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Ministry of Municipal & Rural Affairs

CPI PROFILE
RIYADH

UN HABITAT
FOR A BETTER URBAN FUTURE

مستقبل المدن السعودية
FUTURE SAUDI CITIES

The Future Saudi Cities Programme
CPI PROFILE - Riyadh

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Introduction

The United Nations Human Settlements Programme (UN-HABITAT) and Ministry of Municipal and Rural Affairs in the Kingdom of Saudi Arabia (MOMRA) jointly launched UN-HABITAT Saudi Arabia Programme titled " Future Saudi Cities Programme (FSCP)". The UN-HABITAT Office provides technical support to the MOMRA and targets 17 key cities in the Kingdom of Saudi Arabia. The cities include Riyadh, Makkah, Jeddah, Taif, Medina, Tabouk, Dammam, Qatif, Ihsa, Abha, Najran, Jazan, Hail, Araar, AlBaha, Buraydah, and Sakaka, to respond to national and local urban challenges.

UN-Habitat provides a new approach for measuring urban prosperity: which is holistic, integrated and essential for the promotion and monitoring of socio-economic development, inclusion and progressive realization of the urban-related human rights for all. This new approach redirects cities to function towards a path of an urban future that is economically, politically, socially and environmentally prosperous. The new approach or monitoring framework, The Cities Prosperity Index (CPI), is a multidimensional framework that integrates six carefully selected dimensions and several indicators that relate to factors and conditions necessary for a city to thrive and prosper. The six dimensions include productivity, infrastructure development, equity and social inclusion, environmental sustainability, and urban governance. The CPI uses the concept of The Wheel of Urban Prosperity and the Scale of Urban Prosperity to enable stakeholders to assess achievements in cities. The City Prosperity Index (CPI) not only provide indices and measurements relevant to cities, but it is also an assessment tool that enables city authorities as well as local and national stakeholders, to identify opportunities and potential areas of intervention for their cities to become more prosperous.

Under FSCP, the UN-HABITAT, MOMRA, and ArRiyadh Development Authority together with its Local Urban Observatory have been working on developing urban statistics and spatial information (Geographic Information System) to provide relevant urban information that strongly support decision-making process on urban development and urban planning in the city.

This CPI Profile Report applies the CPI framework and provide a summary of the basic information and urban statistics about the City and gives an overview of the city's achievements, opportunities and potential areas that contribute to its prosperity in areas such productivity, infrastructure development, equity and social inclusion, environmental sustainability and urban governance and legislation.

Historical Background

Riyadh is among the youngest capital cities in the world and also among the fastest growing capitals in the world with an average annual growth rate of about 8%. (The Comprehensive Strategic Plan of 2003). The city of Riyadh is located on Najd Plateau at a central location in the Najd Region. Despite the recent establishment of the City of Riyadh, the location had seen human presence since about 2500 years ago. The location of Riyadh has been mentioned in historical sources dating back to 715 BC in the context of mentioning of Hajar City the capital of Al - Yamamah Region, which included places such as Al-Aridh, Areed, Huta, Al Mahmal, Sadair, Aflaj and Al-Kharj. Hajar City had lost its value in the tenth Hijri century and scattered into small villages.

The name Riyadh is derived from the plural of the Arabic word ("rawdah") meaning a place of gardens and trees, owing to the natural fertility provided by its location in a place with many Wadis (water courses, now dry) in the vicinity.[1]

Riyadh name re-emerged in the twelfth Hijri century and the new city covered the rest of the urban locations of Old Hajar City and its surrounding lands and farms. Riyadh walls and the Presidential Palace had been built about 1746. Riyadh came to the limelight under the banner of the first Saudi state in 1773 during the reign of Imam Abdul Aziz Bin Mohammed Bin Saud. It continued under the rule of the Saudi State until 1818; during which time Diriyah City had been the capital of the Saudi State. In 1901, King Abdul Aziz entered the city of Riyadh and started thereafter to unify the Arabian Peninsula whereby its pioneering position and role increased. Riyadh was announced as the capital of The Kingdom of Saudi Arabia in 1931 (Source: Riyadh in Fifty years -1424 H). Therefore, the history of Riyadh as a capital city and its growth from a relatively small settlement into a great modern city can be traced back to when it was raised to royalty status and made the Capital of the Kingdom.

By 1955 (1375 AH), all ministries and government offices had been moved to or established in Riyadh. Its scope of responsibility was greatly enlarged and its resources increased to enable it to cope with its growing size and population. Riyadh is also the capital city of Riyadh Province. Riyadh is the seat of government; ministries, embassies, diplomatic missions, as well as it contains educational, financial, agricultural, cultural, technical, commercial and social organizations. Riyadh is now a high-tech oasis of glass, steel and concrete, home to huge hotels, even larger hospitals and one of the biggest airports in the world; its road network is among the best in the world. Today Riyadh has six government owned/public universities and five privately owned universities and some middle-level colleges, specialized institutes, cultural information centers, sports facilities and stadiums, and public libraries.

