sizes.

3.2.4 Sub-regional Plan for Najran

The Najran Sub-regional Plan was prepared by the Amanah in 2006, however, it was not approved. This plan, in line with the NSS, highlights objectives for the city. This Plan identifies strategic land uses and infrastructure networks within the metropolitan area of the 2030/1450H Urban Growth Boundary (UGB). However, it does not promote a clear mixed land use strategy, instead encouraging a monofunctional typologies. Mixed land uses (Commercial - Residential) are proposed solely along the major corridors.

3.2.5 The Najran Plan

Structural Plan of Najran

The Structural Plan for Najran was prepared in 2006 by the Amanah though is yet to be sanctioned by MoMRA. The functions of this plan have been assumed by the Urban Growth Boundary but it is not considered effective as, unlike a spatial plan, it does not address land use, road networks or zoning regulations.[9]

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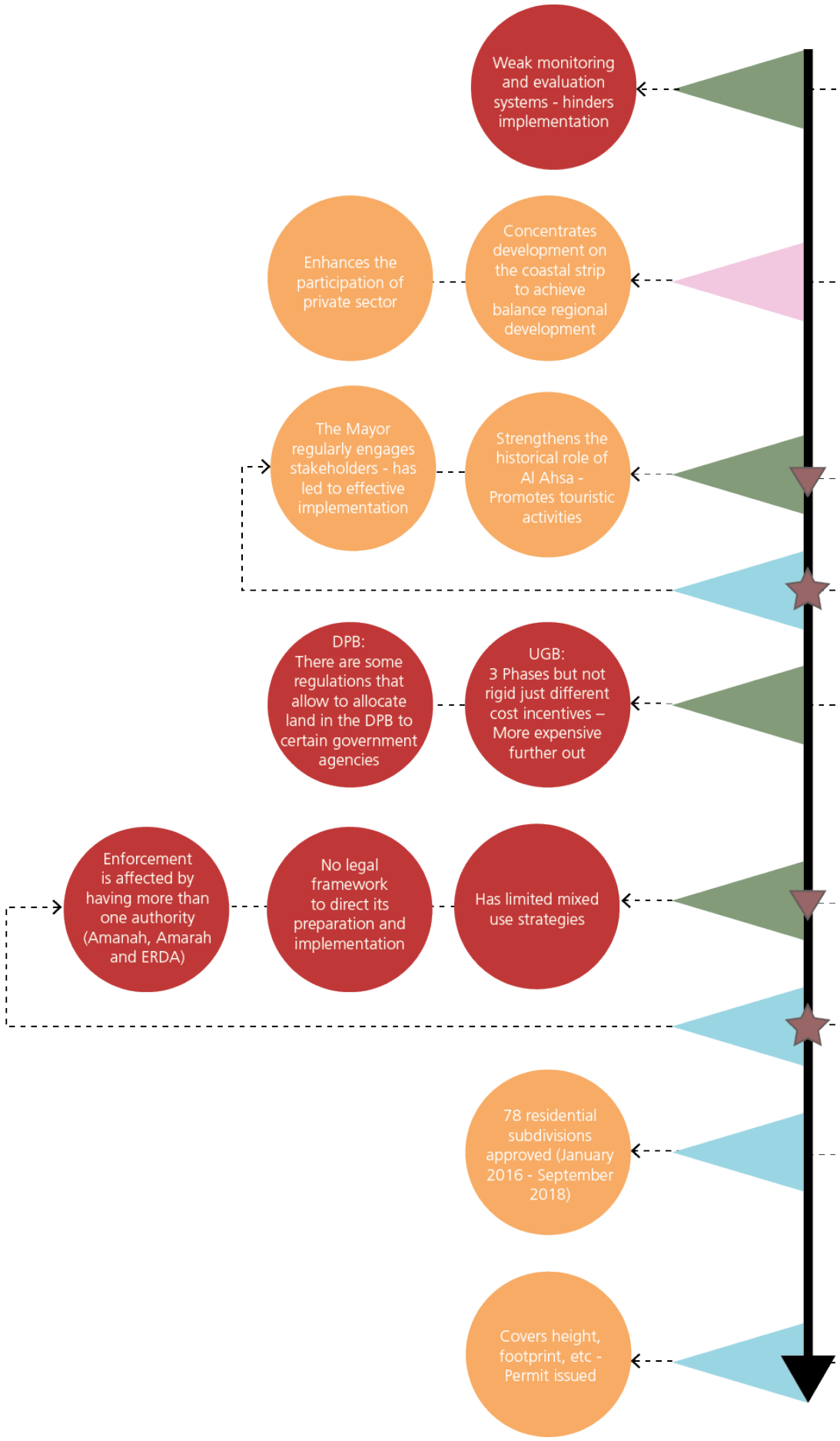


Fig. 11. FSCP simplified representation of hierarchy of plans and the planning instruments for the city of Najran


NATIONAL SPATIAL STRATEGY (2001)
REGIONAL PLAN FOR EASTERN REGION (2005)
SUB-REGIONAL PLAN (2016)
UGB + DPB (2007)
LOCAL PLAN (2018)
LAND SUB-DIVISION PLAN(S)
BUILDING PERMIT
MOMRA
REGIONAL COUNCIL
AMANAH
DECISION
APPROVAL
CHALLENGE
TERMS & CONDITIONS
APPROVED
NOT APPROVED

Local Plan

The Najran Local Plan, which was prepared in 2014 in coordination with MoMRA, is also yet to be approved.[10] The Local Plan represents the third level of the urban planning system in KSA and is largely focused on those areas of a municipality that are contained within the urban growth boundary, with a special focus on housing. The Local Plan contains the Urban Atlas which details the allowed land uses for every part of the city. It is complemented by a regulatory report which contains specifications on permissible development rights such as floor area ratio, street dynamics, building heights, areas of special building regulations, etc.

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

The local plan is prepared by various consultants following the "Booklet of the Terms of Reference for the Preparation of the Local Plan" which is formulated by MoMRA. This Booklet was updated in 2015, with a new requirement that the lifespan of such 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 clearly lies with the Municipalities (under MoMRA), there are jurisdictional overlaps with the Mohafezat (governorates – sub-regional) and Markaz (districts), which fall under the Ministry of Interior. More precisely, the Ministry of Interior remains the oversight body for regional project implementation[11] with MoMRA designated as the central spatial planning institution. However, there lacks a clear mechanism for coordination. This can lead to a decision-making impasse and negatively impact the delivery of technical standards once the Local Plan is operational.

3.2.6 Action Area Plans

According to the Amanah of Najran, Najran has three action area plans which were prepared by the Amanah and approved by MoMRA in 2015. They cover: a) Historic Areas; b) the City Centre; and c) Few Residential Districts.

3.2.7 Najran Urban Growth and Development Protection Boundaries

Legal Framework

In 2008, the Prime Minister issued decree No. 157, which sets the overall regulations of the urban boundary (until 2030) and the Development Protection Boundary. The executive regulations were issued in 2010 by 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 intended to control urban expansion and prevent sprawl in the outskirts of cities without adequate accompanying infrastructure, whereas the development protection boundary sets a long-term plan for future development, preserving land for growth 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 permitted only with the approval of MoMRA; and
- Large-scale development projects should follow detailed standards.

The Law also defines infrastructural standards that developers are to follow based on the size of the proposed lot and the city's categorisation as either a national, regional or local centre (see figure 12). Legally, the area between the Development Protection Boundary and the 1450 (2030) Urban Growth Boundary is protected and not earmarked for development, however, the law does outline exceptional mechanisms for building mega or national-regional economic projects therein. Moreover, given the law, certain agencies have rights to lands situated in protected areas between the two boundaries. Approval of development projects in such cases is routinely controlled by set of regulations in this regard. Additionally, given the legal flexibility surrounding the definition of "mega" or "strategic" projects, private residential developments have been approved outside the 2030 urban growth boundary. These factors have undermined the functional effectiveness of the regulations, the rule of law, and the compact development of urban areas.

Setting the Boundary

The urban growth boundary for Najran, was set as standard practice established in other cities, by MoMRA, through a Committee under the Unit of Coordination and Projects. The composition of the committee is not clear, however, it is known that it did not involve the municipality of Najran Region, which remains formally responsible for planning at the city level. There is an understanding that the calculations were based on factors such as historical and expected population and built growth in the city, however, there are no published criterion explaining the methodological calculation of the boundary size.

Challenges

The growth boundary does not address significant development aspects such as land use, road networks or building regulations. In addition, it is calculated here to be

Colourful baskets in Najran Souq

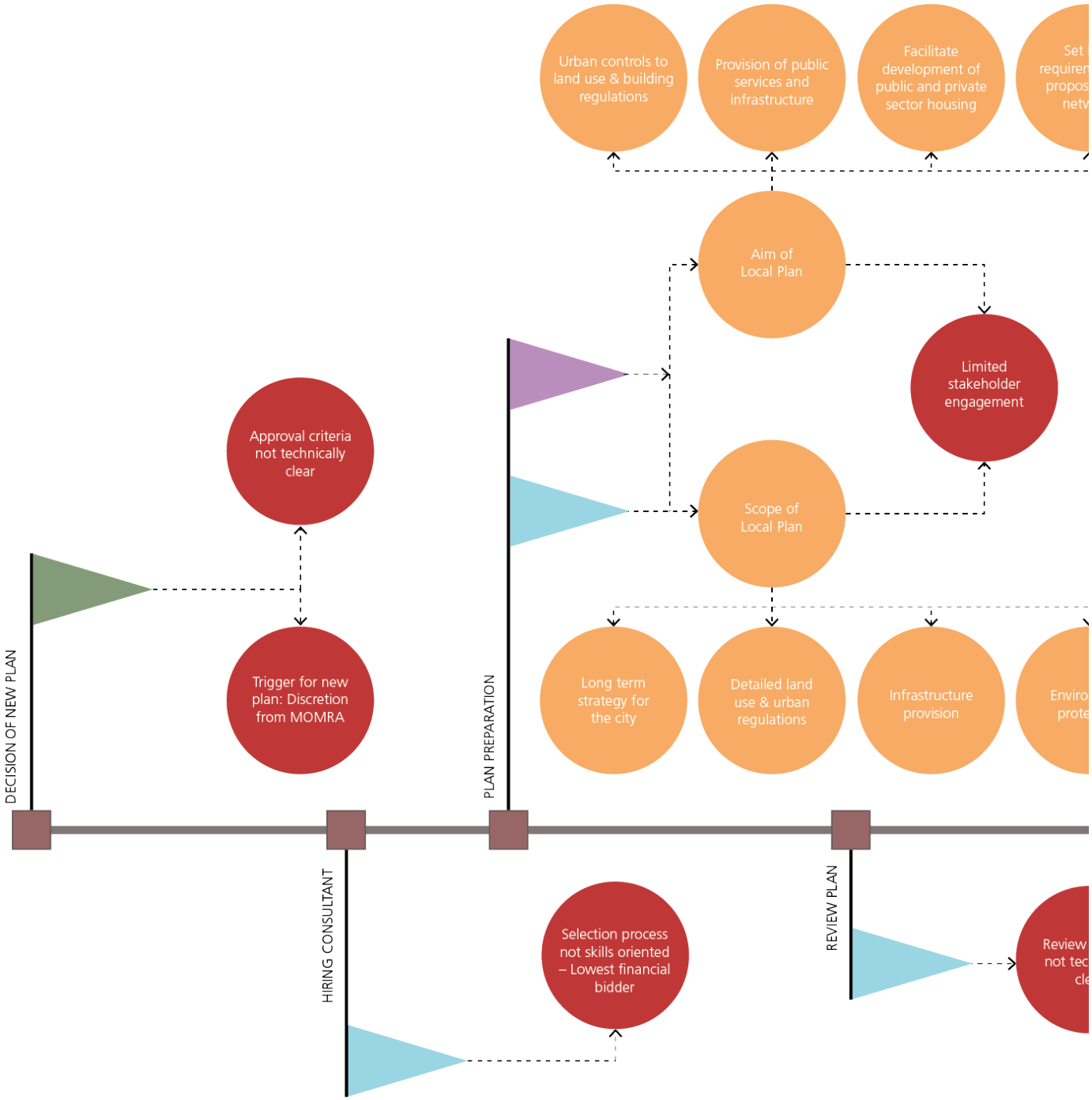
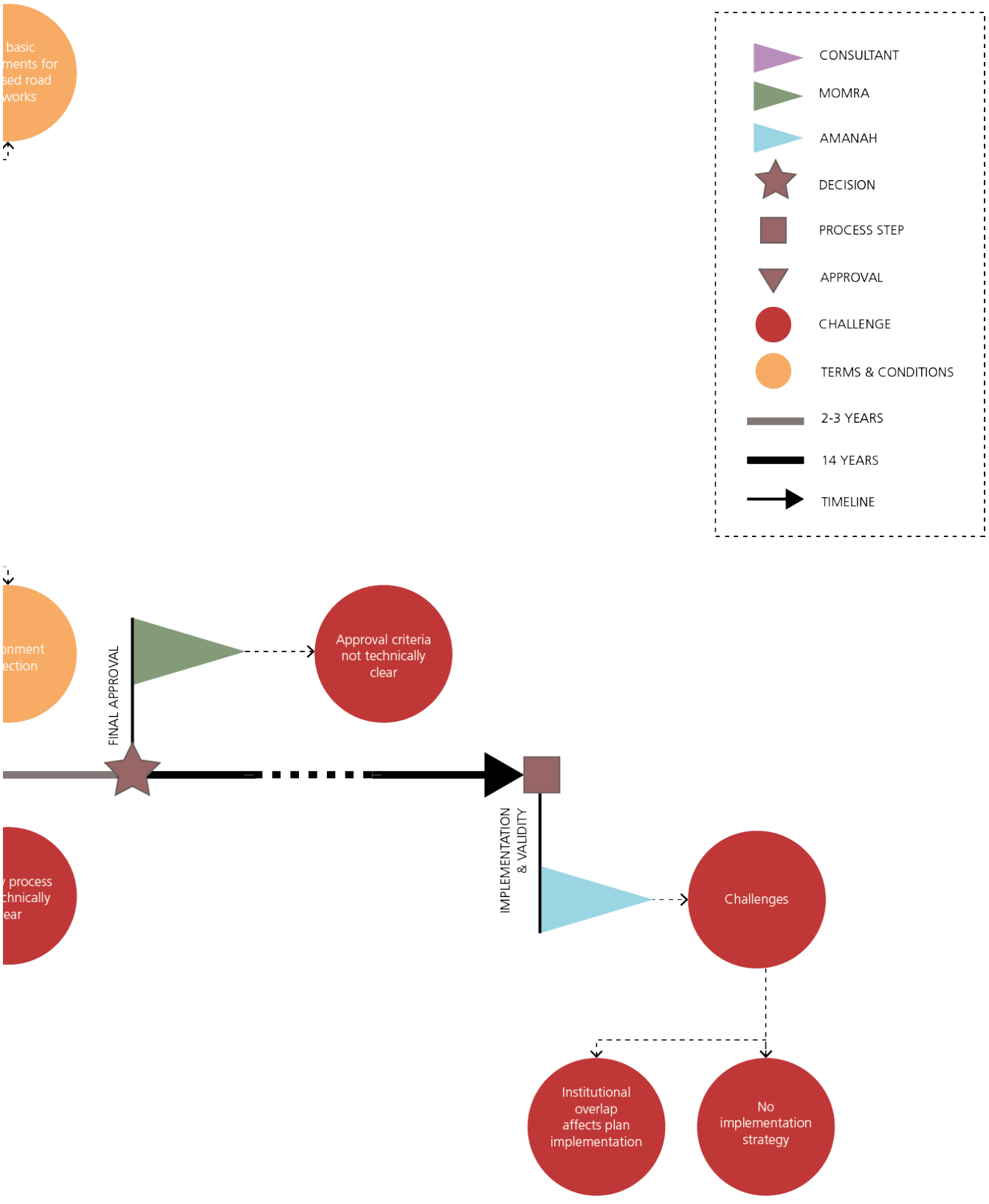


Fig. 12. FSCP simplified representation of Planning Process and Actors involved in the preparation of the Najran Local Plan


basic
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works
CONSULTANT
MOMRA
AMANAH
DECISION
PROCESS STEP
APPROVAL
CHALLENGE
TERMS & CONDITIONS
2-3 YEARS
14 YEARS
TIMELINE
onment
ection
FINAL APPROVAL
Approval criteria not technically clear
process
chnically
ear
IMPLEMENTATION & VALIDITY
Challenges
Institutional overlap affects plan implementation
No implementation strategy

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

1ST PHASE (2014-2018)	2ND PHASE (2019-2024)	3RD PHASE (2025-2030)
NATIONAL GROWTH CENTRES (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. 13. Development options within the phases of the urban boundary in the National Growth Centres >500,000 sqm

oversized after expansion to mitigate the spatial deficit created by mountainous areas. This is of concern as an oversized boundary undermines sustainable urban development.

Permitting

Development within the urban growth boundary is regulated by permitting and development control. The process is as follows:

- A developer submits a land subdivision plan with a detailed overview of implementation for the instalment of the requisite infrastructure to the Amanah (Najran Region);
- The Amanah assesses the application in accordance with the provisions of the Urban Growth Boundary, with exception of those cases defined by MoMRA Ministerial Decree No 17,777. This decree delegates certain roles to mayors for land subdivision approval, solely in relation to the size of residential projects. The Mayor of Najran Region is an approval authority under this Law;
- The application is sent to MoMRA for review in accordance with development standards and applicable building codes;
- Building permit is 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 for them to re-study the application; and b) file the case in the relevant jurisdictional administrative court; and

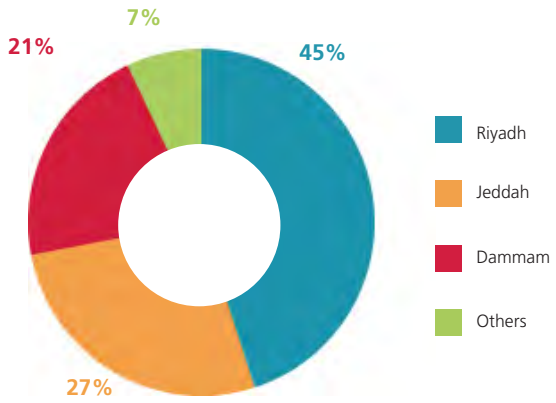


Fig. 14. Percentage of White Lands – First phase of implementation of the White Lands Law

- The decision in the above appeal processes is final and binding on all the parties.

White Lands Act – Najran

Undeveloped land ("white lands") in the Eastern area of Najran account for 20% of total land available to urbanisation. The existence of white lands has been a major contributor to a growing housing shortage, particularly for youth and the growing population. This is largely attributed to property hoarding, intended to maximise land value before development. The government recently issued the White Lands Tax Law[12] 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 aim of this Law is to: a) increase the supply of developable land to better address housing shortages; b) make residential land available at reasonable prices; and c) combat monopolistic practices. The Ministry of Housing,[13] as the implementing authority, will enforce the Law in phases. At the moment, the Act is operational only in Makkah, Riyadh, Dammam and Jeddah (see figure 14).

3.2.8 Land Subdivision Plans

The land subdivision plans are the basic building blocks for KSA cities' growth and development. The Mayor of the Najran Region has the power to approve land subdivision in accordance with the following criteria (Ministerial Decree No. 17,777 of 2010):

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

From 2015-2018, the Amanah has approved 454 residential land subdivisions but in some instances, it has been reported that the percentage allocated for facilities and services is less than the requisite 33%.[14] Moreover, owing to rapid urban growth, most agricultural land has been converted to residential.[15]

3.3 The Institutional Context

3.3.1 Urban institutions in KSA

Najran's growth and development pattern is impacted by the centralised institutional planning framework of 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, in addition to the management of licensing for all types of construction activity.[16] The Deputy Ministry of Town Planning, which falls under MoMRA and its departments such

Al Hamra Palace in Najran

as Local Planning, Studies and 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, which affects service delivery and project implementation. The quality of urban projects is also negatively affected through the practice of selecting the lowest financial bids adopted by the Ministry of Finance.[18] In addition, there is limited vertical coordination between the Amanah and the Ministry of Agriculture, which impedes the speed of project delivery and implementation.

3.3.2 Regional context: Najran Region

According to the Ministry of Interior's administrative classification, the Najran Region is divided into seven governorates, 25 class A centres and 34 class B centres. Najran City, as the regional capital, is not included in this classification but is instead governed as a "municipality" (Amanah) headed by a Mayor. Given this structure, the Amanah is allocated funds by MoMRA for development action and municipal services through annual line item budgeting.[19] This is the sole fiscal resource available to Najran.[20]

There are additional institutions in the Najran Region that manage and regulate the development process. The Amarah of the Region is headed by the Regional Prince who, pursuant to the Regional Law,[21] reports to the Ministry of Interior. The same law mandates the Amarah to oversee all authorities and institutions operating within the Najran Region. This supervisory role is designed to support citizen welfare and mediate disputes arising between two or more government agencies.

The Regional Council[22] 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 selected for funding. Funding is provided as part of the National Development Plans and yearly budget for the country which is the sole resource 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 necessary coordination.

Executive powers remain vested only in MoMRA, the Regional Prince and the Regional Council. Without these, the Municipal Council lacks the capacity to follow up on recommendations with relevant authorities. The Municipal Council, also located in the Amanah, supervises the activities of the Amanah and municipalities to ensure conformity to the Local Plan in concurrence with the current needs of the region. Two thirds of the council's members are elected by citizen vote, the remainder appointed by the Minister of Interior. The council oversees:

- The municipal budget allocated by the national government. This is subject to continual revision in accordance with priorities set jointly by the Council and the Mayor;
- Checking residential plans for any procedural violation;
- The scope of municipal services; and
- Expropriation projects based on the priorities of the Mayor.

The Municipal Council of Najran has been considered weak in influencing urban planning processes.[24]

3.3.3 Local context: Najran

The Najran Region is composed of several cities including Najran, which is the capital and the largest city in the region. As outlined above, the city is managed by the Amanah which is directed by a mayor. The mayor is appointed by the Minister of MoMRA and the executive members of the Amanah are appointed by the Civil Service Bureau, based on their professional qualifications.

The Amanah of Najran consists of 4 Deputies: a) the Deputy of Projects; b) Deputy of Services; c) Deputy of Urban Development; and d) Deputy of Municipal Affairs. However, it is difficult to ascertain the specific role and functions of these deputies and their relationships with other authorities as their internal structure is changeable, which dramatically reduces technical accountability.

The Urban Planning Department, which falls under the Deputy of Urban Development, is assigned the local plan-making process. It has six professional staff.[25] However, implementation is hampered by poor coordination between MoMRA and this department.

The Amanah established a Local Urban Observatory in 2011, which is monitored by the National Urban Observatory[26] (MoMRA Ministerial Decree No. 1280 of 2007). This observatory supports the Municipality with triennial progress measures of:

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

The Local Planning Department under MoMRA is responsible for the implementation of initiatives related to the National Transformation Programme: a) the preparation of the Local Plan; b) technical support to the drafting process of the Planning Act; and c) undertaking studies on roads and parking spaces.

View from Al Hamra Palace in Najran

3.3.4 Legal and Institutional Implications for Najran

Most technical decisions and approvals passed in the local governance (Amanah), including planning decisions, are made on a discretionary basis according to the priorities set for the city. This affects the system's technical accountability, predictability and practical clarity. Coherence cannot improve until measures are taken to instil legal mechanisms that harmonise and guide the planning system.

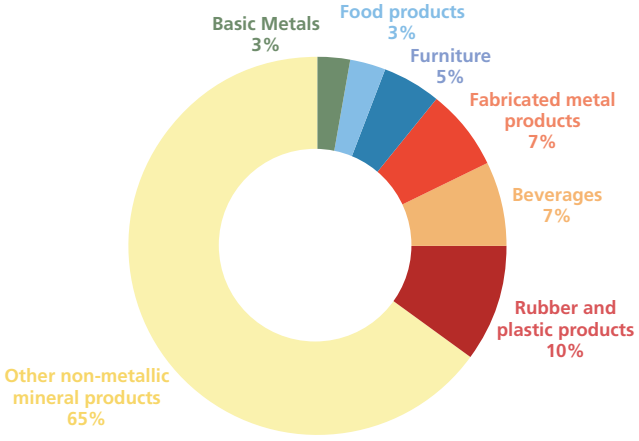
3.4 The Financial Context

The Region of Najran has a strategic location close to the Yemeni border. Its capital, Najran, is both an administrative and an economic centre containing the majority of revenue generating industries, including a considerable amount of agricultural production (vegetables, oranges, and dates).

Public administration and defence, wholesale and retail trade and education constitute the main economic sectors and employ a majority share of the region's workforce.

The government is working to identify strategic economic sectors that can foster local economic development, job creation, and innovation in Najran. Economic diversification of the Southern Regions is key to achieving both the local and the national economic goals of the 2030 Vision.[27]

Consequently, the development and enhancement of infrastructure (i.e. water treatment, airport, and transportation) and facilities serving Najran's key economic sectors (e.g. industry, agriculture, tourism) is of priority to the government. These elements are fundamental to increase local entrepreneurship, spur competition and harness the productive capacity of Najran in order to heighten its contribution to the province and national economy (see figure 15).[28]



Source: General Organisation for social Insurance (GOSI) ,2018.