[1] Encyclopidia Britanica

Geography and Location of the City.

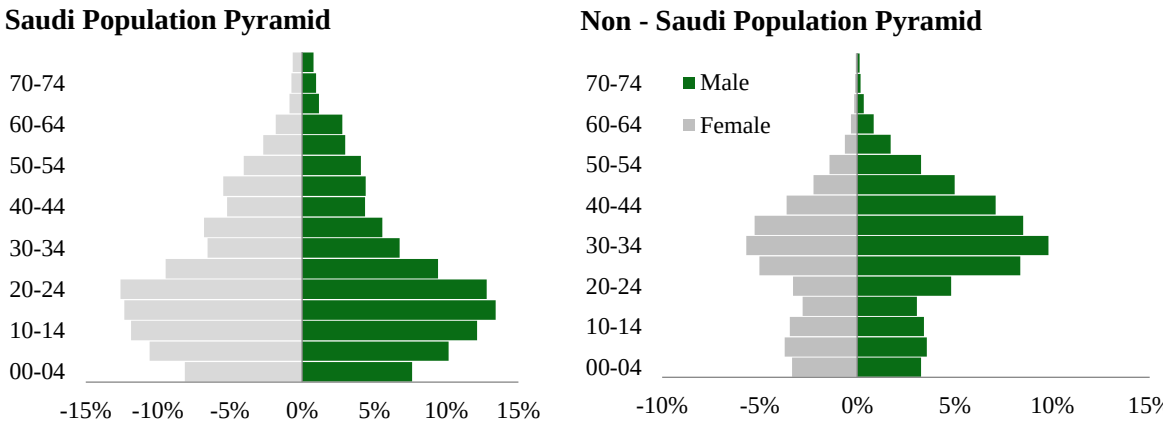
Riyadh city lies approximately 1,950 feet (600 meters) above sea level in the northeastern part of Najd region – a region with a rocky plateau landscape at the center of the Arabian Peninsula. Its geographical coordinates are roughly 38° North and 43° East. The city is about 950km by road from Jeddah on the Red Sea and about 400km from Dammam on the Arabian Gulf. In Riyadh, the weather is usually dry and hot in the summer (April to September) and cold in the winter (September to March). In winter the temperature goes as low as 15^{o}C and in summer the temperature can go as high as 45 ^{o}C and the average rainfall is 10-20mm. The city officially covers a total area of approximately 1782km^{2} [2] while the urban footprint area of the city is about 1060km^{2}[3].

Demographic Background of the City

According to the 2010 census, the city of Riyadh had about 5.2 Million inhabitants, the Riyadh Household Survey 2016, conducted by the ADA put the population at 6.5 million in 2016. Thus Riyadh is the largest and among the fastest growing cities in the Kingdom of Saudi Arabia, with an annual growth rate of around of 4%, it is higher than the national average estimated at 2.11%. The average household size in Riyadh is projected at 5.7 persons per household in 2016, down from around 6.6 in 2010 census. The population density of the city of Riyadh has increased to about 4659 peoples per square kilometers in 2016, up from about 4000 persons per square kilometers in 2010. According to the 2010 census data, the population comprised of 56% male and 44% female, whereas non-Saudi males represent 63% compared to 37% females, this follows the national pattern. The distribution of non-Saudis with respect to age and gender is explained by the fact that majority of them are in the country to work, mostly without their spouses. Generally, Riyadh city has a young population, people below 24 years of age constitute about 46% of the total city population, while the population of people 60 years and above are only 4.19%. The population pyramid (Saudis population) show a wide base and gets smaller upwards, this indicates a bulging number of youths. On the other hand, the under-15 alone make up 30% of Saudis and 19.7% for non-Saudis. Other demographic indicators such as the average life expectancy in Riyadh is at 72 years and Old Age Dependency Ratio is at 3.2%.

[2] King Saud Abdulaziz University - http://www.ksau-hs.edu.sa/english/lifeincampus/pages/historyofriyadh.aspx
[3] Local Urban Observatory of Riyadh.