Fig. 15. Factories per industrial activity in 2018

Najran's current economy is heavily focused in the public sector and traditional labour-intensive sectors, the government is working to foster development and innovation and is identifying economic leverages focusing on agriculture, logistics, manufacturing, and tourism. Part of the government's strategy to reach 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. The government aims to foster growth in human capital with strengthened market conditions that support research and result in innovation and economic diversification.[29]

3.4.1 Financial system

Sustainable urban and local economic development requires a sound and resilient municipal finance management system. Currently, the National Development Plan directs Najran's public finance system. This system is highly centralised and depends on intergovernmental transfers 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 18 and figure 19).

MoMRA, via the Amanahs,[30] 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 local level (e.g. the Ministry of Education provides direct funding for city schools).

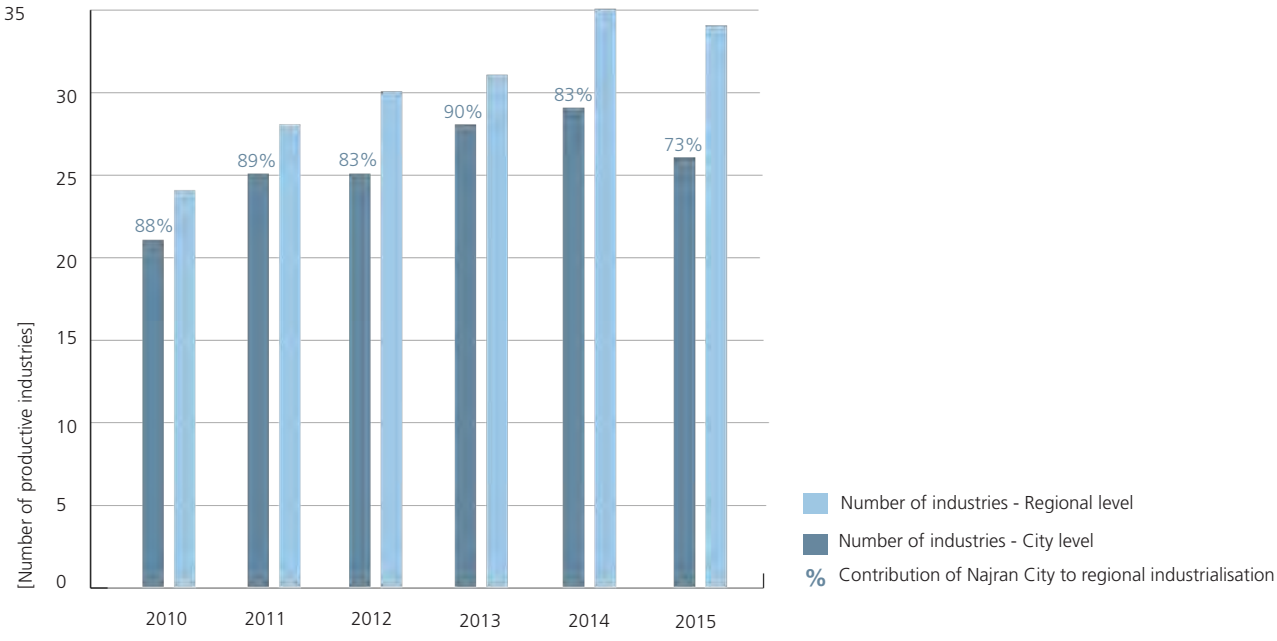
3.4.2 Municipal revenue

Currently, Amanahs have few sources of revenue and limited authority to collect fees. Although MoMRA introduced municipal fees, which expanded their own-source revenue base, local revenues remain insufficient. Consequently, Amanahs continue to rely 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 influenced by the Amanah and the municipality's 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 approved are included in the MoF's budget review and submitted for approval to receive funding.

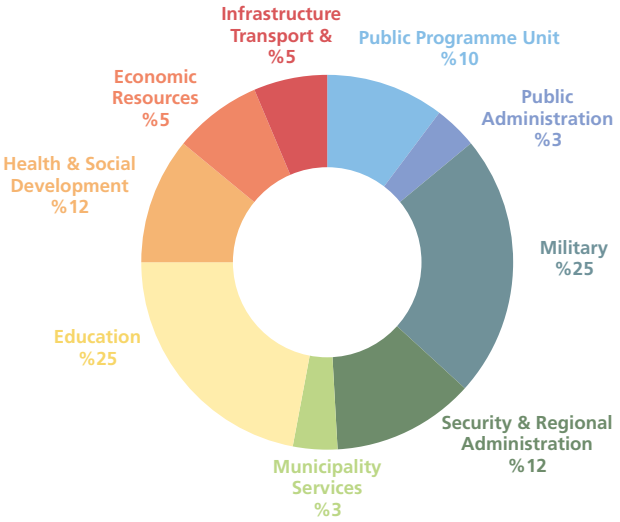
Source: General Authority for Statistics (2015).

Fig. 16. Distribution of jobs created in Najran Region by economic activity, 2016



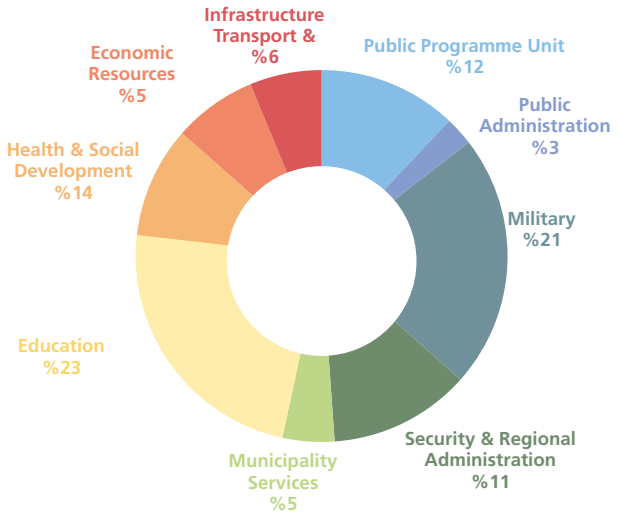
Source: Saudi Industrial Development Fund (2016).

Fig. 17. Productive industries in Najran Region and Najran City , 2010-2015



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

Fig. 18. Saudi Arabia national expenditure by sector, 2016



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

Fig. 19. Saudi Arabia national expenditure by sector, 2017

3.4.3 Financing municipal operating costs

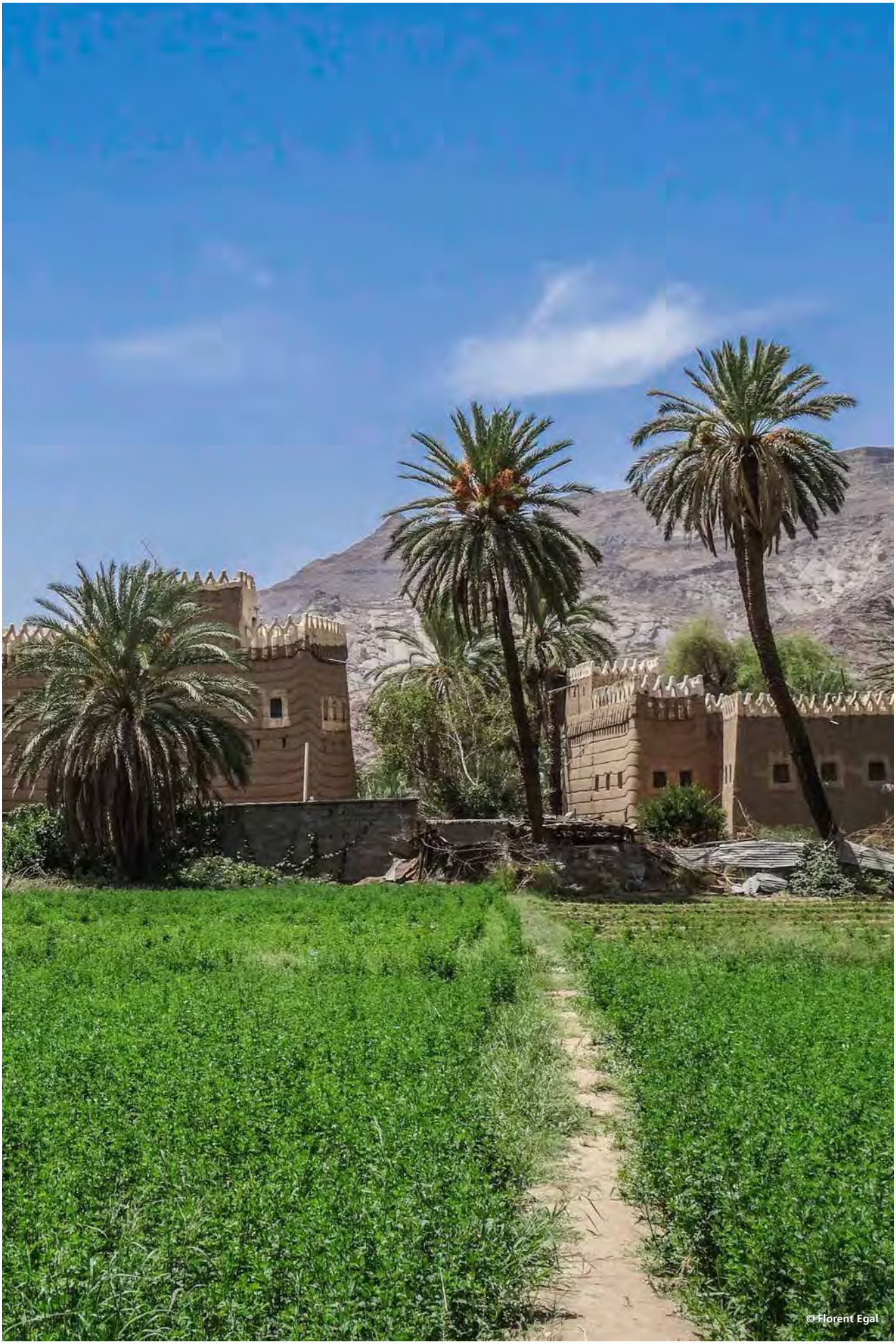
In 2016, Najran collected around SAR 49.5 million in own-source revenue, accounting for 6% of the city's budget (see figure 20).[31]

In an effort to improve municipal finance management and reduce the dependency on the central government, the National Transformation Program (NTP) directs the local government in the establishment of sound fiscal policies through the introduction of new financing instruments.

Budget Category	SAR (thousands)
Salaries	125,240
Operation Expenses	14,394
Operation and Maintenance Programmes and Contracts	99,151
Projects	401,600
Total Approved Budget	640,385
Own-Source Revenue	111,750
Total Budget	725,135

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

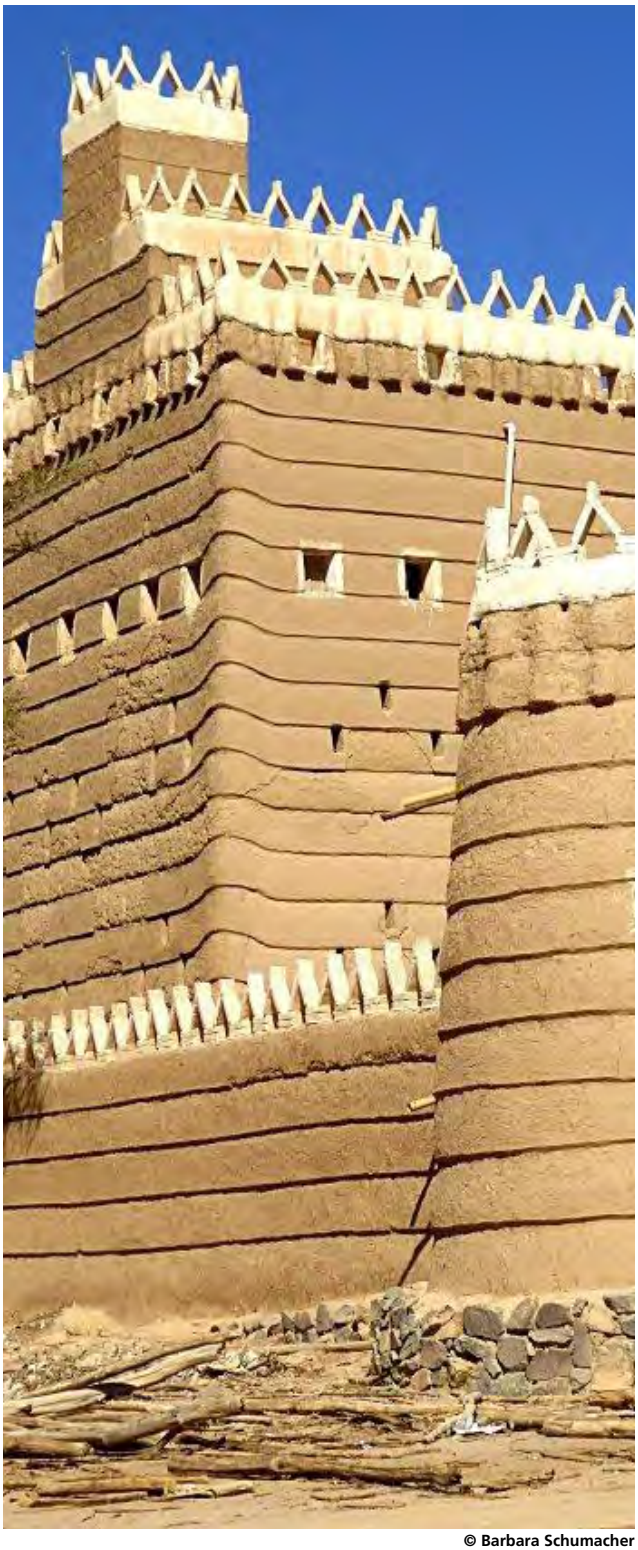
Fig. 20. Approved Amanah budget, Najran (2016)



Traditional village of Aba As-Su'ud

4

THE CURRENT CITY



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4.1 Urbanisation Patterns

4.1.1 The city's development patterns

Najran City is the capital of Najran Region situated in Southwestern territory of the Kingdom of Saudi Arabia. It sits along the Yemeni border, 300 kilometres South of Abha, and 900 kilometres Southwest of Riyadh. The city's growth pattern has naturally followed the rhythm of the economy and population growth. In 1985, the city was characterised by average densities of less than 4 p/ha with a population of 70,000. Najran experienced the most significant population increase between 1995 and 2005, in which time numbers rose from 115,000 to 254,000. This was encouraged by economic growth and enhanced agricultural significance. The urban area increased very little during this time, resulted in an increased average density of 8 p/ha. Today, the population has reached 316,000 over a land area increase of only by 6%. Limited expansion during a time of significant population growth has drastically increased density to their highest recorded levels in modern Najran history. As is paradigmatic of many Saudi cities, Najran is challenged with a growing demographic disbalance in the population; youth under the age of 30 accounts for 60% of the population, with a population growth rate of 2.7%.

Najran's current urban layout has grown from its historic form. Najran was originally the name given to the whole oasis which hosted numerous villages and towns, scattered around the wadi. Livelihoods in the area were focused in agriculture and cattle breeding. The land remains incredibly fertile and its long history has established Najran as an agricultural city. During recent decades numerous fruit and vegetable farms developed along the wadi. This system of small villages settled around the Wadi Najran expanded over time and eventually merged to form the city of Najran. Today, the city follows a linear growth pattern along the wadi with the King Abdulaziz Road serving as a developmental backbone.

The former historical villages are formed of strong vernacular patterns developed within traditional agricultural areas. These patterns are very well woven into their new contexts and provide an excellent example of successful heritage integration. These original villages and their successful integration should be maintained and promoted as a strong historical and cultural asset for the city. Recent additions in unplanned settlements on the borders of the city also follow these vernacular patterns, however, the coherent structure of these additions is endangered by new developments emerging in the Eastern fringes of the city, orientated towards the UPB.

In the Northern districts of the city such as Ad Dubat and Al Fahd, one can observe orthogonal, low-density developments based on the plans of Constantinos Doxiadis, that are dominated by singular residential use.

POPULATION

316,000

POPULATION DENSITY on built-up area

30 p/ha

AGE PROFILE

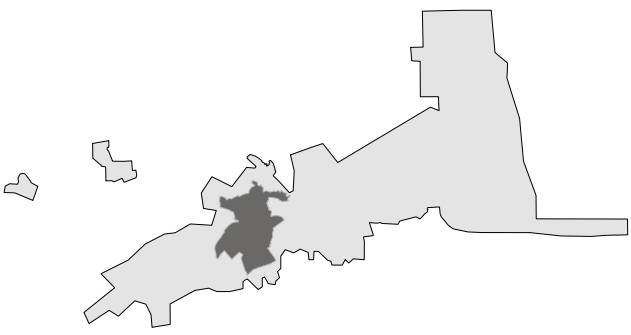
60% < 30

POPULATION GROWTH RATE

2.7%

500,000 Expected population by 2030

NAJRAN CITY COMPARED TO LYON MUNICIPALITY



Population: 491,268
Area: 6,010 ha
Density: 81.74 p/ha

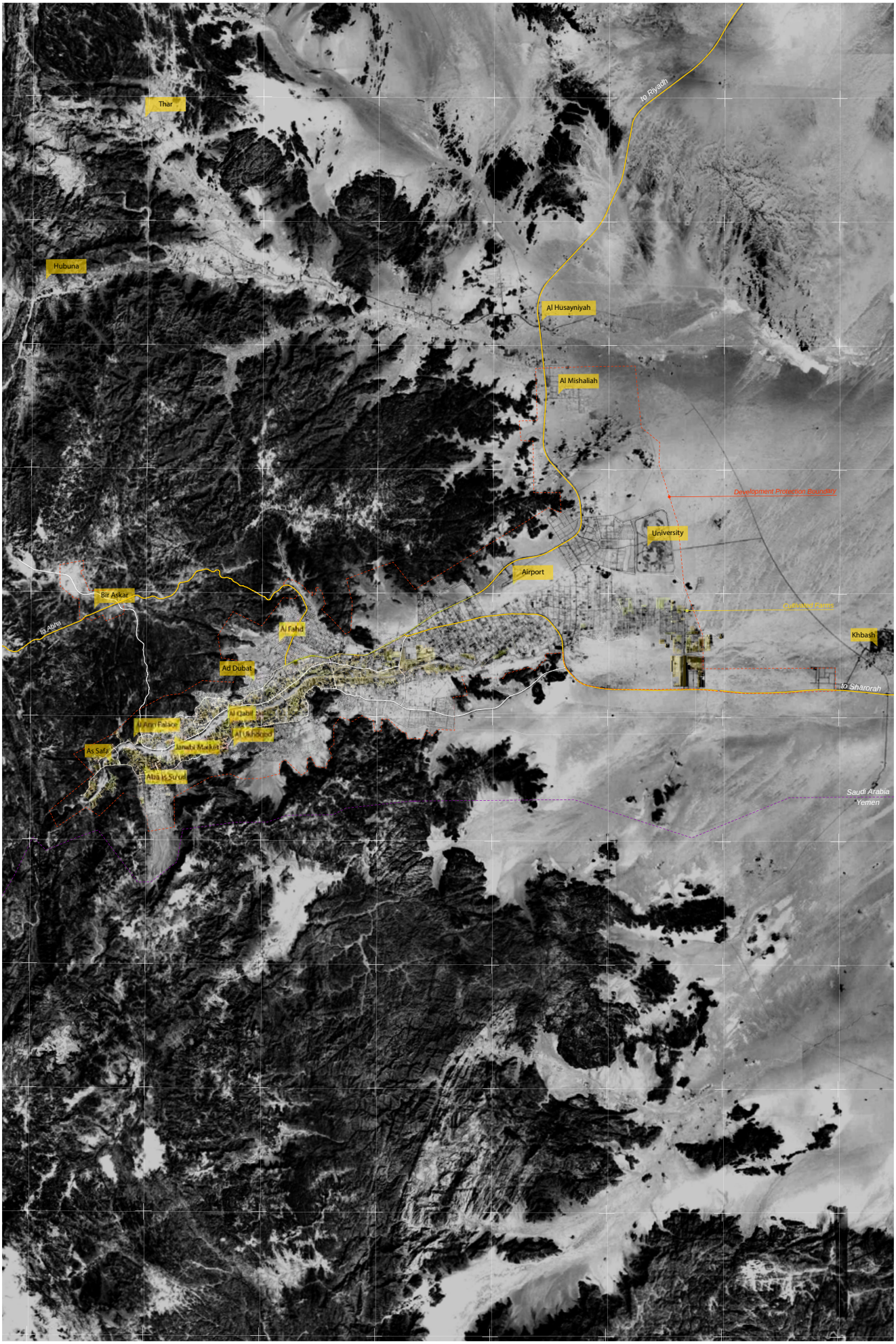
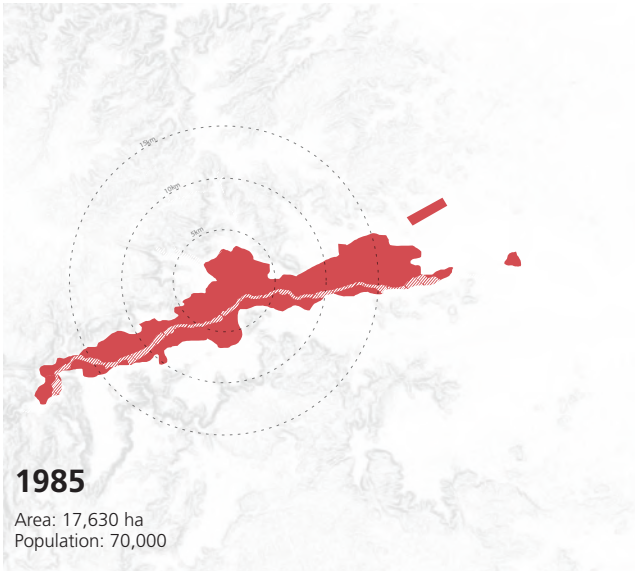


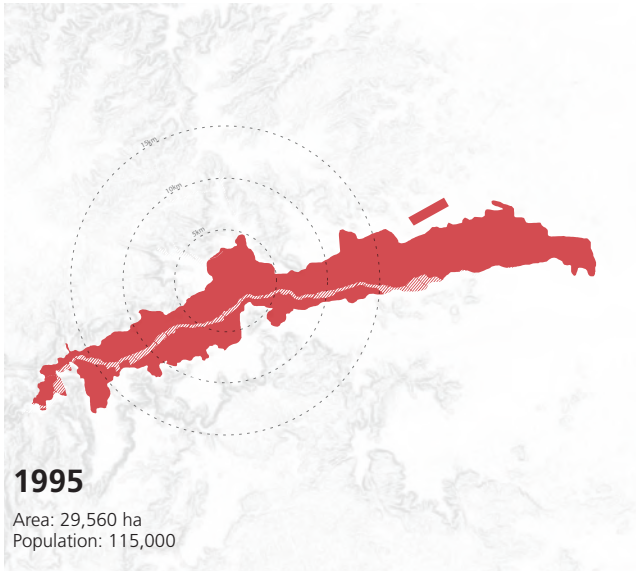
Fig. 21. Boundaries, neighbourhoods and key infrastructure