Figure 1: Population Pyramid for Riyadh (Saudi and Non-Saudi)



Source: ADA Household Survey 2016

Socio-Economic Background

Since the oil boom in the 70s and 80, the city has witnessed huge social and economic transformation. Riyadh is the most diverse in terms of economic sectors including petroleum, commerce, manufacturing, finance, real estate, insurance and many others. Manufacturing industries sector is one of the most important productive sectors in the Riyadh, the city has 2 industrial cities, affiliated to the Saudi Industrial Property Authority (MODON). There are two industrial areas in Riyadh provided with various services and facilities. In 2013 Riyadh had 44.3% of the total number of manufacturing factories in the Kingdom. In 2014 the total amount of industrial investments in the Riyadh region amounted to about 101.1 billion riyals, accounting for 11.6% of the total investments in factories in the Kingdom. The trade sector is another very important economic sector in Riyadh. The companies and establishments operating in Riyadh represent 30% of all trade establishments in the kingdom. Other major economic sectors in Riyadh are Mining and Quarrying, Financial and banking services and Insurance, and tourism. The building and construction sector plays a very important role in contributing to economic growth of the city and the country at large. The housing conditions in Riyadh has also improved, on average, about 99% of households have access to electricity, quality housing, improved water, internet access, and good income.

Due to the advancements in all important economic sectors, the city has a low rate of informal employment at 5.2% and the general unemployment rate is at 3.5%, however, the youth unemployment rate is still high at 6.9%.

The city has made significant progress in service delivery, improvements in employment, growth in the housing sector and recently greater community participation in decision making especially women voting and representation in local government. This has increased the public participation in political affairs. As a result, by 2016 the number of registered civic associations in Riyadh had reached 1.5 per 10,000 persons.

The trend on Urban Growth and Existing Structure Plan

In this section, we trace the stages of the urban development of Riyadh City and the trends of this development during the past fifty years starting in 1971. This is considered the year of developing the first master plan for the city prepared by Doxiadis Associates Company which had been adopted in 1974 (the Comprehensive Strategic Plan for the city of Riyadh - the final reports and the comprehensive report).

The city has witnessed several stages of growth and urban development that can be presented as follows:

The first stage (Pre-Urban Development): It is the period prior to the year 1971 wherein the development in the city of Riyadh has a reflection of major urban decisions such as the establishment of (AL-Malaz - the old airport, ...Etc.). However, the planning authorities quickly realized the importance of setting regulations for the process of urban development by the preparation of an indicative plan for the city.

The Second stage: The first master plan of 1971 was prepared by Doxiadis Associates Company and it was adopted in 1974. The plan specified the growth of the city to be in the north-south direction and suggested an area of 300 km^2 for urban development and allocated 150 km^2 for housing to accommodate 760, 000 persons until the year 1985 and the plan was expected to guide the development of the city until the year 2000. Concerning structure, the plan was composed of a super-grid which runs in a north-south and east-west direction. In this grid, the city was cut into six large divisions, each composed of eight to twelve localities of 2km × 2 km. However, the rapid growth of the city led to the development of large areas outside the city boundaries in a manner that went beyond the planned boundaries. Hence, the planning units had to be repeated outside the planned boundaries in all directions.

The Third Stage: The second master plan of 1976 by the Cete International Inc. which was finalized in 1982. In this plan, an area of 850 km^2 was allocated for development until the year 1990 in order to accommodate 1.6 million people. This plan was not formally approved, but its principles have been applied on areas already located outside the coverage of the plan.

The Fourth Stage: the urban boundary of the city of Riyadh was approved in 1989 (The High Commission for the Development of Riyadh). In this stage the policies and controls of lands located between the boundaries of development protection and the boundaries of the second stage of the urban boundaries were approved in addition to the division of the second stage of the urban boundaries into two stages, one to accommodate the growth from 1994 to 1999 and the other to accommodate the growth from 1999 to 2004.

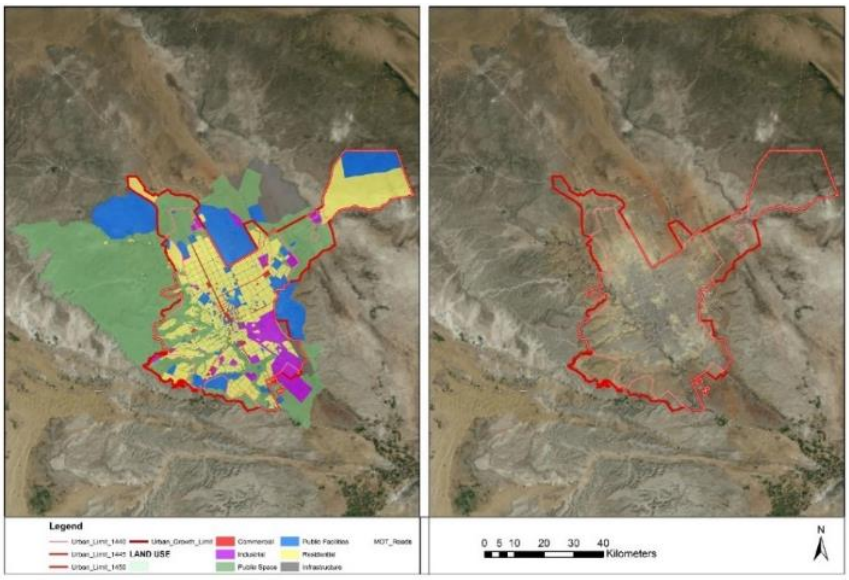
The Fifth Stage: the Comprehensive Strategic Plan for the city of Riyadh was developed -2003.