400BCE - 600CE
Ancient Village

1835
Oasis



1985
Area: 17,630 ha
Population: 70,000



1995
Area: 29,560 ha
Population: 115,000

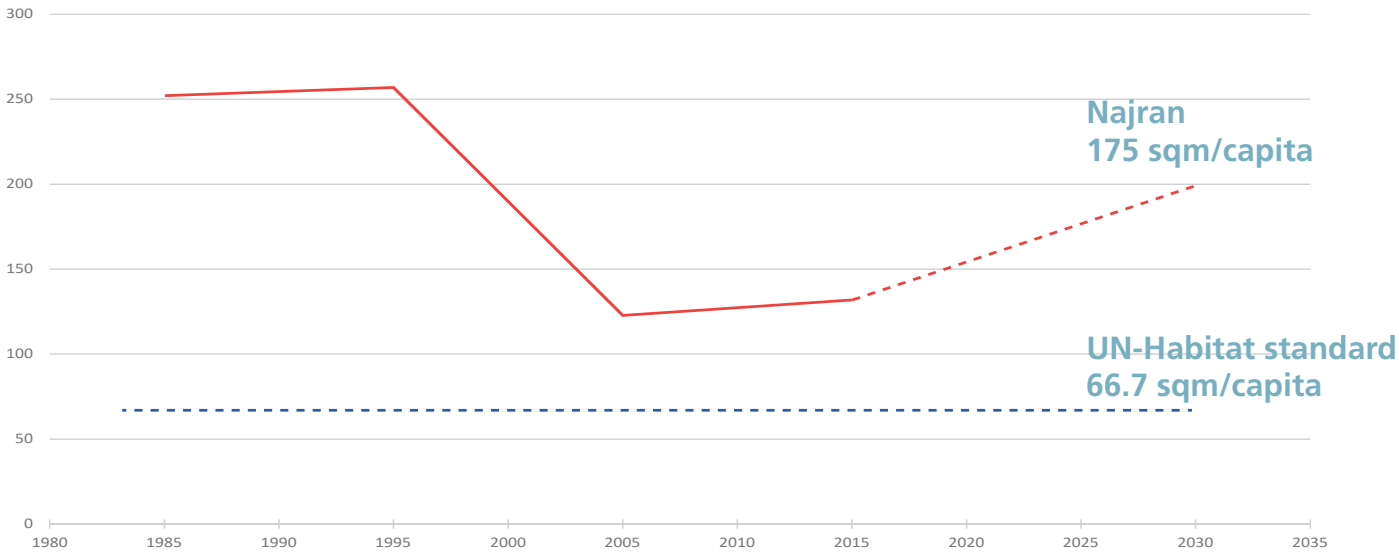


Fig. 22. Land allocated per capita

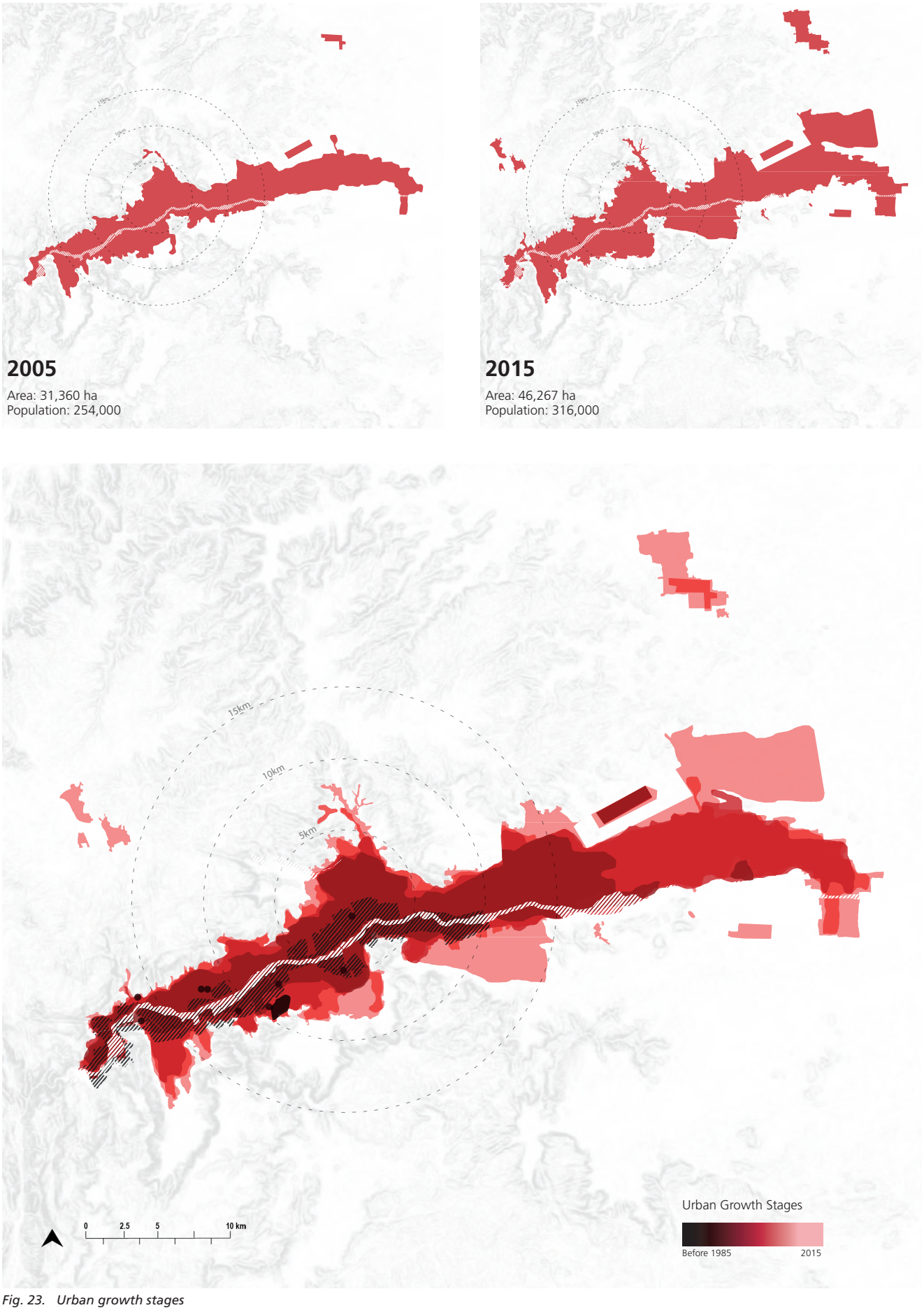


Fig. 23. Urban growth stages

As in other Saudi cities, vacant land strongly impacts the connectivity of the urban fabric. Unoccupied military areas between new developments and the existing city fabric create a development barrier that hinders continuity and compaction. The university located on the Eastern edge of the city has recently proposed further developments in its surrounding areas. These developments were extensive enough to create a neighbourhood that functions as a significant node, accommodating over 20,000 citizens. Over a short period in the 1980's, the land subdivision was practised in the majority of the Saudi cities that divided vast agricultural lands in the urban fabric into smaller plots. In East Najran this left enormous portions of the parcels vacant. Poor water management of limited reserves eventually exhausted of water supplies and led to the abandonment of an extensive number of farms which remain uncultivated. Today development patterns on agricultural subdivisions along the Wadi Najran are classified as peri-urban, falling short of density standards that would constitute urban status. Classifying Najran's land as urban and peri-urban, provides a more accurate depiction of density distribution across the city. This will be elaborated in the following chapters.

4.1.2 Administrative boundaries

Najran is Saudi Arabia's Southernmost region, located on Yemeni border. It is divided into seven governorates - Sharorah, Habouna, Thar, Yedamah, Badr Al Janoub, Khabbash and Al Kharkheer. Each governorate contributes to the region's economic significance, though Najran City is the regional capital. The region covers 360,000 square kilometres which accounts for 13% of the Kingdom, with an estimated of 620,000.

The Ministry of Municipal and Rural Affairs has established three boundaries for the town as standard practice for the Kingdom's cities. The outermost Urban Protection Boundary, with an area of 149,297 hectares, was created to control future development and create a land reserve for post 2030 plans. Almost 40% of the land within this area is covered by the rocky mountains to the West of the city which is deemed undesirable for development. The remaining land expands towards the East and Northeast, to contain neighbouring villages of Al Mishaliah, Al Husayniyah and Khabbash together with various rock formations and vast sands that extend towards the Empty Quarter to the East. Urban Growth Boundaries are set to contain development and define the extent of growth in Najran until 1450. The 1435 UGB has an area of 72,564 hectares, which was increased by an additional 15,000 hectares for the 1450 UGB adds additional 15,000 hectares exceeding the spatial requirements until 2030 by far.

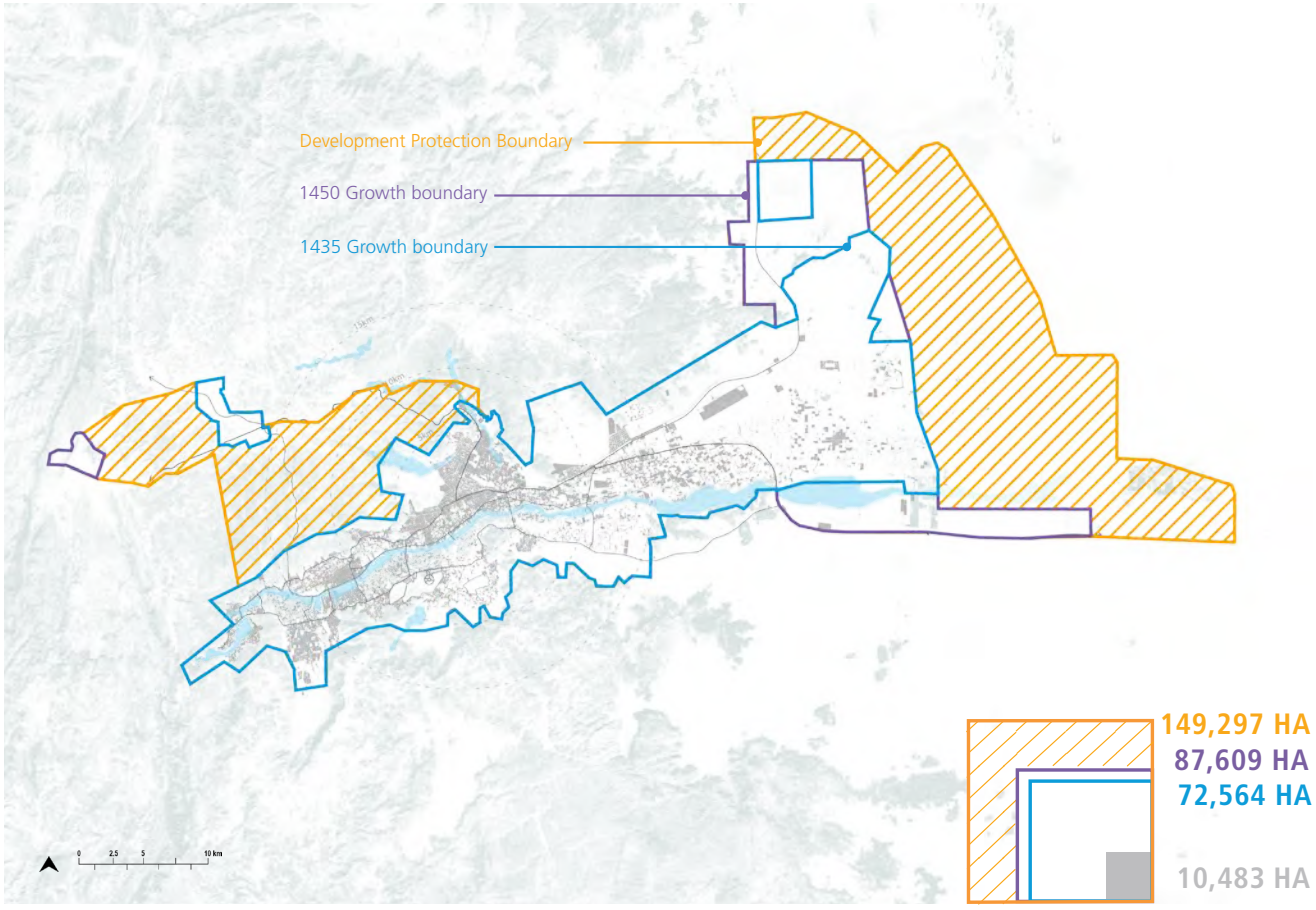


Fig. 24. Administrative boundaries

After conducting a study of satellite imagery, it was observed that development is ongoing, not only outside the Urban Growth Boundary but even beyond the Urban Protection Boundary. The uncontrolled expansion and disregard for the boundaries, results in unsustainable urban growth with significant sprawl. This renders infrastructure inefficient and costly in attempts to service fragmented territories of low density.

UN-Habitat suggests that Najran limit urban expansion and focus on retaining growth within the current urban footprint without extending to the 1450 UGB. The majority of new projects are proposed outside the consolidated city, encouraging further sprawl and fostering unbalanced development patterns. There is a significant potential for development within the existing city. The city should aim to maintain compaction with high-density developments to avoid unsustainable urban sprawl in Najran.

4.1.3 Land subdivision

In the mid 1970's, elevated oil prices caused a sharp increase in national wealth which affected the real estate market through increased land values. The economic growth combined with a housing shortage encouraged citizens in possession of extensive lands in urban areas to subdivide and sell vacant plots.

In Najran, over a short period of time, large areas of rural land were subdivided into small plots in preparation for urban use. Examples of this practice include Al Athaybah Ash Shamaliyyah Agriculture Subdivision, Ash Sharfah Agricultural Subdivision and Al Ghuwayla Agricultural Subdivision. In most cases, large numbers of the new plots are left vacant, partly vacant or uncultivated. The law stipulates only that 15% of the parcel must be developed. This condition can only be addressed if existing regulations are enhanced and additional guidelines are introduced.

4.1.4 Urban density

Najran hosts a population of 316,000 people on a built-up area of 10,483 hectares with an average density of 30 p/ha. However, rural land subdivisions in Najran have had a profound influence on density distribution. A combined area of 6,702 hectares of the built-up area is defined as peri-urban due to low densities. A population of 100,000 inhabitants or 32% of the total population, live in this peri-urban area in farm houses scattered across the wadi. This area comprises density highs of up to only 18 p/ha, with an average of 15 p/ha. An estimated 215,000 inhabitants are accommodated in a built-up area of 3,781 hectares, which can be defined as urban

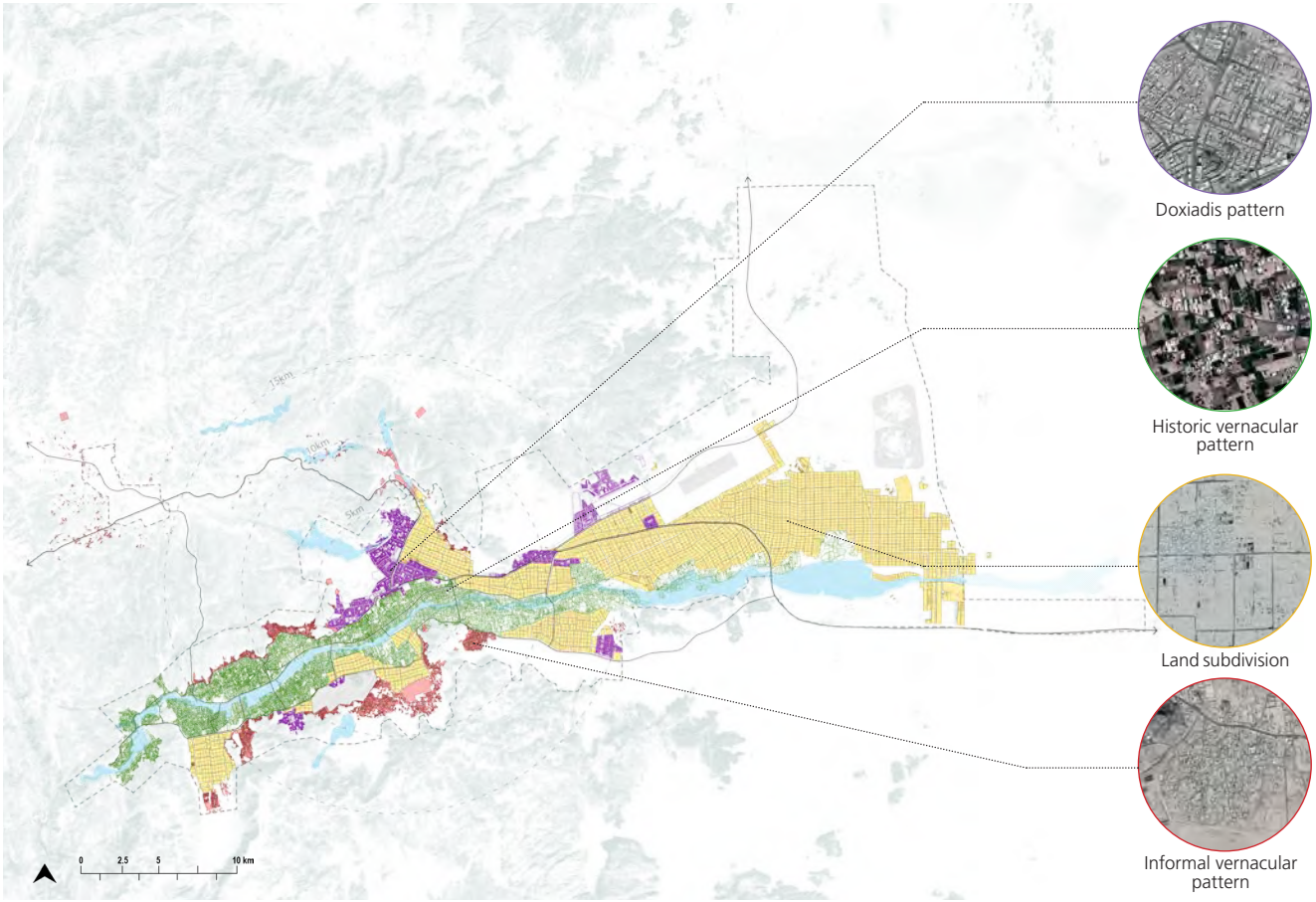


Fig. 25. Najran's urban patterns

in accordance with an average density of 56.6 p/ha. Land classification by density, as peri-urban and urban, provides structure for a more detailed analysis of the city. This analysis demonstrates that the highest area density ratio in Najran remains deficient in contrast with UN-Habitat recommended averages of 150 p/ha.

The areas classified as urban in Najran have a density varying from 1 to 195 p/ha. Almost 19,000 inhabitants or 6% of the population, live in a density of more than 150 p/ha. These high-density areas, largely located at the core of the city, cover an area of 97 hectares. Successively, a population of 55,000, or 17% of the population, live in an area of 633 hectares with a medium to a high density of between 50 and 150 p/ha. A total of 45% of the population live in very low-density areas, towards the fringes of the city's urban area. These 141,000 inhabitants occupy almost 8,330 hectares of land in an average density of less than 50 p/ha.

This demonstrates the capacity of the city's linear structure to supports various densities. Lavish agricultural settlements in the wadi corridor typically comprise low densities of up to 18 p/ha. Uncultivated farms In the East have fewer inhabitants and very low densities. The highest densities can be observed in the city centre, as is typical of urban conditions. Within Najran's linear structure, we can distinguish three major cores in the central areas North of the wadi. Those districts of Al Faisaliah, Ad Dubat and Sharq Ad Dubat are examples of relatively high-density developments with modern two to three storey buildings, good accessibility to public facilities and mixed land use. Another core can be distinguished in the Old City at the West end of King Abdulaziz Road. The Old City's historic buildings and compressed fabric also demonstrate higher densities. Additional higher density developments can be identified by their compressed structures in multiple unplanned areas in the North and South of the city. At the current growth rate of 2.7%, the population of Najran is expected to reach 500,000 by the year 2030. The increase provides an opportunity to densify existing areas and prevent further sprawl.

4.1.5 Land use

Najran's most dominant allocation of land use is agricultural and is largely situated along the central wadi. Over 40% (12,370 hectares) of the total land is dedicated to farming activities. However, unfortunately a vast amount of this land remains unproductive. The city is facing challenges in future water supply and must make efforts to create an efficient water management strategy to preserve this land and protect it against urban expansion. The 7,400 hectares of uncultivated farmland within the agricultural area, should retain its function and be re-activated.

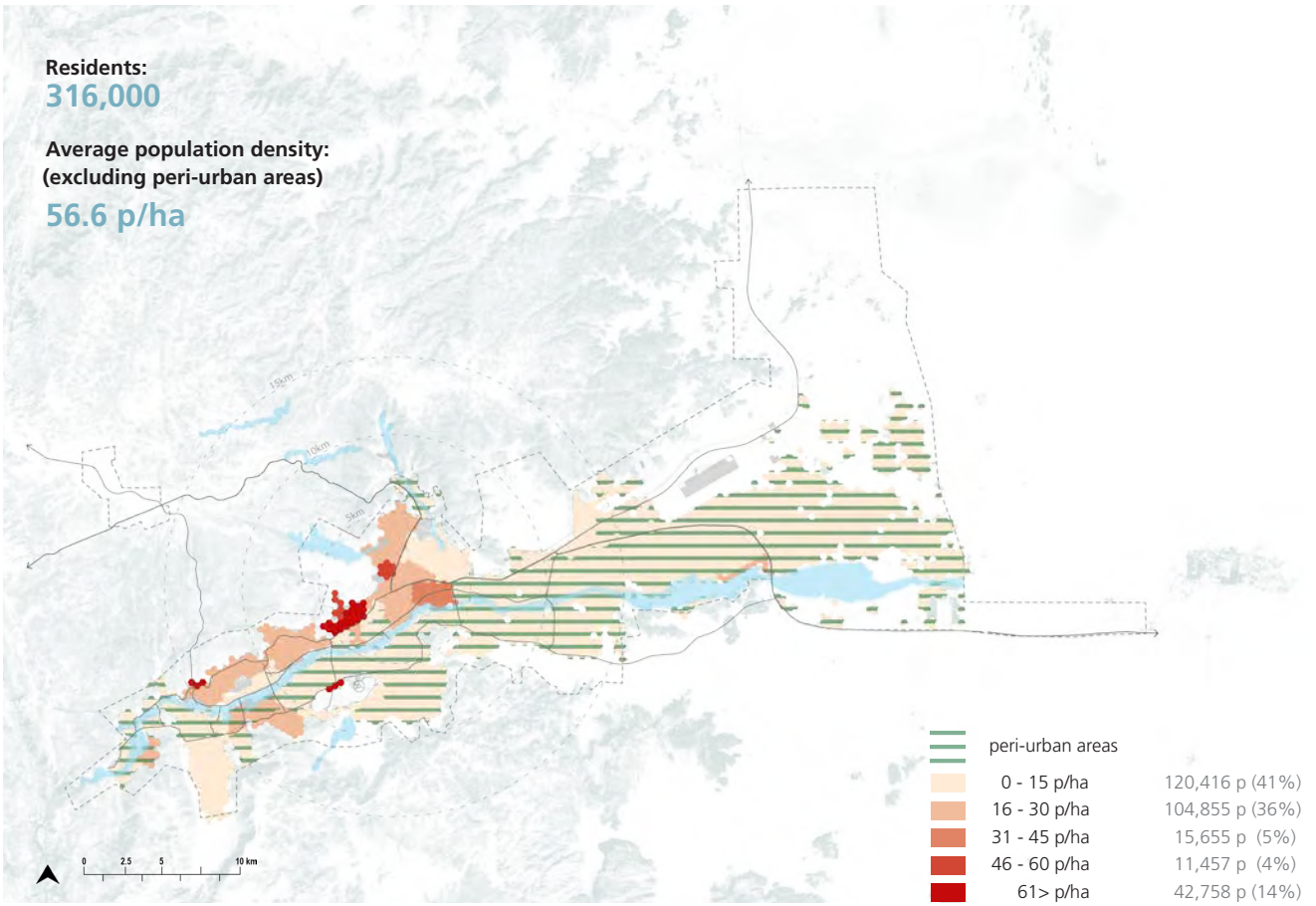


Fig. 26. Current distribution of population density

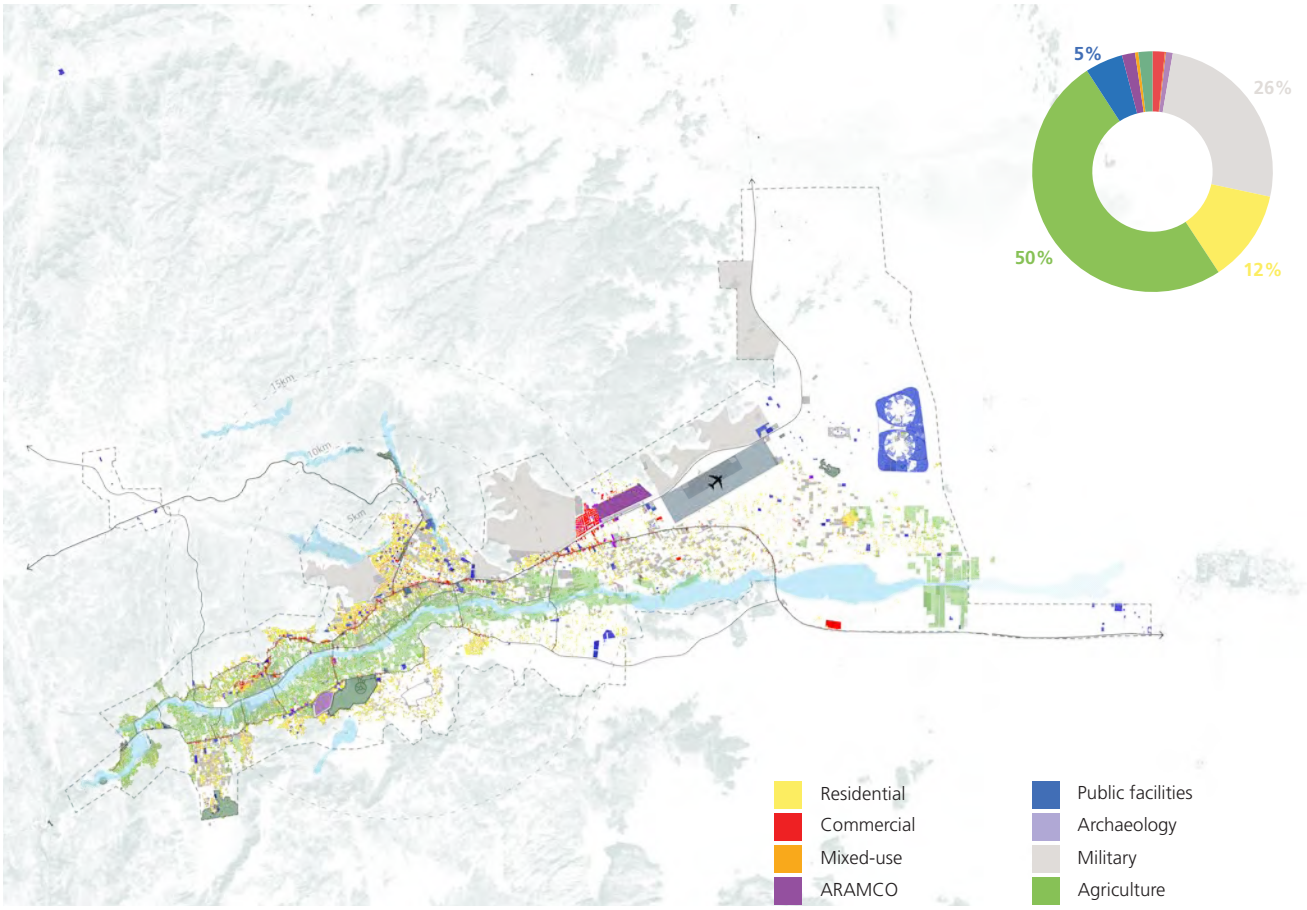


Fig. 27. Existing land use

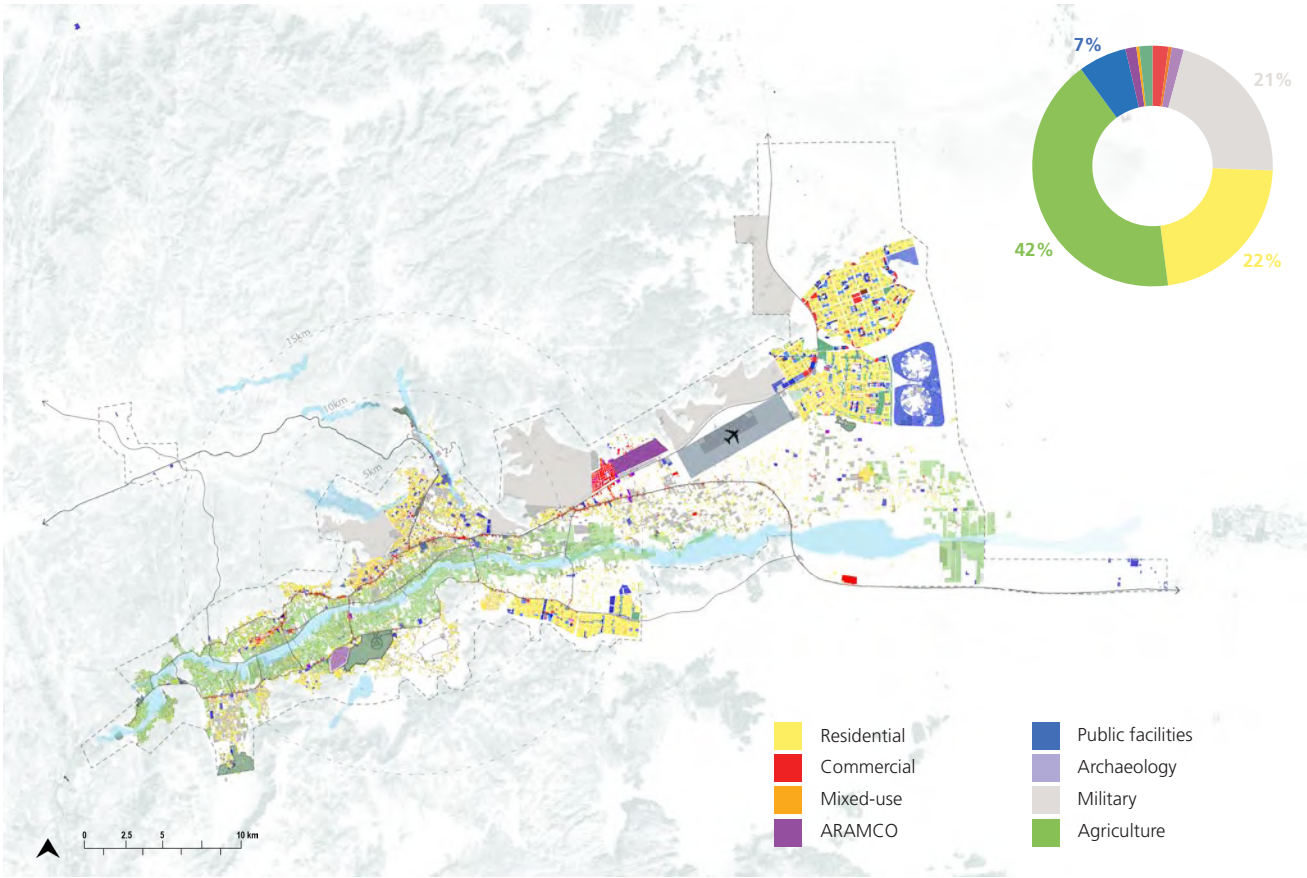


Fig. 28. Proposed land use in the Najran Plan (2014)

Over a quarter of the city area is dedicated to the military. Vast lands divided over five large plots, totalling 6,312 hectares occupy the Northern edge of the 1450 UGB. Much of this land is not in use for military exercises and remains unoccupied, further aggravating the fragmentation of the urban fabric. The strategic location of this land, adjacent to existing urban nodes, would create an opportunity, if developed, to strengthen compaction and further consolidate the town. Residential land accounts for over 20% (6,590 hectares) of the city area is scattered throughout. The largest agglomerations appear in the new city centres and the unplanned development areas on the outskirts. Limited commercial and mixed-use activities are located along the main roads while a more vibrant and diverse mixed-use is available in the old town centre. The residential areas contribute a significant increase in built-up land area in two new hubs in the Northeast and South. These hubs, however, are disconnected and polarised, encouraging further sprawl. Industrial scale commercial warehouses are located along major transportation corridors, however, industrial land represents less than 1% (432 hectares) of total land use in the city. Najran has good general coverage of health and educational facilities with a high number of institutions. It is home to Najran University which covers an extensive area in the East of the city. Residents have good accessibility to public facilities with the exception of former agricultural lands in the East where the accessibility to public facilities is dramatically lower.

4.1.6 Vacant land

The total built-up area of Najran amounts to 10,483 hectares, 3,781 hectares of which are categorised as vacant land. 1,629 hectares of this vacant land, lies within the built-up area that is defined as urban. The Athaybah District is a paradigmatic example of this condition, demonstrating a sequence of urban blocks interspersed with unbuilt parcels of land. Based on UN-Habitat density recommendations of 150 p/ha, the city could accommodate an additional 244,000 inhabitants within the vacant land that occupies the city's existing urban footprint. Developing and densifying these areas would positively contribute to a more sustainable urban model, preventing further sprawl. The infill of vacant land represents an opportunity for economic growth and upgrading impact for several neighbourhoods. This land is also sufficient to accommodate the anticipated future population growth. Despite the large amounts of vacant land that remain undeveloped within the built-up area of the city, authorities continue to approve significant new developments both inside and outside the 1450 UGB. This is exemplified in two major new developments in the Northeast lands surrounding the university and in the South of the city, along the Prince Sultan Ibn Abdulaziz Road. These developments occupy 5,696 hectares of new land, that falls within the UGB but outside the existing urban footprint. Both areas are already under development. There are also developments located beyond

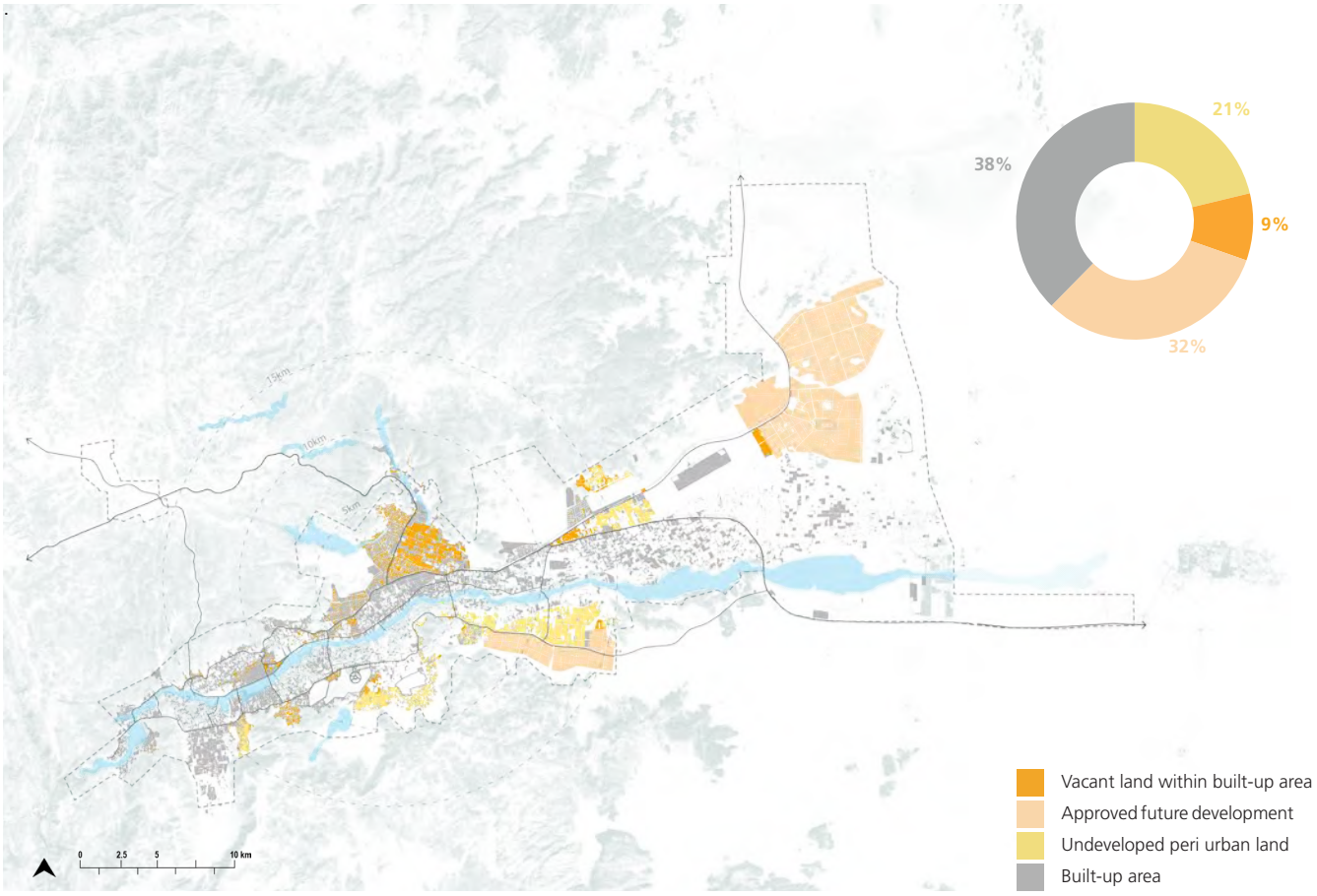


Fig. 29. Vacant land and undeveloped area

Traditional mud tower in Najran

the 1450 UGB and even outside the DPB. These are classified as leapfrog developments that encourage further sprawl and generate great expense for infrastructure and service provision.

4.2 Structuring Elements

4.2.1 Major infrastructure and economic nodes

Throughout history, Najran has retained a significance on an international scale. The oasis was a vital stop on historical frankincense and myrrh routes. It was a focal point at which all roads coming from ancient Yemen met and formed the last stop before the caravans went Northeast towards Egypt or Northwest towards the Arabian Gulf. Presently the city comprises a robust road network that is well connected to that of the national and international scales. Najran itself is located at the intersection of major roads and has a strong connection to the North (Riyadh), Northwest (Abha) and East (Sharorah and Oman). In the future, it also has the potential to strengthen the relationship with Yemen as robust infrastructure is already in place. The city lacks a strong connection to Jazan, though this existed historically. Jazan's position as a major economic hub for the Kingdom as a port city makes a link desirable to strengthen Najran's local economy and open it up to new and more significant markets.

.Najran has a hierarchical road network composed of primary or main, secondary and local arteries. The most important of these are three parallel roads running on both sides of the wadi: the King Äbdulaziz, King Abdullah and Prince Sultan Ibn Abdulaziz Road. These roads act as a collective spine along the continued development of the city. Despite the strong East-West connection, few Secondary roads link North with the South across the wadi. Roads have yet to be fully developed within the agricultural areas South of the wadi, where the network consists largely of low-quality local roads. Najran Domestic Airport was opened in 2011. It is located 20 kilometres Southeast of the central city. It connects Najran with Riyadh, Jeddah, Dammam and all other major airports across the Kingdom and has expansion potential to extend its services internationally. With just one terminal it has a capacity of 1,400,000 passengers annually.

4.2.2 Environmental and topographical elements

Nestled between the Empty Quarter to the East and Mountains of Asir to the West, the town settles in a green and fertile valley oasis. Wadi Najran runs through a vast area of Asir Region and the Yemen highlands. The wadi feeds the fertility of Najran's vast fields of farmland. The water is partially controlled by the Najran Dam located in the West side of the valley. It flows from the mountains towards the Empty

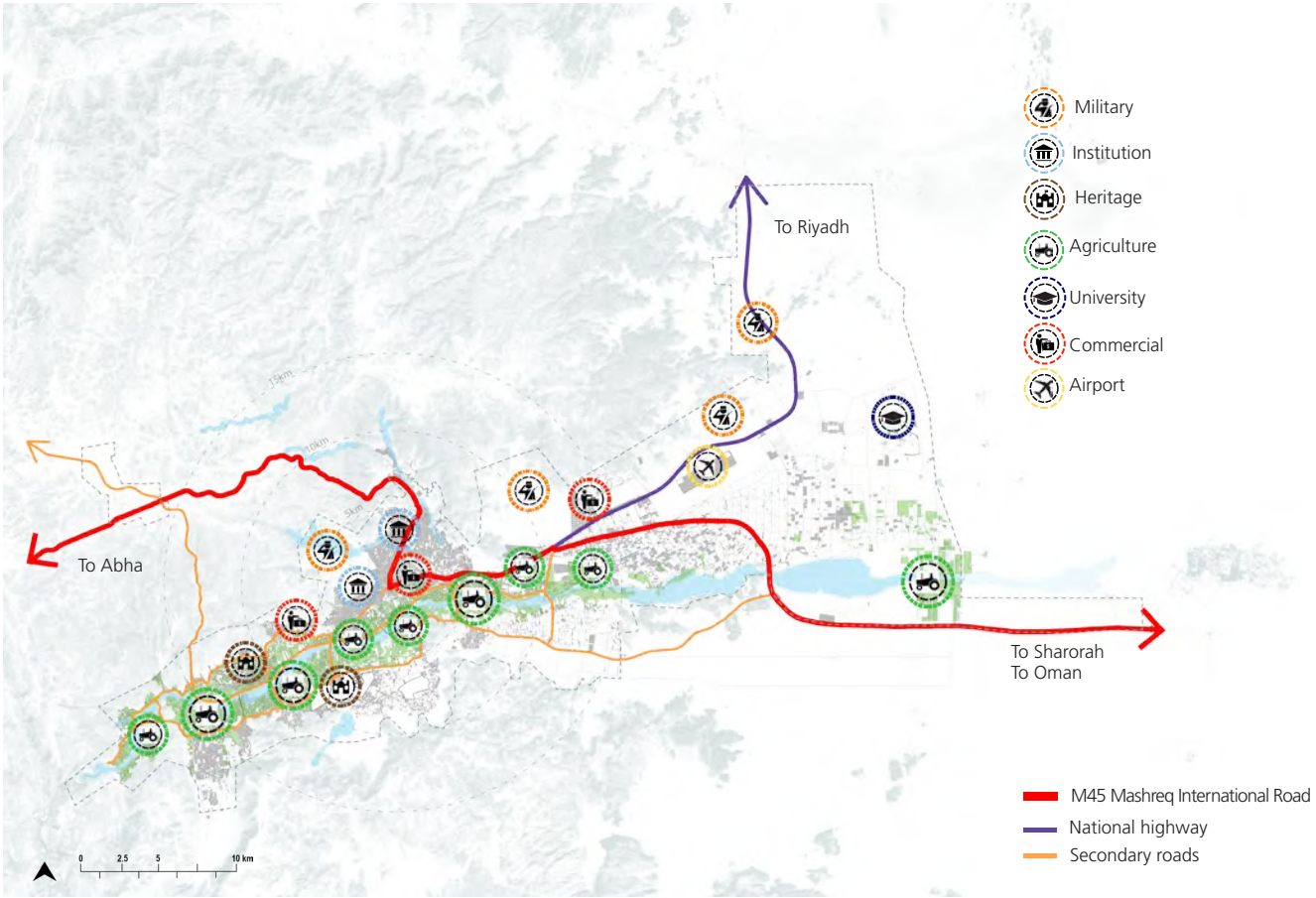


Fig. 30. Major infrastructure and economic nodes

Quarter in the East where it finally merges with the sands. Najran City's position in the flat Wadi Najran has several distinct topographic features. Situated at 1,310 metres above sea level, it is surrounded by high mountains ranging from 1,300 to 2,000 metres above sea level. A lavish oasis extends further through Najran Plato and gradually descends Eastwards. From there it is bordered by the desert of the Empty Quarters. Wadi Najran runs East to West, parallel with Wadi Habbouna. It divides the city into Northern and Southern regions that are interspersed with smaller streams that cross the area and merge with the main wadi.

The waters of Wadi Najran are controlled by an arch dam located 15 kilometres Southwest of the city. The dam was built in 1981, and its primary purpose is to manage flood water and groundwater recharge. It collects runoff and sediment in the wadi and helps to release it downstream throughout the year. The structure is 73 metres tall and 140 metres long and feeds Najran reservoir which has a total capacity of 86 million cubic metres.

The city has a strong and characteristic agricultural core that has been built around the wadi. Together they create the spine for the whole town, which follows a strong linear shape and extends North to South within the valley. The blue and green networks have a direct social and environmental impact and define both the territory and the city. This network includes the wadi floodplains, steep mountains, agricultural lands, green spaces, parks inside the city and aquifer protection areas.

In the past 30 years, Najran has seen extensive development and new settlers attracted from surrounding areas. This led to a sharp rise in water demand. Significant increase in agricultural activities and popular demand caused significant groundwater depletion. In the past decade, groundwater levels have decreased dramatically and the Najran Basin has experienced a sudden appearance of earth fissures. Excessive water pumping creates significant tension in subsurface zones and is a primary cause of soil compaction and surface subsidence which results in earth fissures. Najran has over 1,000 wells for agriculture and domestic use. The continuous decrease in groundwater levels has left most of them depleted. It is imperative to maintain a long-term balance between groundwater withdrawal and recharge.

Najran has a history of devastating floods. Water flows from the hills into the wadi where the majority of the built-up area is located. Built-up areas that are most vulnerable to flash flooding during periods of heavy rain are situated at a lower elevation in areas that infringe on the wadi. These areas are exposed to water run-off, putting residents, roads and economic activities at risk. Wastewater and water runoff management policies require revision and enforcement by the city to generate resilience and protect from future flooding.

Traditional farms in Najran

4.2.3 Unplanned settlements

In recent years, Saudi Arabia has been experiencing significant rates of rural-urban migration. The categorisation of "unplanned settlements," has been utilised for both historical vernacular neighbourhoods and low-quality unplanned areas that have formed recently in the outskirts of the city. Both of these are visible in Najran.

As outlined above, Najran has emerged from consolidation of historical farm villages. These types of settlements are characterised by organic urban fabric and traditional Yemeni influenced architecture. The remains of these neighbourhoods are spread along the wadi corridor and form part of the city's aforementioned green spine. The value and uniqueness of this particular feature are very often recognised by the citizens who are encouraged by local authorities to protect and restore heritage buildings. There are over 230 mud houses in Najran that bridge the region's past with the present. Preserving this vernacular pattern is crucial.

Despite the success of the compact vernacular structure, it lacks proper connectivity with upper tier roads. Careful analysis must be carried out and a methodology developed to improve linkages without disturbing the unique and delicate character of these areas. Strategic interventions should include heritage protection for vernacular urban layouts of historical value and building codes to preserve the characteristics of the micro-village complexes.

Unplanned areas have formed recently in the city's outskirts, primarily on the Southern and Northern edges. Though these settlements are closely categorised with the vernacular pattern, they have better infrastructure provision and to some extents, better service accessibility. To improve and modernise this type of unplanned settlement, it is recommended that the city assess the needs of the neighbourhoods critically and develop individual urban upgrade plans, including participatory processes that involve the local residents.

4.2.4 Movement and accessibility

The Najran transportation network is dominated by three important roads running in parallel with each other from East to West with. The limited number of routes that cross these roads on the North-South axis make the city's 15 kilometres linear form difficult to traverse by foot. However, Najran has comparably good service distribution. More than half of Najran's area falls within a 5-minute walking radius of public facilities, and over two-thirds within a 10-minute walking