The sixth Stage: The updating of the Comprehensive Strategic Plan for the city of Riyadh -2013

There was a rapid growth of the city of Riyadh in the 1970s, it was accompanied by a sporadic development during the years of the 1970s and 1980s resulting in the scattershot development of residential and business enclaves that were either accessible only by car or only accessible to its surrounding community. In order to control and manage the process of urban growth and development, the Ministry of Municipal and Rural Affairs set Urban Growth and Development Boundaries called "Nitaque Omrani" to control urban expansion and to prevent urban sprawl in outskirts of cities without adequate urban infrastructure installments. In total there are four nitaque omrani Boundaries (Spatially defined limits) which have been approved by the Council of Ministers, the first two of these boundaries defined the following urban development phases: Phase I (up to 2013) and Phase I1 (2013-2029). These

two phases are spatially defined by the nitaque omrani Development Boundaries within which growth areas have been designated for future growth and development, and are subject to very specific and particular development control measures i.e. no development is allowed outside the boundaries. Recently, however, Phase II has been spatially divided into three development phases namely (2013-2019), (2019-2024), (2019-2029). These new nitaque omrani phases and their respective development controls are in the process of being formally approved by His Excellency the Minister of Municipal and Rural Affairs. In order to encourage and to concentrate development in Phase I, further development controls and restrictions are imposed upon developers who intend to plan their lands in Phase II before its time.

Figure 2: Land use and Urban Growth Limit



The figure above is showing the trend of urban growth limit control and land uses for the city of Riyadh.

Urban Structure

The urban plans played the main role in the formation of the city and the distribution of its land-uses and the growth trends. However, the first master plan (prepared by Doxiadis Associates Company), which most of its recommendations have been confirmed in the second master plan (prepared by Cete), together played the main role in the distribution of land-uses of the city of Riyadh.

However, government decisions to develop a number of mega projects at different locations around the city have played a role somehow in encouraging the unregulated growth of the city in all directions. The real estate market forces have also shaped the urban growth of the city and determined the trend for future decades to come especially through unplanned subdivision of lands into small plots for individual investment in areas located far from the urbanized areas that have been provided with services. This have produced what is called white-lands and delayed development of these areas for long periods.

Riyadh City structure is characterized by grid planning, the planning unit used in the first master plan (2 km x 2 km), which accounted for a significant pattern in the division of residential districts. The residential uses are divided almost equally into all parts of the city. Industrial activities are concentrated in the southern and eastern parts, and the main commercial uses are located on the main corridors of the city, universities, and ministries in the west and north.

In 2016 the area of Riyadh was about 3115 km^2, up from about 2,435 km^2 in 2009. Currently, the approximate fully developed area is about 1,121km2, accounting for 36%. Residential use accounts for 8.23%, 0.8% is taken up by industrial space while transportation services and the road takes about 16%. Commercial use and agricultural/mining represents 1.4% and 2.1% of the total land area, respectively. Health services, government and education spaces used up 3.16% with 1.56% used for cultural and recreation use (ADA, 2016)[4].

The main use	***Area km²***	***Percentage%***
Residential	256.4	8.23%
Commercial & Business Services	43.2	1.39%
Industrial	25	0.80%
Warehouses	48.8	1.57%
Health	6.9	0.22%
Education	30.9	0.99%
Cultural	1.5	0.05%
Recreation and parks	46.9	1.51%
Agricultural, mining	64.42	2.07%
Transport services	19.8	0.64%
Communications and utilities	17	0.55%
Government	60.7	1.95%
Other uses	27.4	0.88%
Roads	471	15.12%
Vacant land	1995	64.04%
Total	**3114.92**	**100.00%**

Public transport

The study of the overall strategic plan for the city of Riyadh confirmed the need for an efficient public transport system especially with the expectations of a continued increase of traffic trips by private cars expected to reach 12 million trips per day in 2018.

The comprehensive plan for public transport in the city of Riyadh has been prepared in order to provide and diversify the patterns and ways of mobility and transport in the city in order to limit the excessive use of private vehicles, and meet the existing and projected requirements of transport in line with the

4 Percentages were recalculated based on land use areas and total.

social, economic, environmental and traffic conditions. The plan included an integrated network of alignments and lines as well as identified the appropriate means of public transport for those levels. The proposed alignments and routes for the public transport consisted of four levels:

Corridor network: They are networks that represent the high - capacity public transport routes. There are seven major routes that have been identified, their total length is 223 km. This network covers the high-speed trains and the special routes buses.