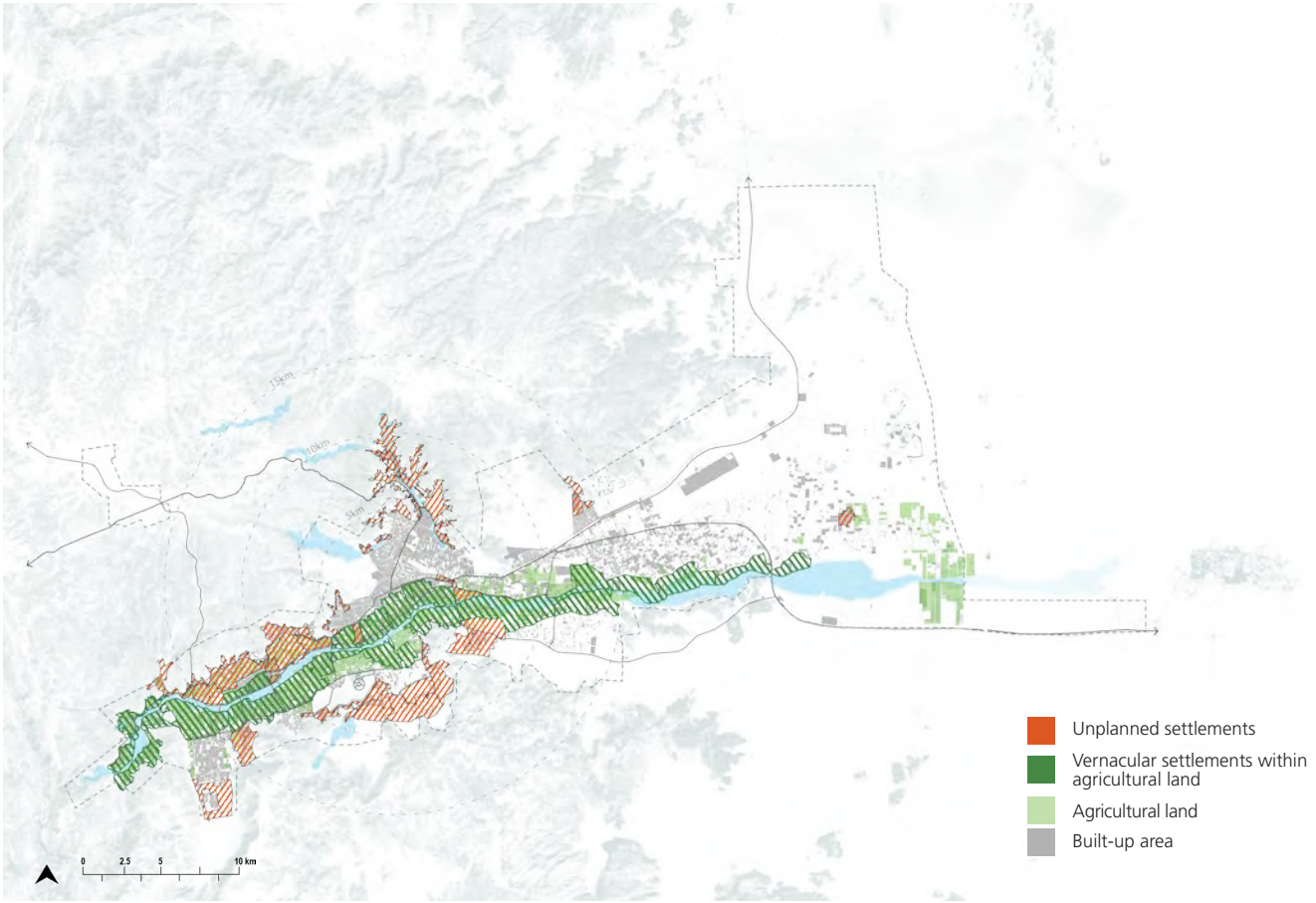


Fig. 31. Vernacular and unplanned settlements

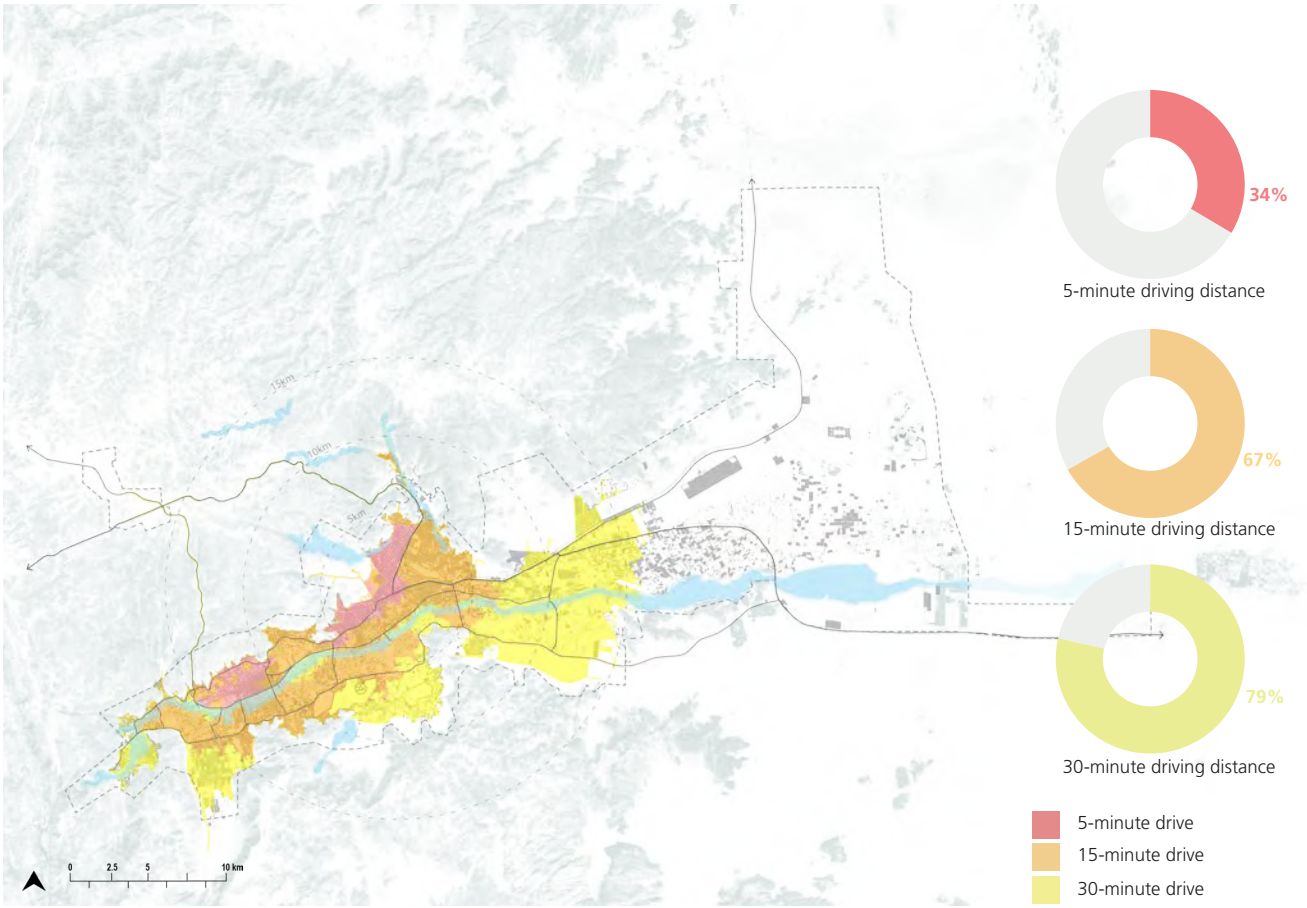


Fig. 32. Drivability to city cores

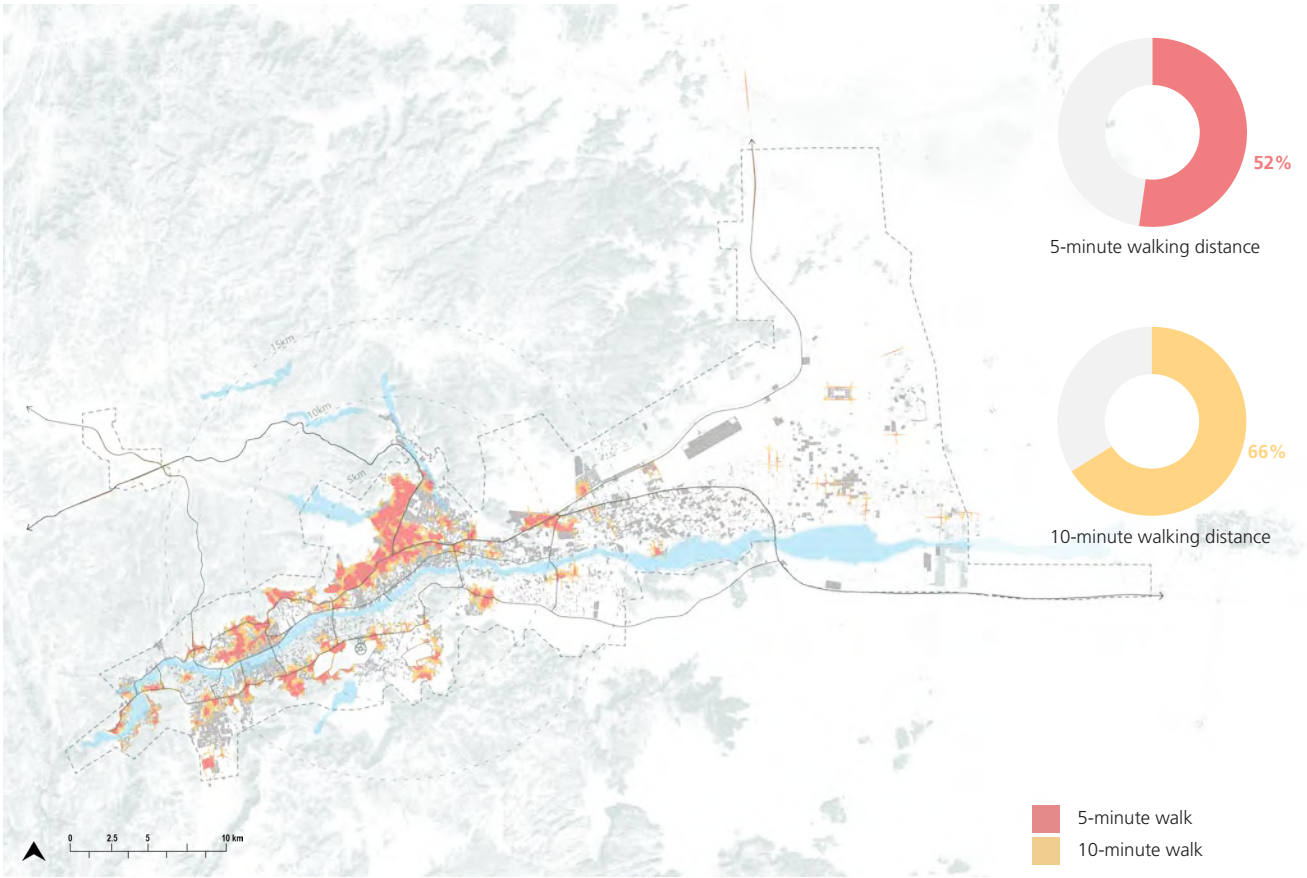


Fig. 33. Accessibility to public facilities

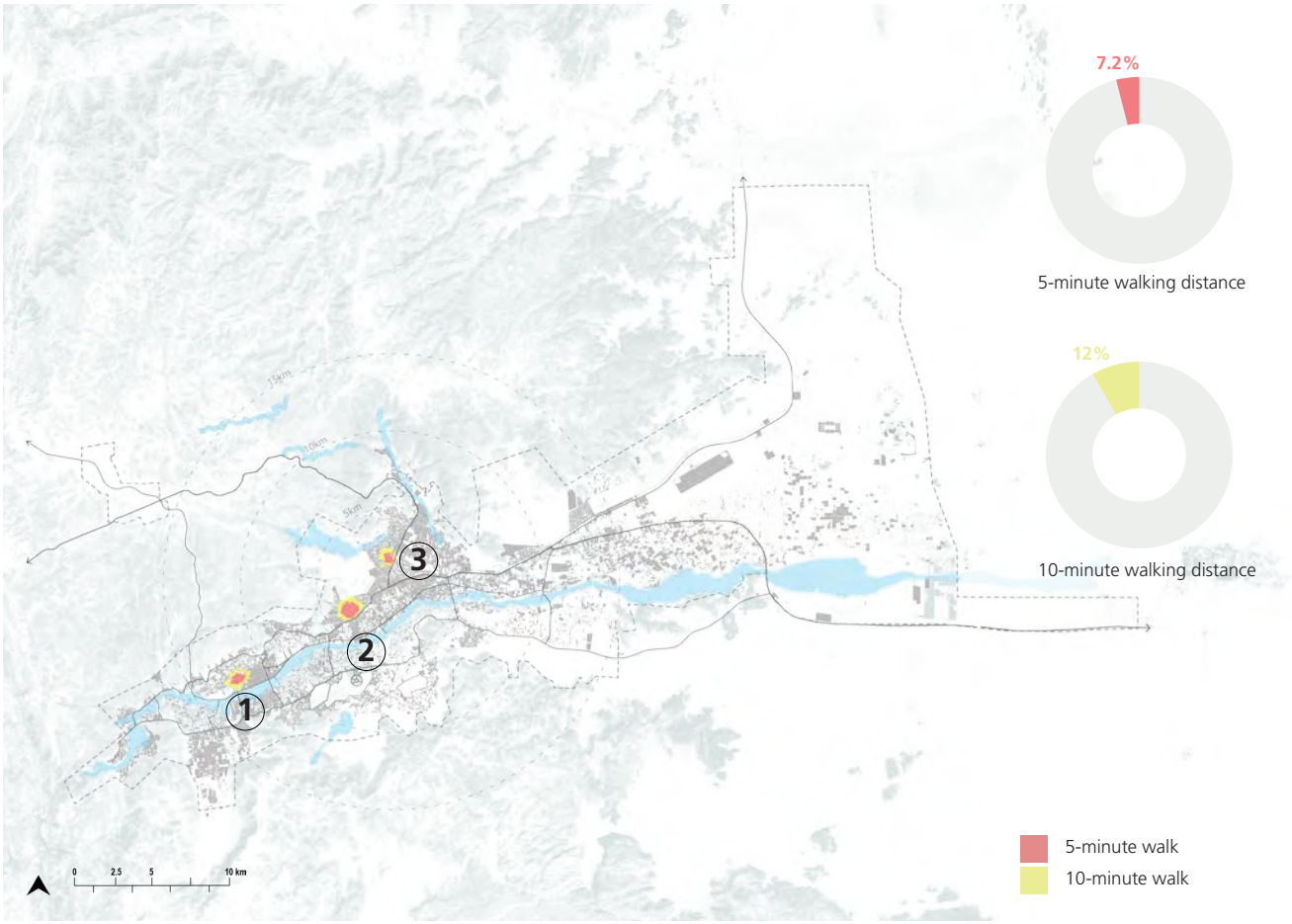


Fig. 34. Walkability to city cores

radius (figure 33). This means that Najran is unique among Saudi Cities in that residents of the historic centre and densely built-up areas have excellent accessibility to public facilities. This is also true of new unplanned areas, which show a balanced distribution and considerably good quality of life. To be inclusive and sustainable, the city must offer equal opportunities, in number and quality, to every inhabitant.

Najran presents a polycentric urban structure, demonstrating the historic distribution of its early villages but is fragmented by vast amounts of military and agricultural land. Within its modern mass, three primary urban cores were identified by their population density and their substantial service provision. All of these sites are located on the Northern side of the wadi and are focused in the central section of the urban footprint, in close proximity to one another.

Despite Najran's good service provision, access to urban cores is less equitable. Only 7.2% of citizens (25,150) have access to an urban core within 5-minute walking distance and 12% (41,920) within a 10-minute walking distance (figure 34).

Drivability analysis for the city cores shows excellent achievement values in the consolidated, Western side of the city. An overwhelming majority of the residents - nearly 80% - can reach the centre within 30 minutes, over two-thirds - within 15 minutes and one-third within 5 minutes (figure 32). However, on the Eastern side along the peri-urban areas these values decrease dramatically. In theory, the analysis concludes that Najran has a fairly good vehicular transportation network within the consolidated city and that it should strive for improvement towards the East. It is, however, important to note that good accessibility occurs only on the North bund. The Southern side of the wadi remains disconnected due to lack of appropriate infrastructure and poor connectivity on the North-South axis. This draws Najran as a dual city, separated by the wadi. The North side is more developed, contains the majority of economic activity and features higher densities than the South, which remains underdeveloped and highly rural, with low infrastructure provision.

Najran University's location in the far East makes costly infrastructure demands and encourages the development of satellite neighbourhoods that are wholly detached from the central city.

4.2.5 The Najran Plan

There are a number of urban development plans operating at different scales that affect Najran. The most generic is the National Spatial Strategy which guides spatial transformation for the entire Kingdom. The priorities for this Plan can be summarised as:

- Improving the quality of life
- Increasing job opportunities for all Saudi citizens
- Providing social services such as education and health
- Developing applied and technical sciences

Consultants selected by the Amanah have prepared a number of more detailed plans that follow the national strategy and interlink at different planning levels (national-regional-city-local).

- The Sub-regional plan sets spatial distribution standards for urbanisation on the governorate administrative borders.
- The Structural Plan sets and defines land use distribution on the built-up and rural areas
- Local Plans (the detailed citywide plan) set the conceptual goals for the city and provide accompanying building regulations and controls.

The Structural Plan and the Local plan for Najran have been superseded by the Urban Growth Boundary for 1427 defined by MoMRA. This zonal delineation for Najran was developed in response to an ever-increasing demand for extension of services and public utilities beyond the periphery of existing settlements. From a sustainable development perspective, this boundary is insufficient to promote sustainable development and require revision to reflect the specific needs and urban growth patterns of the city. The UGB regulates future expansion of the town but does not address the issues within the current urban footprint.

A more definite, detailed Plan for Najran should be created to consider additional requirements that are critical for sustainable development in Najran:

- Increased densities inside the existing fabric of the city;
- A solid strategy for a public transport system in the city;
- Additional open spaces;
- Legal and financial policies to deal with land tenure issues in abandoned and uncultivated farmlands inside the historic urban fabric and the East of the city;
- A comprehensive water management strategy that responds to actual and future demands of the urban population and regional agricultural production;
- A phased strategy to control urban expansion and prevent further sprawl.

4.3 Urban Density Scenarios

Crosscutting the diagnosis of the current urban conditions and the approved/submitted projects proposals, FSCP operated scenario-analysis for increased urban density under comparable conditions. Initially, the current condition of the city has been examined to indicate conditions within a benchmark density that will form a comparative measure against which to set alternative scenarios. Secondly, a scenario has been developed in line with projections based on approved planning instruments. Finally, an alternative scenario has been developed in which the density distribution meets UN-Habitat recommendations. This UN-Habitat scenario is based on the Five Principles for Sustainable Neighbourhood Planning, which are as follows:

- Adequate space for streets and an efficient street network: The street network should occupy at least 30% of land and at least 18 kilometres of street length per square kilometres,
- High density: At least 15,000 p/km², that is 150 p/ha or 61 p/acre,
- Mixed land use: At least 40% of floor space should be allocated for economic use in any neighbourhood,
- Social mix: Availability of houses in different price ranges and tenures in any given neighbourhood to accommodate different incomes; 20% to 50% of residential floor area should be reserved for low-cost housing, and no single tenure type should exceed 50% of the total,
- Limited land use specialisation: This is to limit single function blocks or neighbourhoods; single function blocks should cover less than 10% of any neighbourhood.

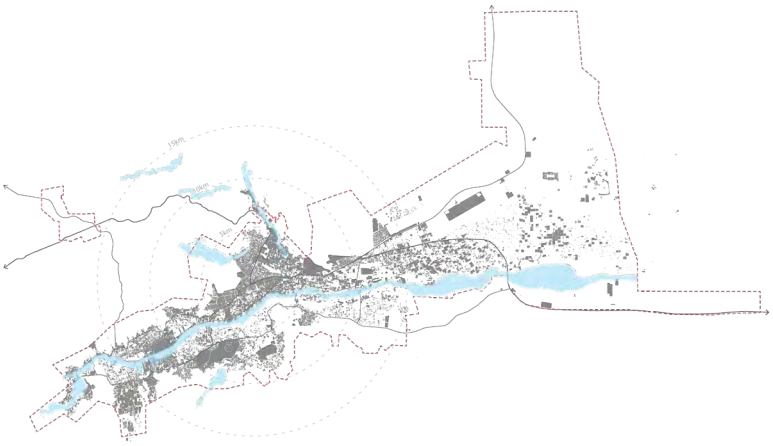
Current Condition
Najran has a current population of 316,000, occupying a built-up area of 10,483 hectares. This generates a population density of 30 p/ha, which is equivalent to one-fifth of UN-Habitat recommended density of 150 p/ha. When limiting the analysis to the urban area and discounting the peri-urban sections of the footprint, this density figure increases to 56.6 p/ha. This figure is still well below the target recommendation.

Scenario 1: The Najran Plan
Najran has two significant developments under the proposal, one in the area surrounding the university, the other in the South across the wadi. These two developments together will cover an area 5,696 hectares in an extension of Najran's existing 10,483 hectare footprint. Assuming the extension area is to be fully developed by 2030, and the city's total population reaches its figure of 500,000 projected in Vision 2030, the average density would drop to 30 p/ha. The position of these two propositions in lands that are significantly disconnected from the urban area of the city, encourages further urban sprawl. There is a great potential to increase densities in the city but these proposals do not take into account the principles of compact, densified and connected urban development methodologies. Sustainable urban development can only be achieved if uses are carefully assigned and planning instruments are applied to promote compact settlement forms and densification via infill.

Scenario 2: UN-Habitat Recommendations
The UN-Habitat scenario supports sustainable neighbourhood planning for the city, promoting an increased density of 150p/ha in line with UN-Habitat recommendations. At the current rate of growth, the population is projected to reach an increased size of 500,000 by 2030. The study therefore calculated that the additional built-up area required to absorb the city's future population at the recommended density amounts to only 1,227 hectares. This scenario finds that the 1,629 hectares of vacant land available within the existing area categorised as urban (excluding peri-urban areas), can accommodate all of Najran's additional 2030 population. The scenario demonstrates that expanding the current urban footprint unnecessary and suggests strategic interventions to support policies that will facilitate the densification of existing urban areas. This will provide citizens with maximum benefits for an improved quality of life, at an affordable cost.

Najran's population density is not considered to be abnormally low in the urban Saudi Arabian context. However, applying specific planning policies that concentrate density around specific areas, could increase overall population density to counteract low-density expansions. The scenario based on UN-Habitat recommendations demonstrates the potential benefits of limiting the urban expansion and increasing density in the existing urban footprint. This can be achieved with the introduction of mixed land use and by encouraging infill development on the vacant land that exists inside the urban area, with additional public facilities and open spaces.

CURRENT CONDITION

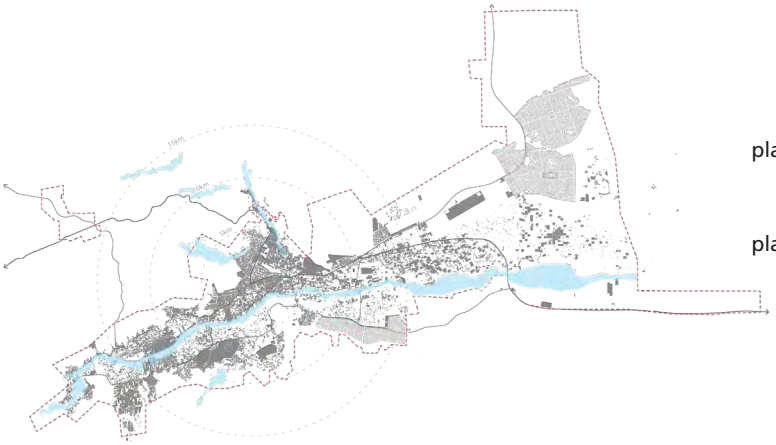


population 316,000

built-up area 10,483 ha

average density on built-up area 30 p/ha

SCENARIO 1: THE NAJRAN PLAN

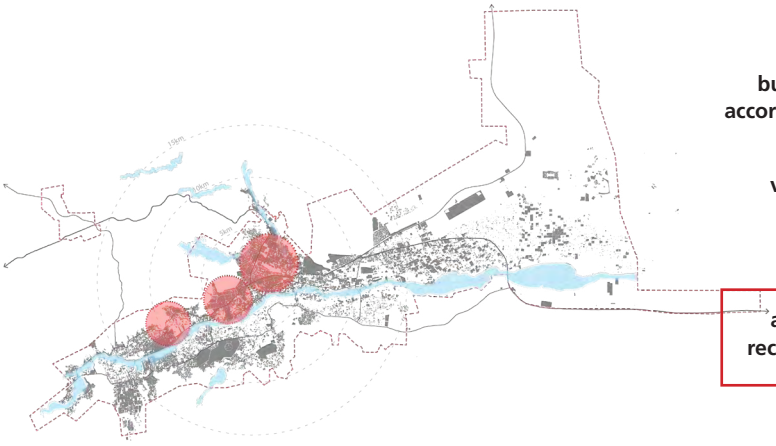


population 500,000

planned built-up area 16,179 ha

average density on planned built-up area 30 p/ha

SCENARIO 2: UN-HABITAT RECOMMENDATIONS



population 500,000

built-up area needed according to UN-Habitat recommendations 3,350 ha

vacant land needed to accommodate population growth 1,227 ha*

average UN-Habitat recommended density 150 p/ha

* new built-up area within existing vacant land

5

STRATEGIC DIAGNOSIS

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5.1 Identifying and Defining Main Strategic Issues

During the evidence-based and cross-scalar analysis, four main issues affecting sustainable urban development in Najran 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 Najran, 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. In Najran, sprawl developments can be seen especially in the Southern bund of the city, across the wadi, as well as the emerging residential development around the university. These developments tend to encroach the valuable farmlands along the Najran Wadi and convert them into the residential use.

1

[SPRAWL]

5.1.2 Divisions 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. In Najran, urban clusters scatter around the agricultural core while separated by over-dimensioned infrastructure. White land divides the city with a stark distinction between the vacant areas and the non-cultivated agrarian lands.

2

[FRAGMENTATION]

5.1.3 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. In case of Najran, the agricultural lands along the wadi represent a potential source of economic growth and social development, but they currently suffer from water scarcity resulted in abandonment.

3

[LACK OF RESILIENCE]

5.1.4 Endangered historical / vernacular urban patterns

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

4

[HERITAGE LOSS]

Workshop discussion in Najran with stakeholders

5.2 Analysing Najran's Four Issues in Depth

5.2.1 Najran's unbalanced growth and development patterns

The city has a strong and characteristic agricultural backbone that occupies the lands around and within the wadi channel. Together they create a robust linear spine for the whole town which extends on the North-South axis within the valley. The relatively compact form and linear structure ease city management. Najran demonstrates a sound character as an agricultural oasis with fair levels of service accessibility, within a consolidated city that should be maintained and enhanced through future growth. The current structure is endangered by the emerging trend of urban sprawl. New development threatens the compact structure and corrective measures should be taken.

Sprawl in Najran occurs primarily as a result of a rapid extension towards the East and South of the wadi. As the city has expanded, areas in the centre have fallen into decline. Many residents have moved to newly built homes in the emerging suburbs. They left behind properties that soon became difficult and expensive to maintain. Complex and fragmented structures of family ownership attributed to older buildings and plots also pose challenges to rehabilitation. The outward movement from the central area of the city has resulted in uncontrolled sprawl and deteriorating properties in historic centres with no incentive for maintenance. New developments are emerging as far from the city as areas beyond the UGB. This phenomenon continues despite the existence of large portions of vacant or underdeveloped land in both the consolidated city and the former agricultural lands distributed throughout the entire footprint.

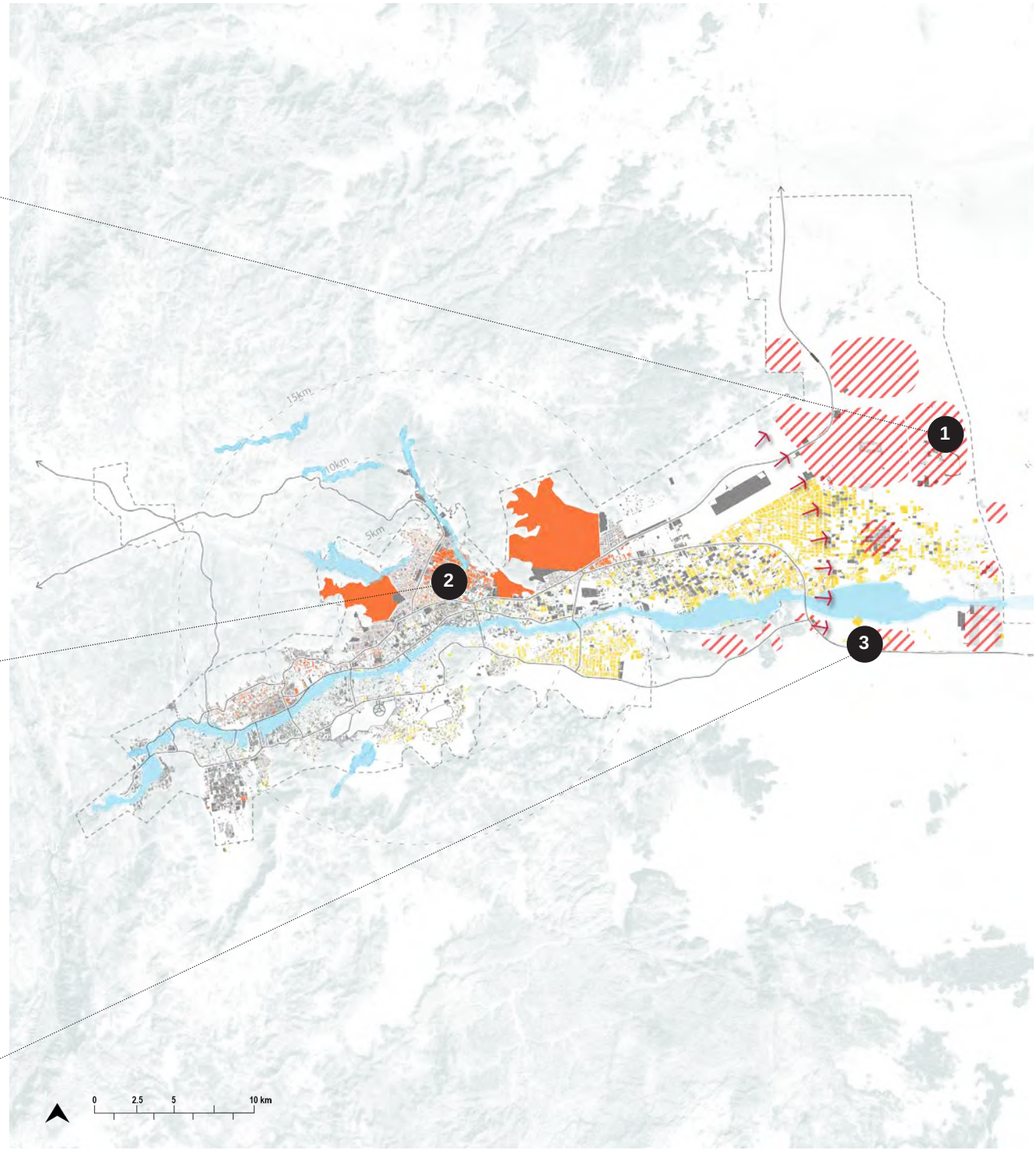
Urban sprawl causes inefficiency in urban management and a high financial cost for government attributed to delivery of infrastructure and public services. In a sprawled city, the cost of providing access to electricity, sewage, and clean water for the municipality is higher than for a compact city. Maintenance capacity is also affected as infrastructure is more widespread.