The Ring Road networks: They are networks intended to serve the traffic around the city centre, and they include medium capacity alignments, a three-ring networks were identified with a total length of 105 km. The specialized and normal alignments of buses are considered the most appropriate means for this network.

Secondary network: The secondary network includes medium to low capacity alignments. Here 24 secondary alignments were identified for providing the most comprehensive coverage for the entire districts of the city, with a total length of 380 km. The normal buses are considered the best means on this network.

The Local Network: The local public transport network provides direct mobility on the collector roads within residential districts and neighborhood for all inhabitant's groups, namely the groups of (elderly - the disabled – families) to the main stations of the other levels of networks. They also provide service on the network through the medium and small buses.

Work has started on the implementation of the first stage of the public transport through the electric train, which aims to provide advanced public transport to encourage the use by the population, where the Commission recently completed the engineering designs, the technical specifications, the preparation of the designs and the project tender documents. The project includes two main alignments:

First: Olaya – Batha Corridor: which starts from the public transport centre at the south of the southern Ring Road to the north of the Northern Ring Road with a length of 25 km.

Second: Corridor of King Abdullah Road: which starts from King Khalid Road and continues eastward until it reaches the intersection of Khalid bin Al-Waleed Street with a length of 16 km

The number of stations along the two alignments is about 34 with a distinctive design suitable for the social and environmental conditions, connected with the attractions sites along the alignments such as the major shopping centres, and the commercial, office and residential compounds. The capacity of the two alignments is 320,000 passengers per day.

City Prosperity Index (CPI) Assessment

Prosperity implies success, wellbeing, thriving conditions, safety and security, long life etc. Prosperity in cities, therefore, is about successfully meeting today's needs without compromising tomorrow and working together for a smart, competitive economy, in a socially inclusive society and a healthy, vibrant environment for individuals, families, and communities. Prosperity in cities is a process and cities can be at different levels of prosperity. In order to measure the level and also track how cities progress on the path to becoming prosperous, UN-Habitat introduced a monitoring framework: The Cities Prosperity Index (CPI). The CPI is a composite index with six carefully selected dimensions that captures all important elements of a prosperous city. This index along with a conceptual matrix, The Wheel of Urban Prosperity and a Global Scale of City Prosperity, are intended to help city authorities, decision-makers,

partners and other stakeholders to use existing evidence and formulate clear policies and interventions for their cities.

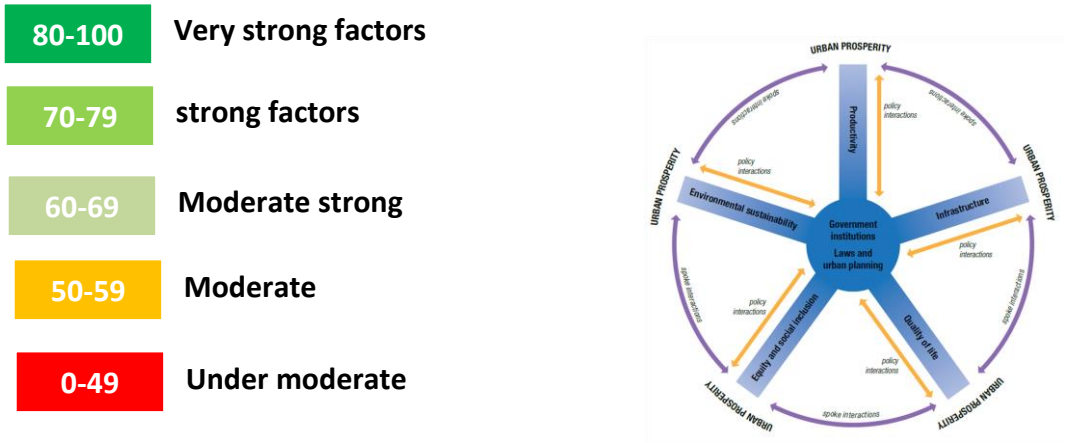


Figure 2: Scale of Urban Prosperity and the Wheel of Urban Prosperity

The UN-Habitat's Cities Prosperity Index (CPI) allows authorities and local groups to identify opportunities and potential areas for action or adjustments in order to make their cities more prosperous. The CPI is a multidimensional framework that integrates several dimensions and indicators that are not only related but have a direct and indirect influence on in regard to fostering prosperity in cities. These components are embodied in the following six dimensions: Productivity, Infrastructure Development, Quality of life, Equity and social inclusion, Environmental sustainability, and Governance and legislation. Each of the dimensions is comprised of several indicators measured differently. Since the indicators are measured in different units, the first step in the index computation involves the normalization of the indicators into values ranging between 0 and 1[5]; the normalized values are then aggregated stepwise to create the single value called the City Prosperity Index.