In Najran, urban sprawl can be controlled by containing urban development within the current urban footprint and focusing on improving and densifying underdeveloped areas. To support sustainable and efficient growth, the city should explore the possibilities for incorporating military land into the urban fabric. The proximity of the property would provide very significant advantage over the plots developed on the UGB and if developed, would contribute to greater accessibility and reduced cost in delivery of infrastructure and public services.

1. *Satellite university village*

2. *Vast vacant land within the city centre*

3. *Sprawling developments*



Sprawl direction

Urban sprawl

Vacant land in urban areas

Vacant land in peri-urban areas

Built-up area

Fig. 35. Najran's unbalanced growth and development patterns

5.2.2 Divisions and lack of cohesion in Najran's urban structure

Najran has a relatively compact and well-linked city centre and also demonstrates good connections in the central districts North of the wadi.

Notwithstanding, many areas within the city fabric suffer from disconnection. To some extent, this can be attributed to natural topographical barriers such as the wadi and mountains, but is primarily a symptom of large portions of monofunctional land use (military, education, etc.) and large underdeveloped areas. The military owns vast parts of the city that create consistent stretches of undeveloped breaks in the urban form. While there is a significant potential for development within the existing consolidated city, new projects continue to be developed outside, encouraging sprawl over unbalanced development patterns.

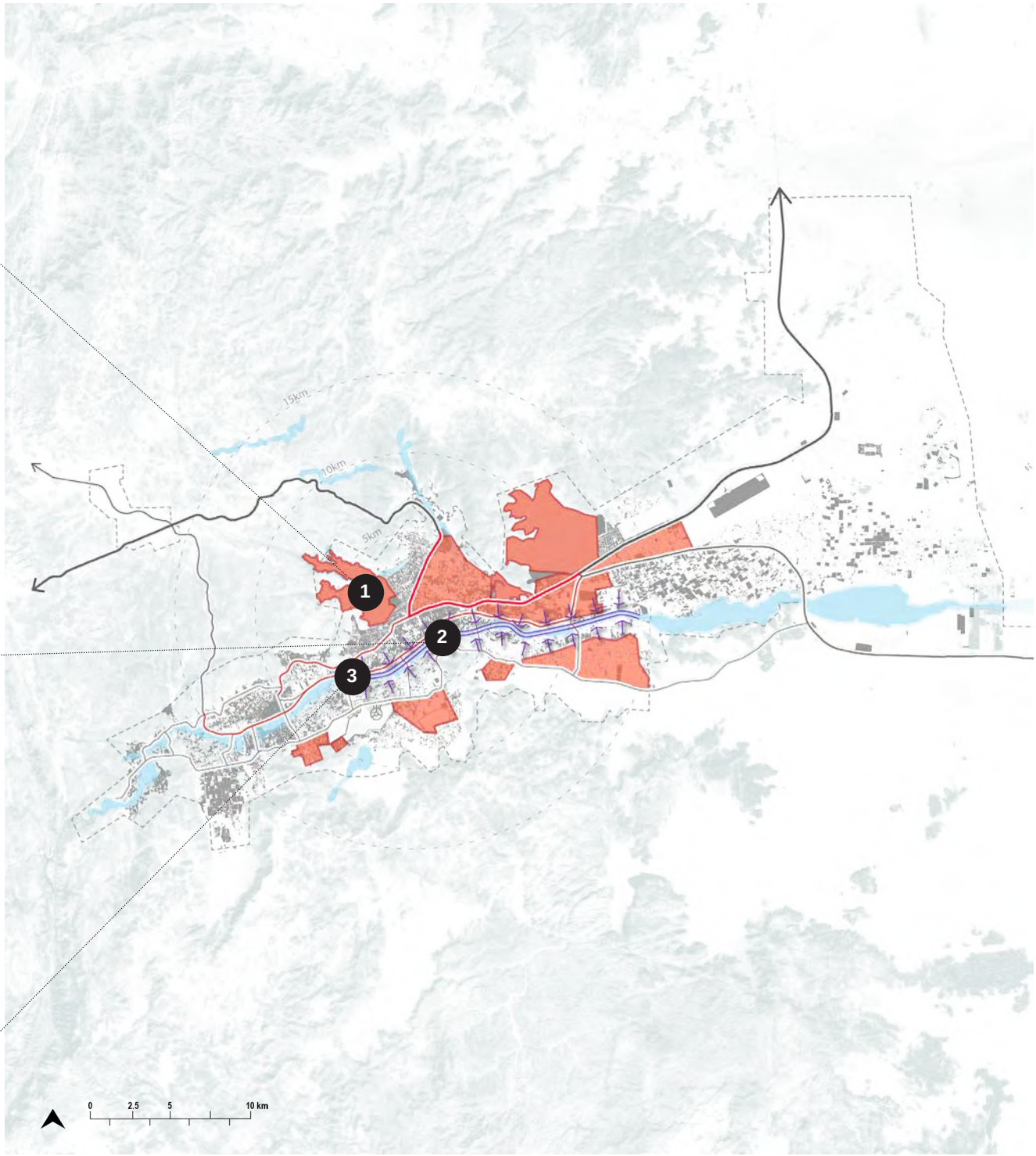
The wadi is a critical natural feature that enhances quality of life and supports agriculture. However, it also acts as a significant divide in the city structure. The Northern side of Najran is separated from the South in such a way that questions the unity of the whole fabric. The Northern side appears to be more developed, having expanded from its historical centre and hosts the city's major institutional centres. The Southern side remains largely rural, hosting many informal settlements along the city borders. Very few routes connect the roads that run parallel to the wadi on either side. The links that do exist are not of suitable quality and requires improvement to promote better accessibility between both sides of the city.

The strong linear shape and expansive growth of the city, has created conditions that favour the automobile at the cost of the pedestrian. The characteristic structure can, however, prove a positive template on which to overlay and integrate a functioning public transport system that the city currently lacks.

1. *Vast military land within the city centre*

2. *Artificially defined wadi corridor*

3. *Overdimensioned road infrastructure*



Artificial wadi corridor dividing the city

Fragmented urban clusters

Infrastructure dividing the city

Built-up area

Fig. 36. Divisions and lack of cohesion in Najran's urban structure

5.2.3 Socio-ecological and economic imbalance in Najran

Najran's strong rural character and rich culture can be attributed to its dominant agricultural heritage that forms the spine of the whole city. Sadly, agrarian activities are now diminishing due to depletion of the groundwater aquifers that has become critical within the last decade. Strong initiatives and policies need to be developed to ensure the city operates in harmony with the natural environment, creating ecological balance and strong resilience values. Proper groundwater management strategies should be developed with a precise focus on recharging groundwater aquifers, wastewater and water runoff. Traditional farming methods and alternative irrigation methods such as dripping, should be studied and promoted to reduce the risk to non-renewable aquifers.

Najran and the surrounding lands has witnessed severe flooding in past years, during heavy rains. These events resulted in high levels of damage to both the human and natural environment, and have emotionally impacted inhabitant security in each rainfall period. Water flows from the surrounding mountains into the Najran Wadi where the majority of built-up areas are located. To mitigate the damage caused by flash floods, wastewater and water runoff management strategies need to be revised and enforced to improve resilience in the city.

Architectural heritage in the area is strongly linked to agriculture. All historical sites and centres are located at very close proximity to farmlands. The wadi, green and architectural heritage areas benefit one another and create a unique synergy that is crucial for the city. For this reason, preserving the agricultural land and enhancing it's productivity for Najran is important for the future preservation of the city's unusual character.

Despite the dominant presence of agricultural land, the city lacks a multi-scalar system of public green space. Networks of neighbourhood parks and greenways should be introduced to connect built-up areas with farmlands. This could be achieved with selective conversion of available vacant lands within the built-up areas into green, open spaces and linear parks, serving the community. On the borders of these parks and green connectors, pedestrian-scaled commercial activities and various social infrastructures can be introduced. In addition, realignment and greening of the streetscapes would further link the public open spaces and create a pedestrian friendly environment in the city. It is important to use local plant species for any greening programmes that would be suitable for the climatic conditions of the city. All these interventions must be designed as a cohesive system that will holistically reduce imbalance amongst the socio-ecological and economic features that characterise the city.

1. *Earth fissures associated with water extraction*

2. *Lack of water management for self-sustainability*

3. *Depleted aquifer resulting in water scarcity and loss of agriculture*

Lack of green links

Artificially defined Wadi Corridor

Water scarcity

Encroachment on Wadi Najran

Fragile heritage agricultural land

Built-up area

Fig. 37. Socio-ecological and economic imbalance in Najran

5.2.4 Endangered historic / vernacular urban patterns in Najran

Two categories of historical patterns can be observed in Najran. The first comprises the city's cultural heritage sites, scattered along the wadi's banks. These include the historic city centre of Najran, Al Ukhdood Ancient Village, Al Aan Palace, Al Hamra Palace, Ra-um Fort, and a number of further villages in the farmlands. The second category pertains to the organic pattern of farmlands with traditional accompanying houses, also interspersed along the wadi. The farmlands, historical dwellings and their synergy with the landscape, tell a story of Najran's history, economy and way of life.

These historic elements encompass the identity of the city and can be leverage as a competitive asset in the city's economy. However, the majority of these unique assets are at risk of falling into disrepair and their unique identities are being lost or damaged. The following factors contribute to this condition:

- Reduction of agricultural land, resulting in augmentation or damage to the historically organic urban pattern;
- Abandonment and deterioration of historic buildings due to migration and population loss;
- Inadequate public services (health and education) in historical sites;
- Inadequate connectivity and public transport;
- Inadequate sustainable water management (flood risk and water supply).

Traditional adobe and brick architecture in Najran is called Midmakh. These buildings are particularly distinctive and reflect the influence of Yemeni design in the region. These buildings can be observed throughout the region, in various conditions. A number of these buildings remain in good condition as a result of maintenance or restoration, however, others are deteriorating. Some of these houses are estimated to be several hundred years old. Fortunately, there seems to be considerable interest in Najran residents to preserve their traditional homes, often adapting them for current lifestyles.

Reduction of agricultural land, resulting in a decrease in historic ecological balance

Abandonment and deterioration of the historic buildings

Inadequate infrastructure and services

Heritage sites

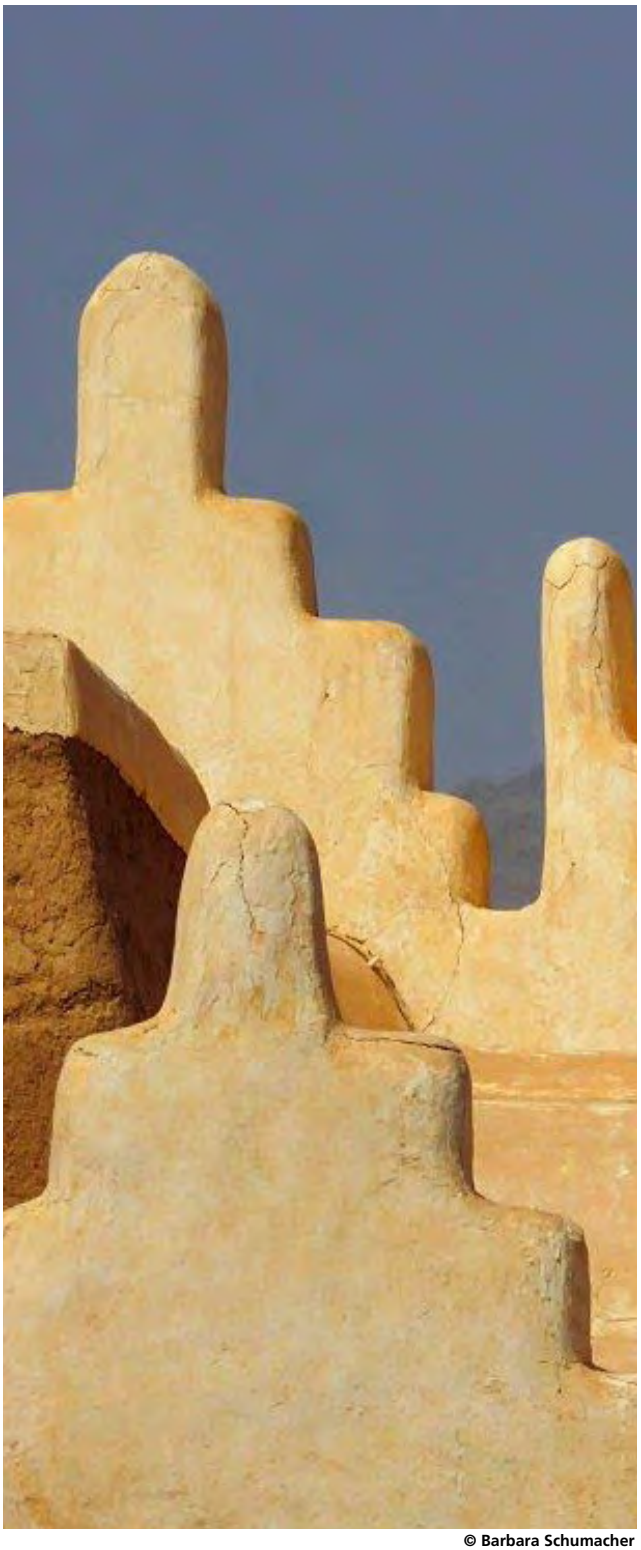
Fragile heritage agricultural land

Built-up area

Fig. 38. Endangered historic / vernacular urban patterns in Najran

6

THE FUTURE CITY



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6.1 Strategic Responses

After performing a strategic diagnosis, and identifying four core issues affecting the urban development of Najran, 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 Najran, at 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.

[CONSOLIDATE]

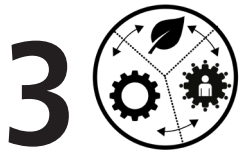
6.1.2 The Connected City

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.

[RE-STITCH]

6.1.3 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,*[32] 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 Najran, 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.

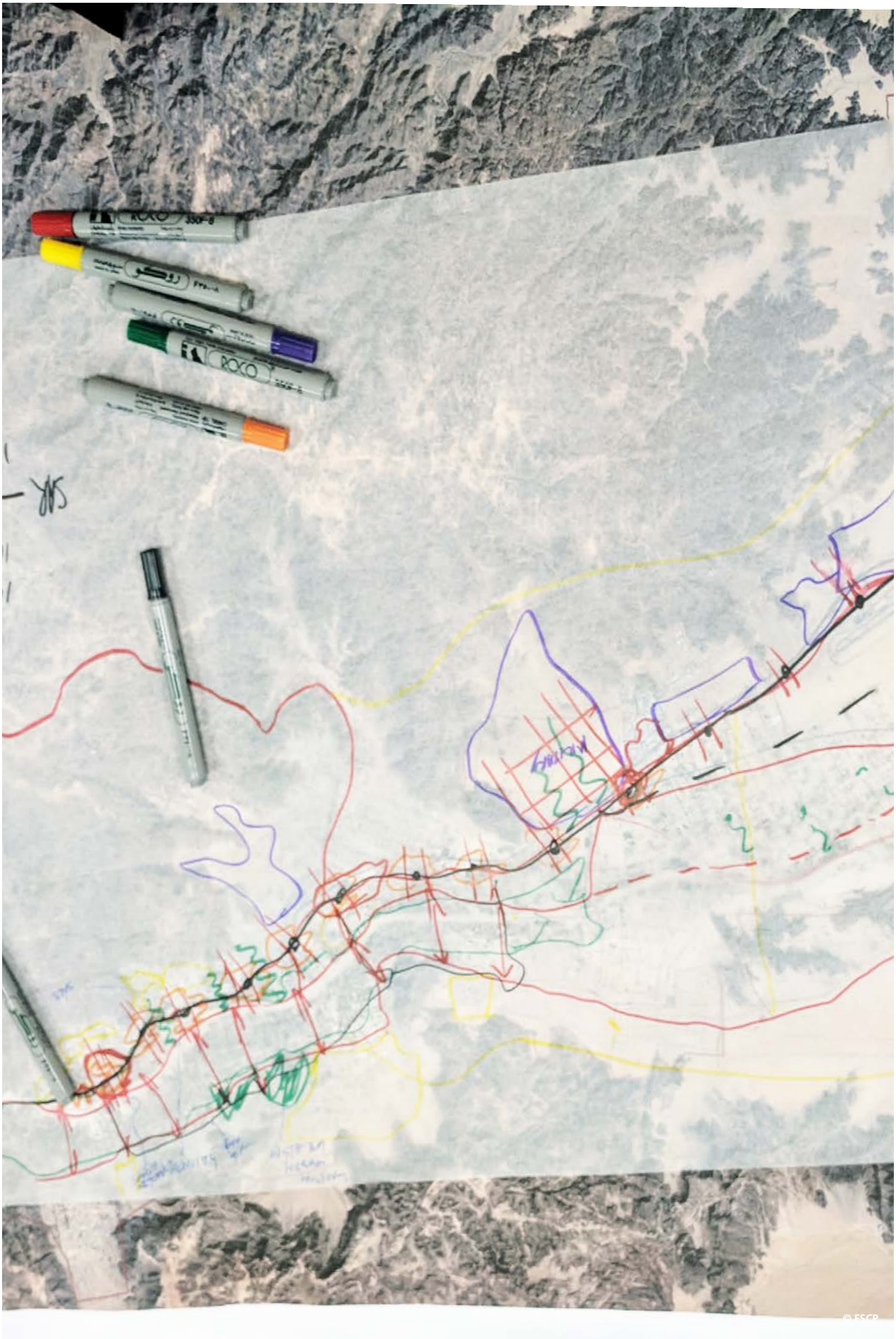


[PROTECT & IMPROVE]

6.1.4 The Historic City

A Historic City is defined as an active human settlement, strongly conditioned by a physical structure that originates from its past, and recognisable as representing the evolution of its people.[33] Following this definition, it is fundamental for historic areas to be inhabited and form a live cultural nucleus, with a strong urban identity. Over the last few decades, inner-cities and their historic districts all over the world have been deteriorating. Saudi cities are facing high-pressure from development, and often, in historic cities, architectural heritage has been allowed to deteriorate or eradicated to make space for new development, in place of conservation in historic areas. Responding to this scenario requires firstly the establishment of categorisation of these areas, followed by precise regulatory systems for their preservation, restoration, rehabilitation, and revitalisation, aiming not only at protecting the heritage buildings but the entire historic urban fabric, inclusive of all its elements, from streetscapes to residents.

[PRESERVE]



Workshop discussion in Najran with stakeholders

6.2 Appropriate Models for Najran's Urban Development

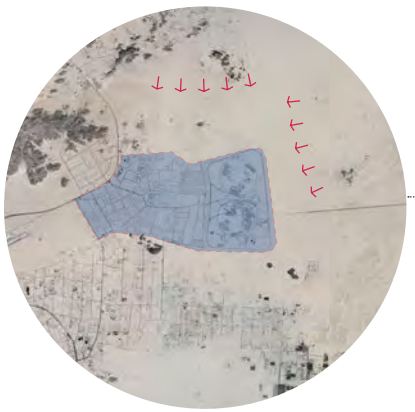
6.2.1 The Compact City: Consolidating Najran's development by creating and densifying centres

The first strategy for Najran is intended to prevent urban sprawl. The existing city fabric should be compressed for a more sustainably compact form by developing inner-city vacant lands and increasing densities within the built-up area where possible. To improve compaction in the city, emphasis should be placed on land use regulations, building heights and densities of developments within the 1450 UGB. Existing vacant land must be developed and priority should be given to high-density infill developments. The military lands that fall within the urban structure remain largely unoccupied. Changing its use to residential and mixed-use could fulfil demand for future expansion. The proximity of this potential development to the existing urban fabric would reduce fracturing and create a continuity consistent with sustainable city models.

If consolidation and densification is to occur with future development, a series of strategic areas for concentrated densification should be identified in multiple areas of the city, including the existing centres. The identification of these strategic points should follow criteria linked to the availability of vacant land and existing density distribution patterns. In parallel, low-density development within the existing urban fabric should be addressed more generally by promoting higher-density and mixed-use in redevelopment and new development where possible.

The University campus and its surrounding neighbourhoods house approximately 20,000 residents. The size and importance of the university qualify the areas recognition as an emergent strategic node. However, the proposed plan for the area should be revised and redesigned to prevent further sprawl. The area should only develop around the local centre at a higher density, to create a compact satellite development that should be serviced by a strong transport connection with the rest of the city.

This strategy requires care to preserve the character of the city. Therefore, while densification in the Northern bund is promoted, the South side of the Najran Wadi must retain its rural identity. As such, building codes that limit development to sensitive typologies should be applied for this area. Integrating this framework with the Najran Development Strategy would lead to improved accessibility, more cost-effective infrastructure and would have a positive impact on limiting sprawl to create a sustainable compact city.



1. *Prevent further sprawl*

2. *Fill the vacant land*

3. *Densify existing urban centres*

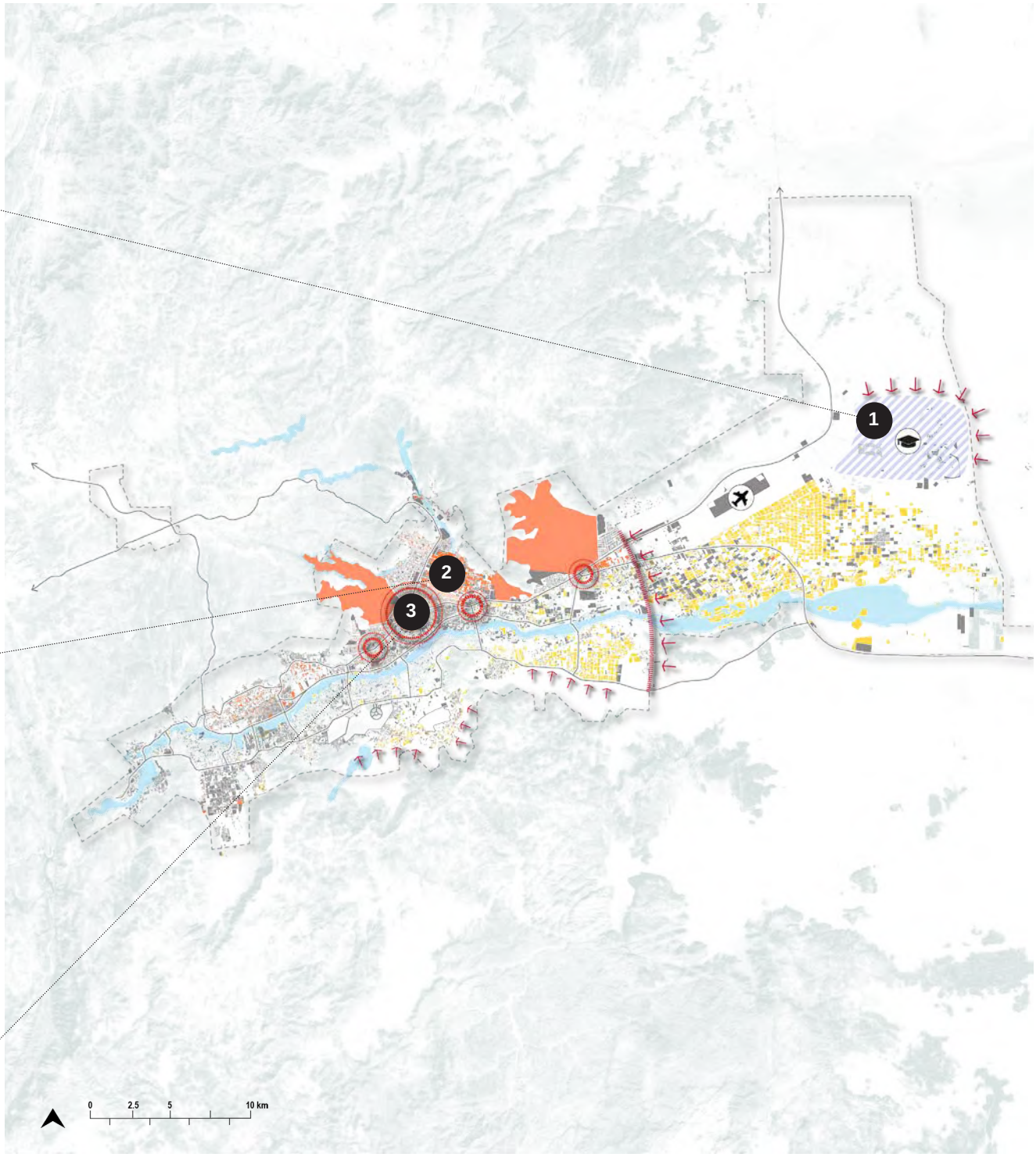


Fig. 39. The Compact City: Consolidating Najran's development by creating and densifying centres

6.2.2 The Connected City: Linking Najran by public transport

This strategy deals with the need to remedy a divided urban structure and reduce spatial fragmentation, resulting in more equitable accessibility for all citizens. The primary fragmenting devices for Najran are Wadi Najran, inactive military lands, vacant lands, and over-dimensioned infrastructure.