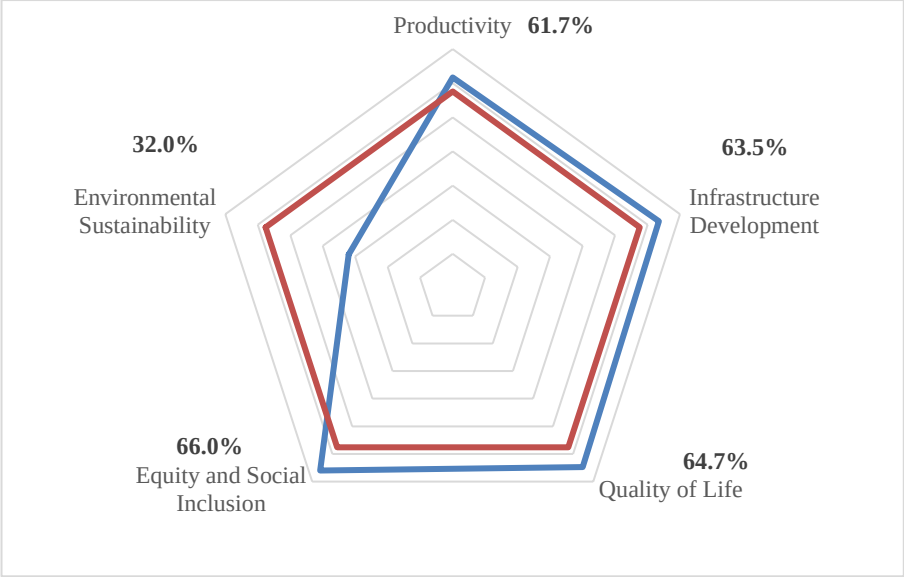
The following sections applies the CPI framework, the concept of the Wheel of Urban Prosperity and the Scale of Urban Prosperity to assess the level of prosperity in the city. The assessment provides an indication of the strengths or weaknesses in the factors of prosperity (in reference to the scale of urban prosperity); it also provides an indication of the level of achievement towards the set prosperity goals (based on the magnitude of the CPI scores); and highlights whether there are disparities between and within the six dimensions of prosperity (based on the concept of the Wheel of Urban Prosperity-stressing balance). An in-depth analysis of the findings will help to identify which particular sub-dimensions and indicators contribute to high or low values in each of the dimensions and the CPI scores.

Overall City Prosperity Index for Riyadh

The overall CPI index is the aggregate of the six dimensions. Due to data availability issues, the CPI was computed using five dimensions and the radar chart below shows the score for each of the dimensions used. The city of Riyadh has an overall prosperity index score of 57.6%, denoting that the

[5] Can also be expressed in percentages so that values range between 0% and 100%, as used in this report.

city has moderately weak prosperity factors. The other important element of prosperous cities is that they should have a good balance of all the dimension of prosperity. Unbalanced cities with a combination where some indicators are too low while others are very high are as well undesirable[6]. Based on the statistics in the chart, the observed general weakness in the city's prosperity index can be linked to weak environmental sustainability. In as much as Riyadh may be known to have a good economic base, the city perfoms dismally in the environmental sustainability thus pulling down its overall prosperity. The shape of radar chart below is an indication of that imbalance, instead of taking the shape of a round wheel.



The radar chart shows the performance of all the dimensions of the City Prosperity Index for the city of Riyadh, Equity and social Inclusion ranks highest, followed by quality o life, , infrastruture development, then productivityand finally the environmental sustainability comes last in order of the scores.

The analysis in the following sections will examine all the six dimensions of prosperity individually and identify areas of strengths and weaknesses within each that can inform appropriate recommendations.

Productivity Index (PI)

The productivity dimension measures how cities contribute to economic growth and development, generate income, employment and provide equal opportunities and good living standards for its entire population. The findings in table 2 show that the main factors that promote productivity in the city of Riyadh are its strong economic growth fundamentals and employment; including very high city product per capita, high household income, and low old-age dependency. . The city has low informal employment at 4.8% and old age dependency ratio at 3.2% hence the highest standardized CPI scores of 100% and 96.5% respectively. Due to an expansive land area, the city's spatial distribution of economic productivity is still low as indicated by the economic density of 10.2%. This could be an indication of a sparsely developed land area and allot of empty land parcels within residential, commercial and industrial areas in the city. However, economic specialization is at 62%. Economic specialization has

[6] *The idea of balance is based on the concept of the wheel of urban prosperity where crooked shaped wheel is considered to be unable to propel a city to prosperity*

been proved to promote productivity in cities. As cities specialize more, manufacturing industries tend to move to the periphery while service sector moves to the core and employment increases in the service sector. At the same time, urban living becomes more attractive with lower crime rates in inner-city areas, and the rise of a creative class contributes to the economic development and sustainability of the city. Spatial densities should be examined to establish if there is a need for increased densification within the city core outwards.