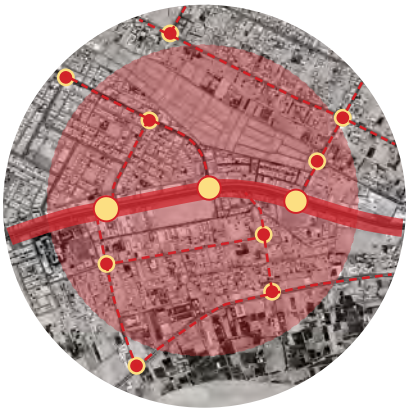
In Najran, as the city has grown in a linear stretch along the wadi's banks, two urban structures were formed. These two structures are divided by Wadi Najran that bisects the potential whole into North and South. While Northern half has developed a well-connected urban form, whereas the highly rural Southern portion is fragmented, having developed in patches that lack sufficient connections with the North.

Though there is clear disparity between the two halves of the city, the linear shape of the town provides an appropriate basal template on which to implement an integrated public transport system that could follow the central axis with a secondary feeder system running perpendicular. The main route that cuts a line from East to West connects the nearly 15 kilometre long city with further nodes at which the airport and the university campus are located. A centralised public transportation could be developed as a vital urban corridor, lined with mixed-use development, promoting social-spatial integration across the population and fostering efficient movement and accessibility to diverse urban functions. Public transport nodes along the passage should be carefully strategised to form a sequence of focal points that encourage development and further densification in their surrounds. This sequence of centres should contain a diverse range of activities and spaces with commercial, mixed-use and public facilities.

The vast vacant lands dividing the city should be used as space for public activities. They could be interpreted as a resource from which to create a system of open public spaces and green infrastructure to promote walkability. They should be used to link detached neighbourhoods and contribute to the overall connectivity of the city.

Define transportation lines along major axes

Create a secondary network for improved accessibility



Consolidate and densify land uses along major nodes

Fig. 40. The Connected City: Linking Najran by public transport

6.2.3 The Resilient City: Rebalancing Najran's socio-ecological and economic systems

This strategy aims at promoting the development of urban spatial frameworks that support the sustainable use and management of natural resources and land, encouraging the appropriate compaction and density, polycentrism and mixed-use concentrations from previously illustrated strategies. The approach is intended to rebalance the city's functionality. These means undergoing a process to strengthen urban resilience, enhance resource efficiency and environmental sustainability. To achieve sustainability the city needs to trigger economies of scale and agglomeration and address the need for improved risk reduction, and food and water security.

Though Najran is in possession of a robust blue and green network that forms the spine at its core, green spaces outside of this zone are currently scarce in quantity and disconnected from both each other and from the urban core. The artificially defined wadi corridor could be opened for recreational activities that could enhance life quality, promote walkability and contribute to the overall image of the city. The remaining vacant land should be utilised to address the lack of green areas in the city which should accompany a strategic densification processes, treating and preventing congestion.

A green network needs to be established that connects the existing green spaces, historic farms and additional propositions for green spaces in areas that are currently lacking. A carefully designed system of green spaces that are dispersed throughout the entire city would provide opportunity to reactivate the farm areas and ensure overall improvement in the quality and resilience of the urban environment in Najran.

In parallel, a water management strategy should be implemented urgently. Najran has already used all the rechargeable underground aquifer water and has started to exploit the ancient aquifers. This is particularly dangerous for the environment and creates a high risk of subsidence and earth fissures for its citizens. The authorities must take measures to prevent overuse of the groundwater and provide alternative sources that would meet agrarian and residential requirements. If alternative sources can be used to lift the burden and allow underground water-recharge mechanisms to re-establish, this would sustainably support reinvigorated agriculture, strengthening food security and resilience.

Green network needs to be established utilising the existing green spaces, the historic farms and new green spaces

Promoting agriculture will strengthen food security and resilience

Natural Parks in the city peripheries should be connected to new robust green network

Fig. 41. The Resilient City: Rebalancing Najran's socio-ecological and economic systems

6.2.4 The Historic City: Preserving and enhancing Najran's identity

This approach focuses on the historical sites in Najran and their potential to create economic advantage if efficiently connected with each other and with neighbouring parts of the city via a public transportation network. Heritage and culture should be positioned as important anchors for development in Najran and all efforts should be directed towards preserving and enhancing its rural nature. Ensuring the protection and preservation of historically valuable areas would ensure Najran retains its unique identity and values. These areas can generate revenue for costs associated with protection and regeneration if they are promoted to attract cultural tourism.

The city must continue to protect the valuable historical farms around the wadi and emphasise their incredible agricultural and historical value. Differences across diverse types of settlements need to be acknowledged, and as such, a diversified approaches to preservation, upgrading, and revitalisation must be set in place following their systematic categorisation. The focus must be on creating preservation plans, infrastructure adjoining them to green network and a system of identity and heritage interest points. The unique mountainous topography of Najran can be used to create a connection between the historical sites and natural features. Promoting Najran as a Green Historical Oasis would strengthen the city's image and bring tourism and related economies.

Historical farms

Heritage building

Al Ukhdood Village

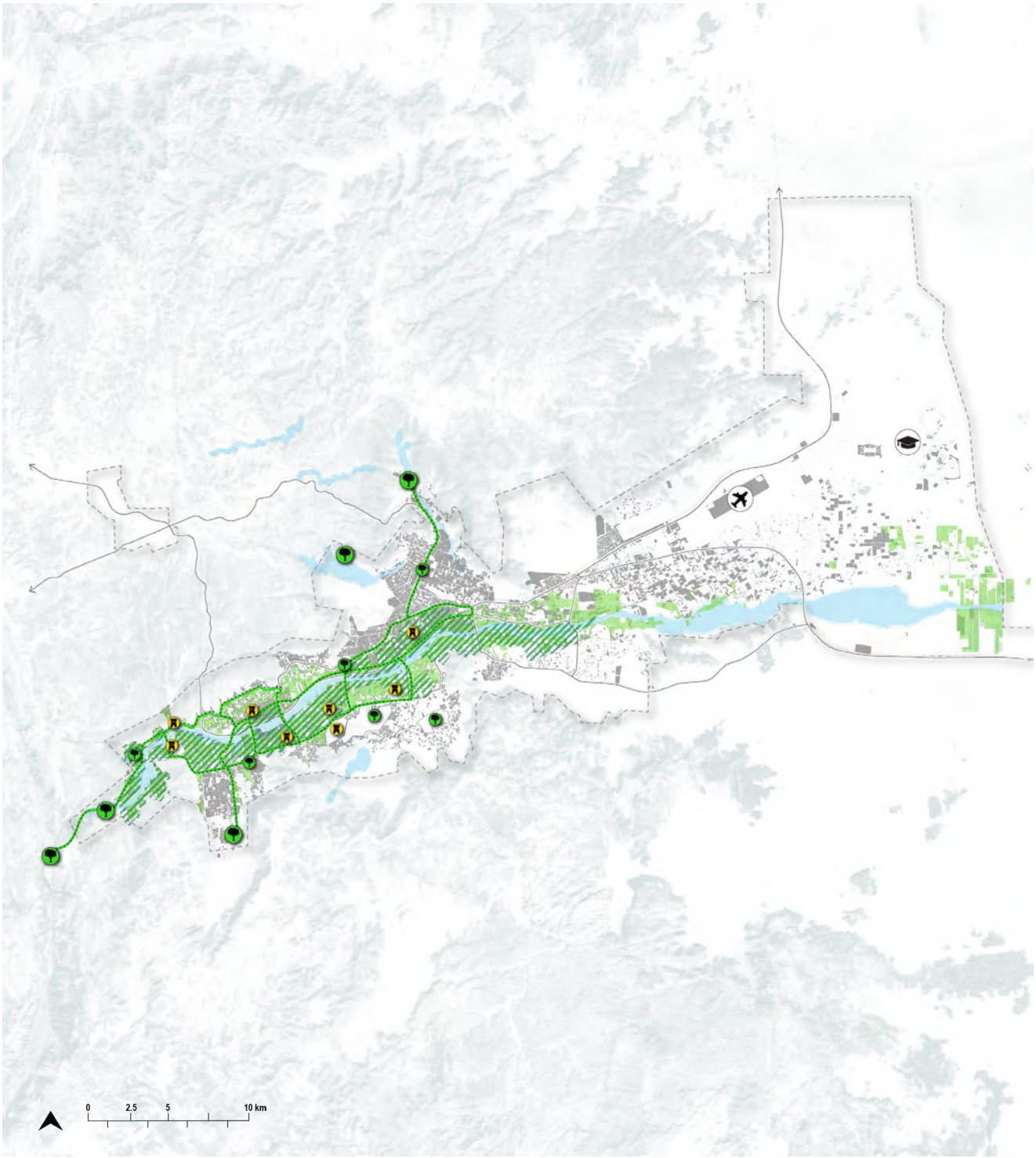


Fig. 42. The Historic City: Preserving and enhancing Najran's identity

6.3 An Action Plan for Najran

Transforming conceptual recommendations into concrete implementation strategies requires detailed systemic actions that can incrementally trigger the envisaged spatial, economic, and social transformations. As such, an action plan that is rooted in the four strategic recommendations and grounded in a series of systematically scaffolded interventions for Najran, serves to guide the development of an integrated and resilient city.

The action plan outlines four systemic actions, developed specifically for Najran. Although all the strategic actions target specific interventions, (that can trigger a structural change in Najran's development trajectory), there are conceptual differences in the way that they were conceived. The four actions are defined as:

- **ACTION 1: Establish a public transportation system to create backbone for development;**
- **ACTION 2: Implement strategic densification around main nodes and transport lines;**
- **ACTION 3: Preserve natural assets and establish a network of green public spaces;**
- **ACTION 4: Protect, revitalise and connect historical and vernacular structures.**

Action 1 and 2 address the need for a system of interventions at the urban scale. It creates an outline to address the issues of sprawl and disconnection in the city. Action 3 highlights the importance of improving the environmental sustainability of the city and its neighbourhoods. Action 4 focuses on promoting punctual interventions to preserve the local culture. It targets preservation and revitalisation of heritage areas, while addressing the socio-ecological rebalance using the natural features.

Overall, the Action Plan creates impact at two scales: that of the city and the neighbourhood.. At the city scale, a public transport system would dramatically improve Najran's connectivity and integration. It would link neighbourhoods and rebuild the relationships between city users while promoting densification and compaction. At the neighbourhood scale, the Action Plan fosters transformation and activation of existing vacant land inside the urban footprint, improving overall connectivity across neighbourhoods with the gradual transformation to a dense and integrated urban fabric. This should be supported by a public transport system, establishing dynamic movement of people and goods, and therefore boosting local economies. It supports heritage preservation and promotes economic diversification in the development of programs that will draw on the unique value encapsulated in the city's location and its vibrant history.

Vernacular building in Najran

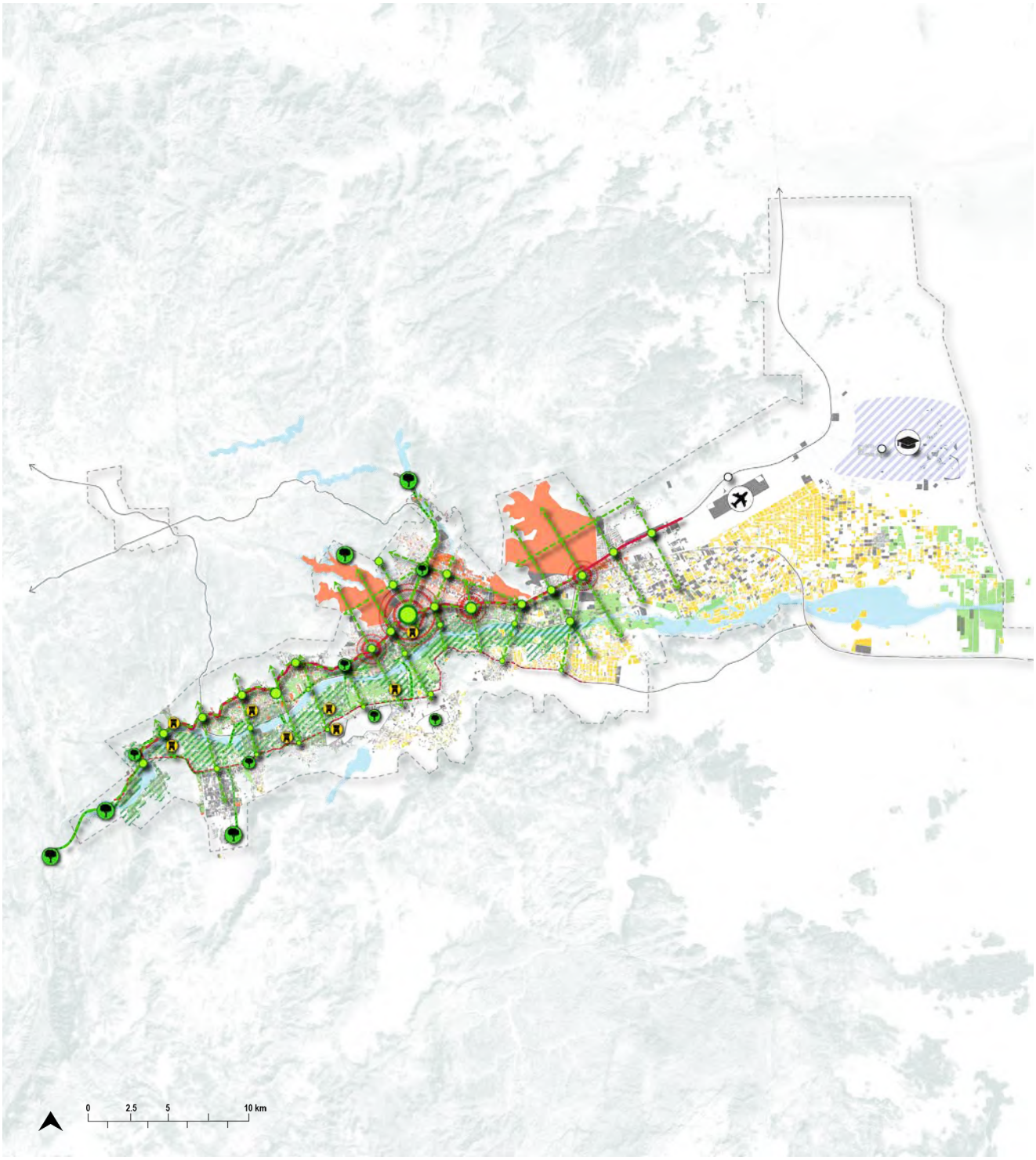
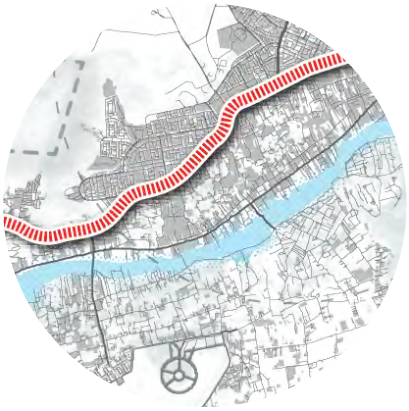


Fig. 43. Strategic recommendation for Najran

6.4 Four Systemic Actions for Structural Change

6.4.1 Action 1: Establish a public transportation system to create a backbone for development

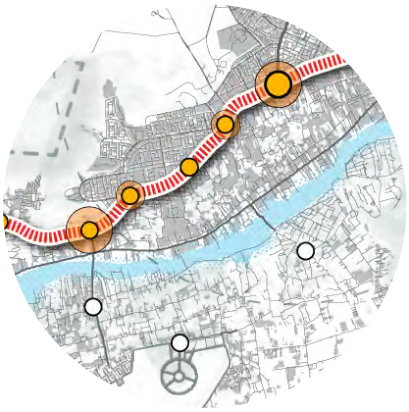
The first Action focuses on a review and realignment of the existing road network and design for an efficient public transport system. As proven in many cities around the world, such actions not only improve accessibility but also have a tremendous positive impact on social integration and economic development. Action 1 sets the preconditions for promotion of an incremental increase in urban density and for the creation of new centralities around the major transport corridor. Najran's relatively compact form and linear shape give the city a significant advantage. Action 1 can be summarised in the following steps:



Establish a linear public transport system along the central East-West axis

1.1 Establish a linear public transport system along the central East-West axis

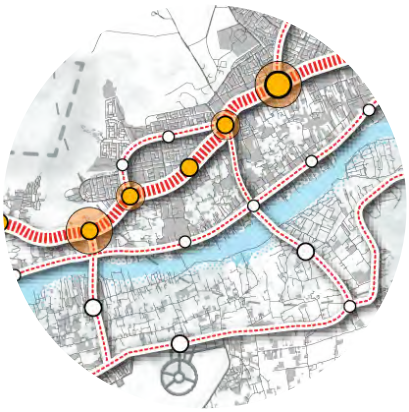
Based on the linear structure of Najran, it is feasible to implement a central transportation line, such as BRT, parallel to the wadi. Running on the King Abdulaziz Road, this central spine would enhance the existing form of the city with improved access to central facilities, reduced traffic and a fast and efficient connection across the entire city. Additionally, the well organised primary transportation system can be extended to the distant Airport and satellite University Campus, improving general accessibility and linking them back to the consolidated city.



Strategically determine public transportation hubs

1.2 Strategically determine public transportation hubs

Design for the central corridor should be grounded in the establishment of the main public transportation stops. A series of hubs should be created based on the catchment capacity and strategic location. These hubs will have the potential to become new centralities through anticipated development. In addition, a nodal hierarchy must be defined to determine local, city, and regional level significance, to concentrate public amenities along transportation line. Defining the hubs would facilitate the implementation of a secondary feeder network, with hubs acting as interchange stations.



Create a transversal network of secondary connections

1.3 Create a transversal network of secondary connections

While implementing the central public transportation spine, it is vital to consider designing a transversal secondary feeder network serving further areas across the river. A series of smaller scale connecting routes would feed the aforementioned central line and most importantly, increase the connectivity between the North and South sides of the wadi. It is critical to provide a sufficient amount of intermodal linkages between neighbourhoods of residential and agricultural nature, and various commercial zones. Carefully designed routes should connect strategic points within the city, and create efficient movement between historical areas that are distributed throughout the city. Ultimately less congested and well linked, Najran would become more attractive for both the residents and explorers visiting the city.

Fig. 44. Action 1: Establish a public transportation system to create a backbone for development

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

In follow on from the addition of public transportation, the city should begin actively encouraging residential densification in the areas within walkable access to public transport. Strategic densification should be applied around selected primary nodes and transportation corridors, promoting mixed-use development to rebalance the city's distribution of services. The peri-urban areas should be preserved and the consolidated town should be focused on utilising the vast amount of vacant land inside its footprint. Action 2 is comprised of the following steps:

2.1 Promote densification around defined transportation hubs

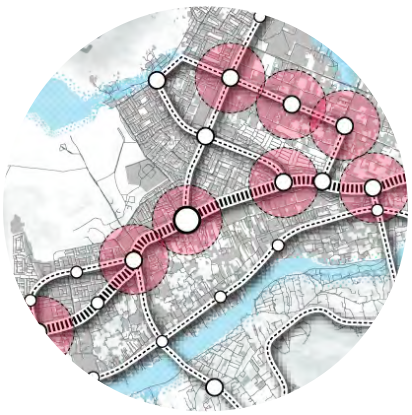
The densification process should initially be promoted in areas surrounding the identified public transport hubs. A balanced provision of health, education and institutional services should be distributed within the nodes. Following the nodal densification, the developments along the major roads should also be compacted to generate a spine for the city and prevent further sprawl while preserving the valuable agricultural lands.

2.2 Promote mixed-use around the densification nodes

Densification of development nodes has to be supported by introducing and promoting mixed-use areas to ensure diversity and vibrancy. These economically diversified centres not only would improve access to services and daily goods, but also create safer districts through the increased public presence. The success of these centres will create the potential to extend this condition to a period of twenty-four hour operation. Through enhanced street life, the areas would become more vibrant where points of attraction and unique identity are to be designed.

2.3 Develop available vacant land within the current built-up area

On the local level, the vacant lands within the city should be developed. The right incentives and regulations should be set into place to acquire vacant land to foster further densification across the city. The military land currently dividing the urban structure has excellent potential and is unquestionably occupying the most suitable position on which to focus future development of the city. If the vacant land within the existing urban footprint is incrementally developed, hosting future growth within the footprint, it will prevent sprawl and create a continuous city fabric. This infill development can be used to re-balance land use and provide amenities lacking in surrounding neighbourhoods such parks, open spaces, or public facilities.



Promote densification around defined transportation hubs

Promote mixed-use around the densification nodes

Develop available vacant land within the current built-up area

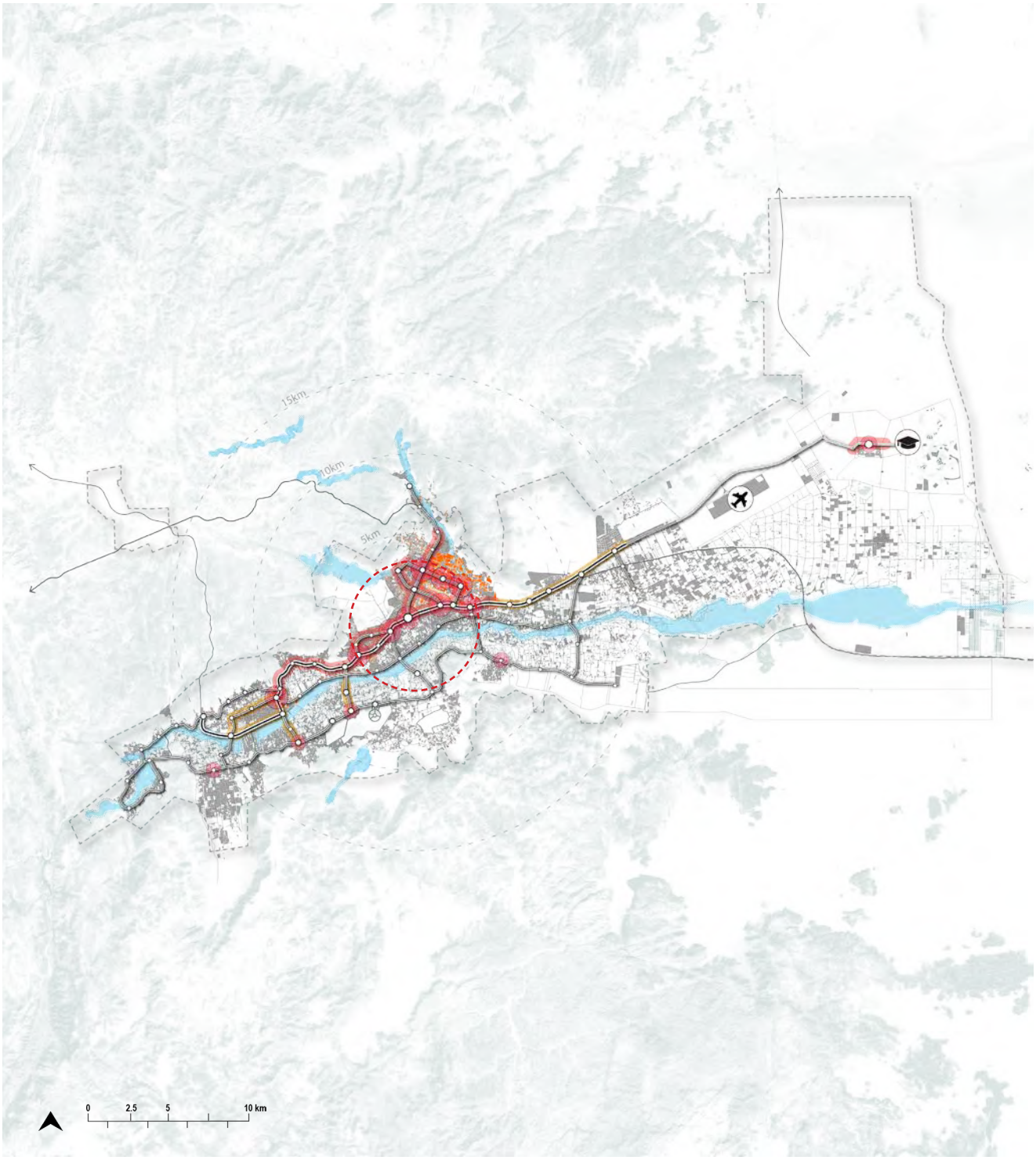


Fig. 45. Action 2: Implement strategic densification around main nodes and transport lines

6.4.3 Action 3: Preserve natural assets and establish a network of green public spaces

The third action is intended to make the city more resilient, more sustainable, and enjoyable for its residents. It focuses on preserving natural resources and developing the agricultural sector, which is critical for the city's future growth. This requires development of a water management strategy to decrease dependence on aquifers and the creation of a public green space network that connects with the surrounding natural features. Action 3 can be summarised in the following steps:

3.1 Preserve agricultural land and connect it with the urban fabric

Najran is famous for its historic agricultural heritage. The sensitive historical farm area along the wadi must be protected as it is crucial to maintain the city's identity. Abandoned farmlands should be reactivated to maintain and increase local food production with strong incentives. Measures taken should be endorsed at governmental level and include regulations of legal weight. Furthermore, the relationship between farms and the built-up area needs to be defined to integrate both functions. The efforts to foster productivity of farms should be conscious to draw on new mechanisms for water supply and should be based in methods that limit damage to the ecosystem.