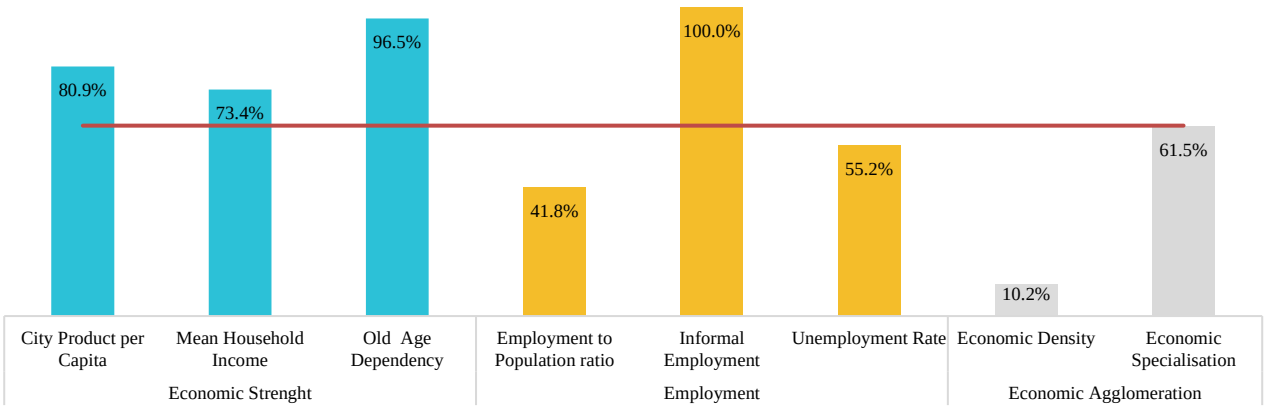
Table 2: Productivity Index (61.7%)[7]

Sub-Dimension	Indicator	Actual	Units	Standardized	Comments
Economic Growth (83.3%)	City Product per Capita	41,762	USD (PPP)/Inhab	80.9%	V. Strong
	Mean Household Income	34,532	USD(PPP)	73.4%	Strong
	Old Age Dependency Ratio	3.20	%	96.5%	V. Strong
Employment (65.7%)	Employment to Population Ratio	49.11	%	41.8%	Moderate
	Informal Employment	4.80	%	100.0%	V. Strong
	Unemployment Rate[8]	6.28	%	55.2%	moderate
Economic Agglomeration (35.9%)	Economic Density	87,232,799	USD (PPP)/km2	10.2%	Under moderate
	Economic Specialization	0.08	∞	61.5%	M. Strong

Looking at the bar chart below, the presence of disparity is visible from the heights of the bars below and above the productivity index line.

To achieve this balance the city needs to prioritize works aimed at the improvement of the spatial distribution of economic and commercial activities to increase economic density; the city also needs to create more employment opportunities especially targeting the youth and women to turn around the unemployment situation and increase employment to population ratio.

Figure 3: Productivity Indicators



[7] ADA, Riyadh Urban Observatory Report, Riyadh, 2016

[8] **This indicator is approximated based on regional data**

Infrastructure Development Index (IDI)[9]

Prosperous cities use their resources to provide inhabitants with functional and efficient infrastructure, physical assets and amenities i.e. adequate water, sanitation, power supply, road network, information and communications technology. Adequate and efficient infrastructure is needed to sustain the population, improve the economy, and ensure a better quality of life. The city of Riyadh scores 63.5% in this dimension, classifying it as a moderately strong index according to the scale of urban prosperity. . The moderately strong rating is attributed to the fact that while most of the indicators of infrastructure development (13 out of 19) are generally strong, there are some which are extremely weak. The strengths in the infrastructure development are generally attributed to the housing (84.1%), ICT (68.5%), and street connectivity (83.0%). On the other hand, the weaknesses in the infrastructure development dimension can generally be attributed to urban mobility (54.2%) and social infrastructure (28.0%).

Street connectivity is about how often the streets or roadways intersect and how closely or not the intersections are spaced, this makes access to destinations easier by providing shorter alternative routes and saves time. Street connectivity in Riyadh is also generally a very strong pillar of prosperity. This is attributed to high street density, street intersections density and a high proportion of land allocated to streets. The high street intersection density presents a great opportunity for the city to promote alternative means of transport such as walking and cycling during favorable weather to help reduce the excessive use of private cars even for short distances.