3.2 Introduce a comprehensive water management strategy

Najran suffers from severe water scarcity. It is the primary reason for abandoned agricultural lands and activities. As the groundwater tables have been emptied, it is vital to implement a reliable water management strategy that limits water usage and further extraction, not only in the city but also throughout the entire region. More sustainable and natural techniques should be explored and introduced. More environmentally conscious irrigation policies would create a series of positive impacts in the city that are intrinsically interlinked; It would create a revival of agricultural activities, food security, diverse economies, improved city image and overall quality of life quality for citizens. The existing water drainage network must be also be improved by utilising the existing wadi system to reduce the flood risk both in the built-up area and farmlands.

3.3 Establish a network of green public spaces

Najran has very few green public spaces beyond the wadi area. Increased densities within the urban structure need to be accompanied by a network of open spaces running through the city connecting the wadi with its North and Southern sides. Carefully selected parcels of the extensive vacant land inside the city can be dedicated to the creation of new public spaces at multiple scales. A well-linked green public space network would promote walkability and social integration within the city. This network should integrate existing and proposed systems, including natural elements such as mountains, the river and agricultural lands. It should connect to major points of interests such as public facilities and important cultural or historical landmarks.

Preserve agricultural land and connect it with the urban fabric

Introduce a comprehensive water management strategy to trigger revival of agriculture

Establish a network of green public spaces

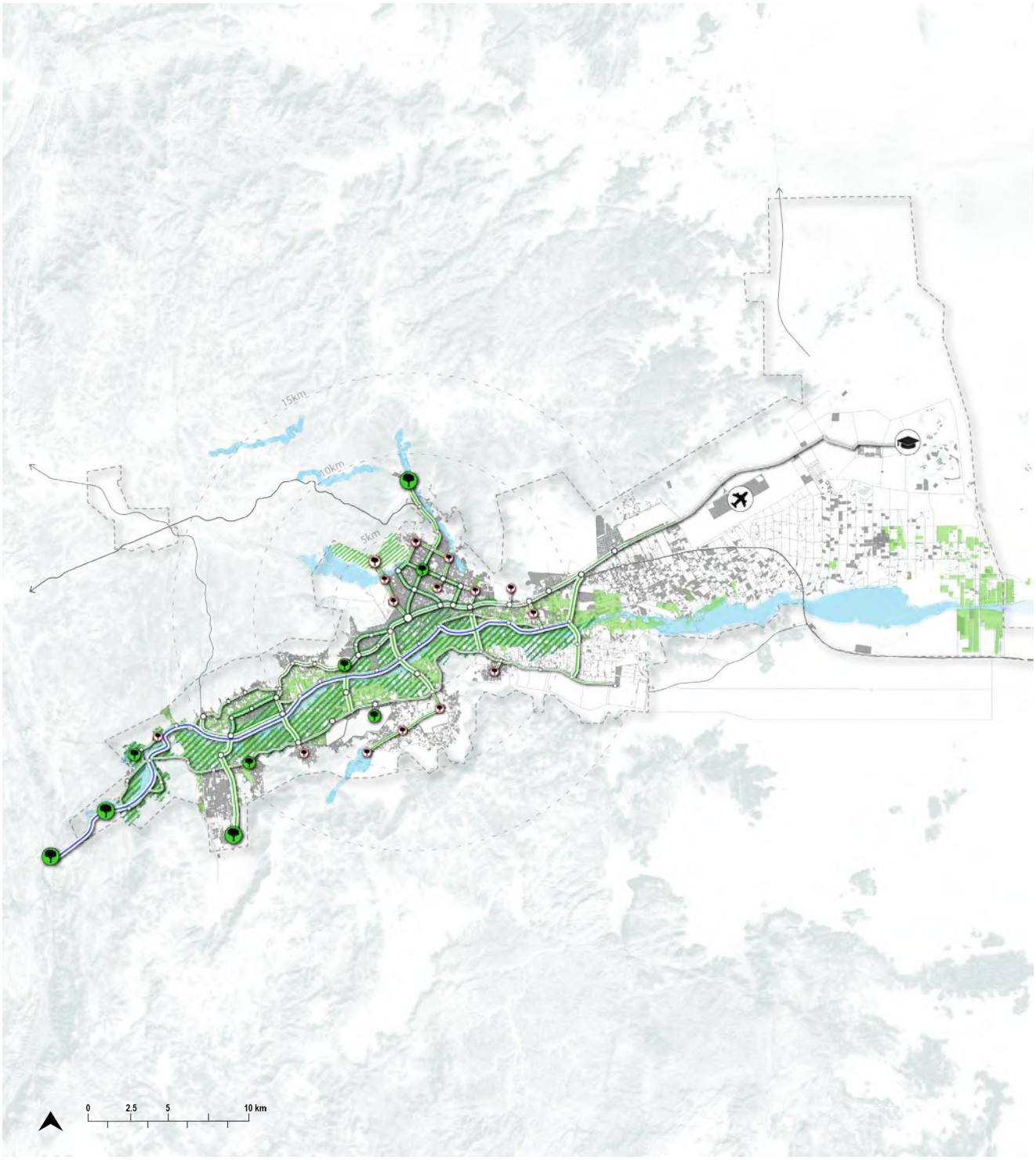


Fig. 46. Action 3: Preserve natural assets and establish a network of green public spaces

6.4.4 Action 4: Protect, revitalise and connect historical and vernacular structures

The last action focuses on preservation and rehabilitation of Najran's significant historical and vernacular structures that are distributed throughout the city. Reactivating and linking these assets to green spaces and commercial activities by pedestrian trails and public transportation will create a holistic economic and cultural benefit for the city. This will reinforce Najran's cultural identity and highlights the enormous tourist potential the city has in its numerous historic structures and unique scenery. Action 4 can be summarised in the following steps:

4.1 Develop a guidelines to protect and rehabilitate historical and vernacular structures

Najran has tens of historical micro villages containing vernacular structures located along the wadi. It is crucial to identify and protect these vernacular structures to enhance the heritage of the city. The abandoned heritage buildings within the city should be carefully restored and conscientiously converted into subsidiary landmarks. Preserving, upgrading and refunctionalising these assets creates a potential to attract new tourism related economic activities. To manage the protection and rehabilitation process, restrictive regulatory controls should be applied on historic or vernacular structures, including the city centre. Guidelines enforcing development protection zones around assets and restriction on modification to maintain identity must be enforced. Integration of these reactivated structures into the urban functions would create unusual points of interest within the city, adding to its distinctive character.

4.2 Link all historical and vernacular structure to create a heritage trail

Following the identification and rehabilitation of historical and vernacular structures in the city, a comprehensive network or trail should be formed of their connection. This trail can be extended to include established open spaces, natural assets, and traditional farmlands along the wadi. Linking the heritage trail with small and disparate public spaces would revitalise the socio-economic vibrancy of the affected neighbourhoods, increasing quality of life for residents. This connected network would support a tourism strategy for Najran, which would boost the economy by attracting visitors, and ensuring a high-quality experience. The synergy between heritage and agricultural activity has the potential to create new economic opportunities and livelihoods.

Preserve and upgrade the heritage buildings

Integrate reactivated structures into the urban functions

Link all historical and vernacular structures to create a heritage trail

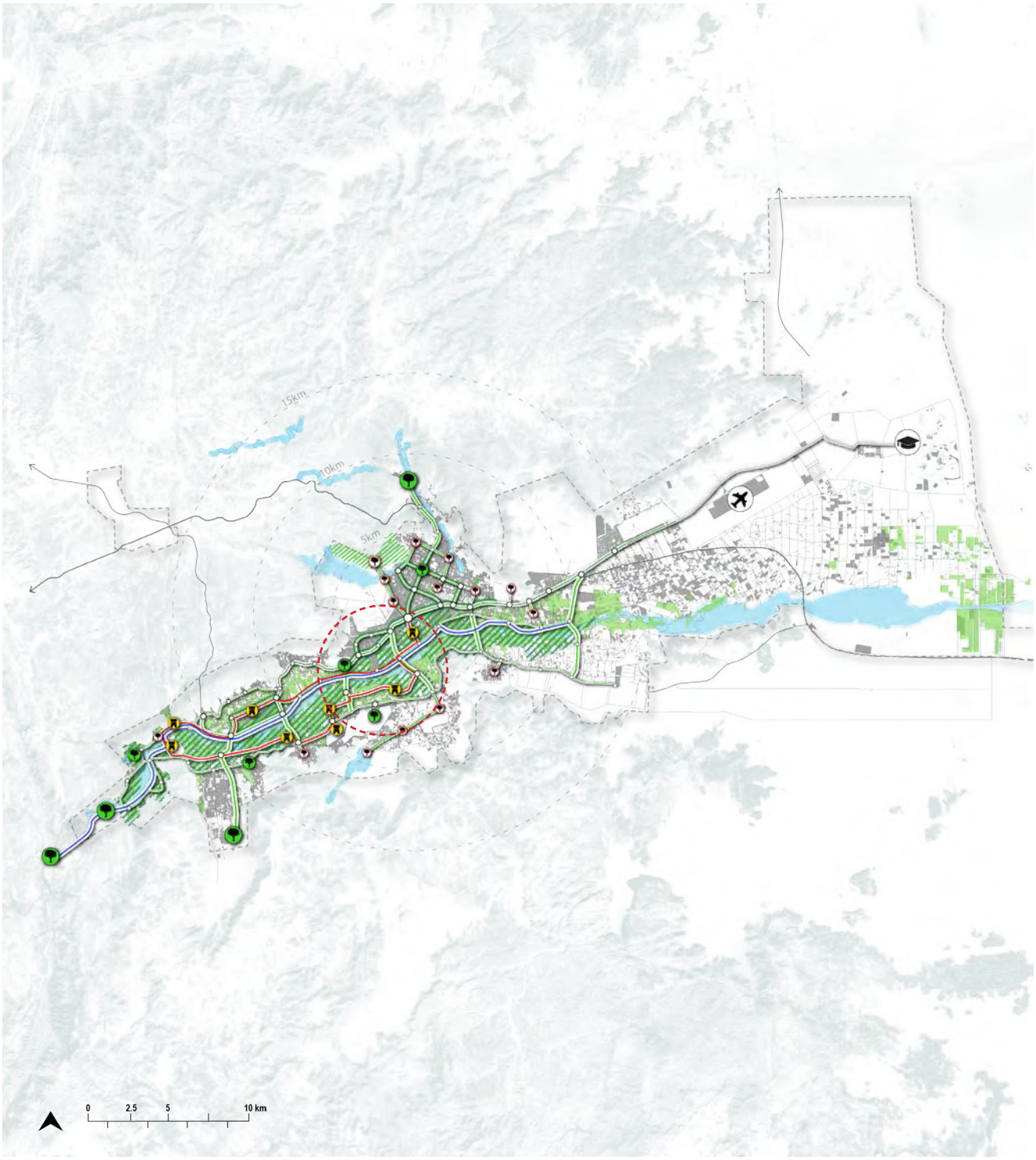


Fig. 47. Action 4: Protect, revitalise and connect historical and vernacular structures

FINAL RECOMMENDATIONS: THE THREE-PRONGED APPROACH

7

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7.1 Spatial Recommendations

7.1.1 A strategic view of the Najran region

The Najran Region sits in a strategic but volatile location in the Kingdom, bordering the Republic of Yemen, with the potential to facilitate trade between the two countries. Economic agglomerations of trade, transport and storage sectors are contributing to the competitiveness of the region, already established by its location on the border. The SAGIA (2014) classifies these sectors as of comparative advantage. They contribute modern storage warehouses, transportation specialised companies and create regional logistical hubs. In the future, the connection to Yemen should be enhanced to foster new economies and support those that are existing.

On the regional scale, Najran is situated on a number of major transportation routes leading towards Riyadh, Abha and Sharorah. However, it lacks fast and reliable connection with Jazan. Such a link could open access to new market through Jazan's seaport and contribute to new economic developments. This would have a positive impact on Najran's sustainable development. Additionally, the underused capacity of Najran Airport has the potential to create a major transportation hub for the region not only for passenger flights but also for cargo.

The region has remarkable potential to develop a tourism sector, foremost through the careful regeneration and integration of its historic structures, natural features and ancient archaeological sites. It is additionally known for its traditional crafts and products, which are considered key economic contributors to the tourism sector. To fully utilise the region's potential, this sector could be supported by developments in tourism infrastructure in the form of private investments, such as hotels, restaurants, parks and recreational areas. The Najran Region is currently making great efforts to increasing this sector's contribution to the region's growth.

Najran also has tremendous potential in extraction of raw materials and natural mineral resources of commercial size and economic feasibility for industrial use, such as granite rock, pyrite (key to many industrial products like phosphate fertilizers, pesticides, chemicals and dyes), copper and zinc. These would incentivise development of related sectors e.g. logistics and warehousing. Najran's proximity to Jazan and its port facilities is an added advantage to facilitate inter-regional trade of resources.

7.1.2 Towards Najran, a Sustainable Historic Oasis

The strategic vision for Najran is intended to promote the development of spatial frameworks that redistribute appropriate compaction and density around a polycentric constellation of mixed-use hubs. A more compact urban form, structured around a public transport spine, would support sustainable management of natural resources and land, urban greening and improved resilience. New policy and regulatory frameworks will guide the preservation of historic areas and enhance Najran's unique identity.

Actions and steps defined in Chapter 6 were developed to transform Najran into a more efficient and sustainable city that is attractive for both citizens and visitors. A compact and well-connected form with a robust transportation network will emerge as an effect of structural change. Transformational public transport will integrate, open and rebalance communities. Promoting mixed-use development in the areas surrounding major hubs will help to create vibrant areas with infrastructure, shopping areas, amenities and public spaces, orientated around the public transport system to provide convenient ease of access.

Revitalised central areas hosting significant heritage assets of traditional buildings and farming culture will strengthen and embrace local identity. Improved water management will contribute to revived agriculture, food security and a holistically green image for Najran. The green core and extended network of open spaces will help encourage pedestrian movement and stimulate diversification. Subsequently, it will draw tourism and create a tremendous positive impact on economies. Emerging as a prosperous city, Najran will come to benefit from improved productivity and innovation. Enhanced economic and social wellbeing will help to raise living conditions and support employment.

The Vision of the Historic Oasis of Najran embodies all traditions of its historical roots and agricultural heritage that originated in the wadi's nurturing relationship with the fertile lands. It encompasses principles of a connected, sustainable and integrated city. An adequately designed and critically implemented plan will modify the already functional town into a vibrant and inclusive city, representing the positive change promoted by the Vision 2030.

7.2 Institutional and Legal Recommendations

Najran 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

Adobe house in Najran

urban design and planning processes should be led by sub-national and local governments, but that their implementation will require coordination with all spheres of government, with participation from civil society, the public sector and other relevant stakeholders.

- Re-defining the roles of both administrative leadership (represented by the Emirate) and technical leadership (the Amanah), which will improve the timely delivery of quality urban projects.
- 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.

Consolidation of the legal planning instruments would also support development intervention in Najran, alongside their review, update and modernisation to ensure their relevance to the current development paradigm. This should also entail a reconsideration of the lawmaking process to limit the number of actors. The mere existence of the laws in KSA will not guarantee sustainable urban development as they must additionally be functionally effective. This requires that they be 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:

- Is sensitive to participatory city-wide slum upgrading, particularly to manage the 30% unplanned districts which are located mostly in Al-Shorfah;
- Outlines a system of land titling that clarifies processes pertaining to land tenure and land use rights, particularly for farmlands;
- Streamlines the conversion of agricultural land based on legitimate demand for urban land uses;
- 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;
- Increases meaningful public participation and engagement in planning

The legal framework also needs to enshrine an acceptable mode of public participation in decision making to foster

300 year old house in Najran under renovation

equality and inclusion. The consolidation of the urban legislation would also lend legitimacy to the plans that Najran relies upon. Najran urgently requires a regional plan to guide balanced regional development as well as a structural plan that defines land uses, road networks and applicable zoning standards to generate a solid urban design.

Revising the Urban Growth Boundary Law to include clear criteria on its definition would enhance technical and vertical accountability. For Najran, military land should be allocated outside the growth boundary. 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 private interests from taking advantage of laxity in the legal text. These initiatives will strengthen policy formulation designed to move the city towards a future that is more sustainable, compact and dense. Primarily, a post-legislative scrutiny of the urban growth boundary law should be undertaken to assess whether it has met its policy objectives. This could, in turn, inform the legal reform process and planning policy options.

7.3 Financial Recommendations

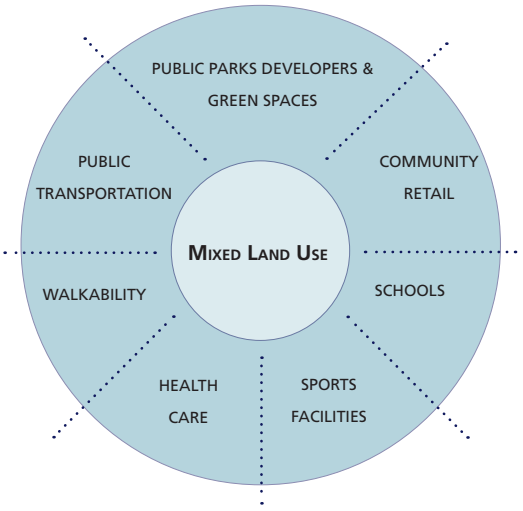
In 2015, KSA began implementing reforms aimed at creating sustainable local public finance. The central government continues to promote strategies to increase own-source revenue at the local level through better tax administration and economic diversification.

Najran's public finance priorities are closely aligned with Saudi Arabia's larger national development goals, which include supporting SMEs in key sectors like logistics, agriculture and food industries, green and cultural tourism, and manufacturing. Therefore, expanding the public sector's capacity to finance essential local infrastructures and projects supporting development in these areas is an imperative for the city.

International experience with enhancing own-source revenue through a variety of tax mechanisms that harness local financial resources for public use are promising,[34] (specifically, through the taxation of the real estate value capture mechanisms). Although some cities of the Kingdom have been implementing new property taxes such as the white lands tax, exploring other tax instruments be of priority for Najran, in order to generate a diverse income stream portfolio.[35]

Introducing land-based taxation establishes reliable own-source revenue stream for local governments. Moreover, the benefits associated with development projects (e.g. public transportation, public facilities and social infrastructure), are often multiplied by the positive externalities and value created by investment in sustainable and accessible urban spaces (directing a portion of land value increases back into the government revenue stream).[36]

UN-Habitat suggests Najran makes use of land-based tax mechanisms (i.e. betterment levies) in public projects.



Source: United Nations Human Settlements Programme (2018)

Fig. 48. Components of mixed land use

THE IMPACT OF INFRASTRUCTURE DEVELOPMENT ON LAND VALUE

Case Examples	Key Findings
Cairo, Egypt	• Urban development that included retail facilities resulted in a price premium of 15 – 20% • Schools increased residential land prices by approximately 13% • Walkability within a residential community increases home values by up to 9%
Bogotá, Colombia	Research suggests that for every additional 5 minutes of walking time to a public transportation station, rental prices fell by 6.8 - 9.3%

Rodríguez and Targa (2004); Colliers International (2017)

Fig. 49. The impact of infrastructure development on land value

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. Meters were netting USD $20 million annually while Morgan Stanley managed pricing and maintenance of the metres.

CONGESTION FEES

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

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

Fig. 50. Best practices from case studies

Public infrastructure such as transportation systems can spur adjacent residential and commercial development, enhance mixed land use and create jobs (see figure 48). Local development driven by public projects can also produce land value increases and indirectly engender a number of other community benefits (see figure 49).[37]

While betterment levies are well suited for infrastructure projects, fiscal instruments such as waste management fees, parking fees and congestion fees are useful tools in the process of mobilising local revenue, reducing vehicle dependency and increasing pedestrian traffic, especially in commercial and leisure areas (see figure 50).

Several finance tools are available to local governments interested in expanding own-source revenue. Municipal governments can maximise the benefits of these instruments by:

- Coordinating and collaborating with different levels of government to connect national strategies to local priorities. For example, establishing a local liaison office, or a local PPP unit linked to the National Centre for Privatization in charge of proposing, implementing, and monitoring PPP projects;
- Using a holistic approach. PPPs should be focused on linking infrastructure investment and land development, thus maximising benefits that correspond with mixed land use (see figure 48);
- Investing in capacity building and improving tax administration;[38]
- Fostering participatory processes to involve the citizenry and build a sense of trust in local reforms;[39]
- Tailoring fiscal monitoring instruments according to local needs (e.g., fiscal cadaster in Bogotá, Colombia).[40]

Lastly, coordination among planning, legal/regulatory frameworks and local finance is crucial to create the necessary local conditions for sustainable and equitable development, as outlined in the New Urban Agenda.[41]

Workshop discussion in Najran with stakeholders

8

ANNEX

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8.1 Picture Credits

8.2 List of Figures

8.3 Notes and References

1 Najran CPI Report

2 (PDF) Towards Balanced Regional Economic Development: The Case of Saudi Arabia. Available from: https://www.researchgate.net/publication/266617620_Towards_Balanced_Regional_Economic_Development_The_Case_of_Saudi_Arabia [accessed Nov 08 2018

3 Earth Fissures in Wadi Najran, Kingdom of Saudi Arabia. Available from: https://www.researchgate.net/publication/259289520_Earth_Fissures_in_Wadi_Najran_Kingdom_of_Saudi_Arabia [accessed Nov 15 2018].

4 Ismail Elkhrachy, 2010. Flash Flood Hazard Mapping Using Satellite Images and GIS Tools: A case study of Najran City, Kingdom of Saudi Arabia (KSA)

5 FAO article, 2014 , link, accessed 23082018

6 Technical, Financial and Statistical Mining Report 1433H (2012), Ministry of Petroleum and Mineral Resources – Deputy Ministry for Mineral Resources

7 Represent the instructions issued by a Minister, his representative or any official of the Ministry to announce new regulations and updates regarding any intent or action to be undertaken.

8 UN-Habitat, Najran 2018

9 UN-Habitat Workshop, Najran 2018

10 In the UN-Habitat Worksop in Najran 2018, a member of the Municipal Council noted that the suggestions of the Municipal Council were not considered by the Amanah during the development of the local plan and this is what has stalled the approval process.

11 According to Article 7 and 8 of Regional Law, the Minister of Interior chairs the meeting with all regional Amirs to discuss issues affecting each region and the general services required.

12 Royal Decree No M/4 dated 24 November 2015 (the "Law") and Council of Ministers Decision No. 377 dated 13 June 2016 (the "Regulations").

13 In the UN-Habitat workshop in Najran 2018, the participants from the Municipality requested that the function of dealing with land grants be reinstated to the Amanahs because ultimately it is the municipalities who will provide urban services to these new housing developments.

14 UN-Habitat Workshop in Najran 2018.

15 Ibid.

16 Royal Decree of 1975.

17 See Royal Decree No. (1663) of 1976.

18 UN-Habitat Workshop in Najran 2018.

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 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 Article 23 of the Law of Regions to Royal Order No. A/92 (1993).

24 UN-Habitat Workshop in Najran, 2018.

25 1 architect, 3 civil engineers, 1 draughtsman and 1 surveyor.

26 The National Urban Observatory is situated in the Department of Urban Studies, MoMRA.

27 The percentage of factories shows that non-metallic and mineral product are key sectors for the regional economy, representing 65% of the total. Saudi Industrial DevelopmWent Fund (2016).

28 The contribution of Najran Region to national GDP is 1.1%. Saudi Arabian General Investment Authority. (2014). Makkah Region Economic Report 2014. The Kingdom of Saudi Arabia.

29 Water infrastructure investment and agriculture development, food industries, green tourism and human capital improvement are priorities for local economy in Najran and were key topics discussed during the Rapid Planning Studio workshop held in Najran (October 2018).

30 Each of the 13 regions is divided into governorates and the region capital. The capital of the region is governed by an Amanah (municipality), which is headed by a Mayor.

31 Approved 2016 Budget for Najran, Ministry of Finance, The Kingdom of Saudi Arabia.

32 D. Godschalk (2003) Urban Hazard Mitigation: Creating Resilient Cities, Natural Hazards Review, Vol. 4, Issue 3

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35 Under the new law approved in 2015, owners of empty plots of urban land designated for residential or commercial use in towns and cities will have to pay an annual tax of 2.5 percent of land value. The land tax applies to a plot size equal to or greater than 10,000 square metres. It has been adopted in the cities of Riyadh, Jeddah and Dammam; United Nations Human Settlements Programme. (2016). Finance for City Leaders Handbook, Nairobi, Kenya: United Nations Human Settlements Programme.

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