Urban mobility refers to a set of interrelated measures designed to satisfy the need of people and businesses to move from one place to another safely, efficiently, cost-effectively and in a timely fashion. The city of Riyadh has a moderately weak urban mobility system, this is attributed to lack of mass public transport system. However, the metro train system is being built, and it is expected to change the situation. The extremely low usage of available public transport is associated with over-dependence on private cars. This had led to too many cars on the road causing allot of traffic congestion and air pollution. The city's urban mobility system, however, has very strong aspects such as low average daily travel time of about 23 minutes, affordable existing public transport, and good road safety.

The city has good ICT Infrastructure with an index of 68.5%, mainly as a result of high internet access and access/availability of computers in homes. In spite of that, the average broadband speed in the city is still low making internet usage expensive, therefore, internet bandwidth in the city should be addressed.

Availability of quality housing infrastructure in the city is another source of strength for the city, the city has managed to improve access to piped quality drinking water, electricity and sufficient living area in most houses in the city; however there is need to increase the number of houses with access to improved sanitation, which is the number of households with connection to sewerage system. According to the results, the indicators for social infrastructure are low and need to be improved; physician density is moderately weak and the number of public libraries are negligible compared to the population.

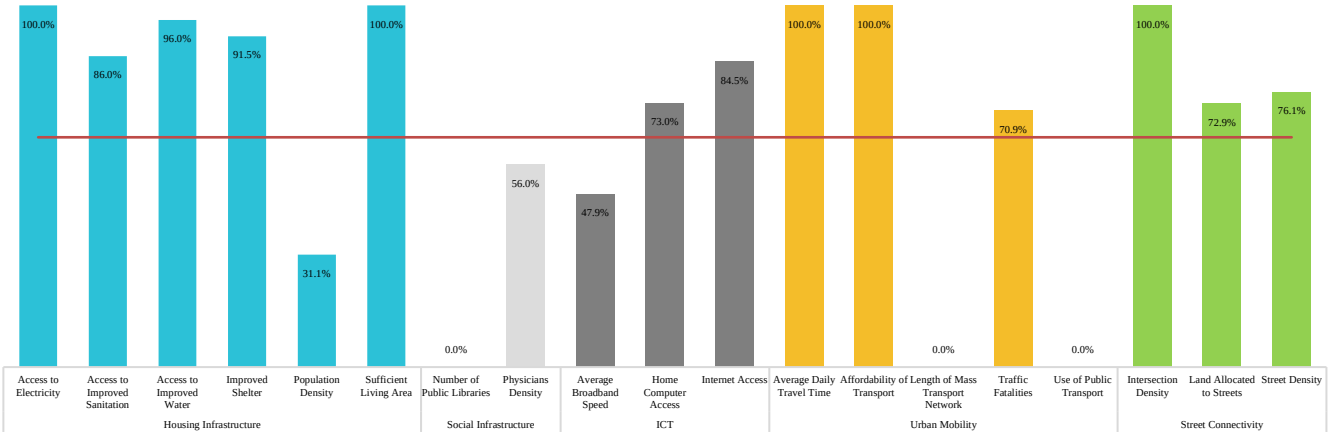
[9] ADA, Riyadh Urban Observatory Report, Riyadh, 2016

Table 3: Infrastructure Development Index (63.5%)

Sub-Dimension	Indicator	Actual	Units	Standardized	Comments
Housing Infrastructure (84.1%)	Access to Electricity	100.00	%	100.0%	V. Strong
	Access to Improved Sanitation	86.00	%	86.0%	V. Strong
	Access to Improved Water	96.00	%	96.0%	V. Strong
	Access to Improved Shelter	91.46	%	91.5%	V. Strong
	Population Density	4,664	Inhab/Km2	31.1%	Under moderate
	Sufficient Living Area	90.72	%	100.0%	V. Strong
Social Infrastructure (28.0%)	Number of Public Libraries	0.03	#/100,000 inhab.	0.0%	Under moderate
	Physician Density	2.56	#/1,000 inhab.	56.0%	Moderate
ICT (68.5%)	Average Broadband Speed	11.12	Mbps	47.9%	Under moderate
	Home Computer Access	73.00	%	73.0%	Strong
	Internet Access	84.47	%	84.5%	V. Strong
Urban Mobility (54.2%)	Average Daily Travel Time	23.00	minutes	100.0%	V. Strong
	Affordability of Transport	0.58	%	100.0%	V. Strong
	Length of Mass Transport Network	0.00	Km/1M Inhab.	0.0%	Under moderate
	Road Safety (traffic fatalities)	9.74	#/100,000 inhab.	70.9%	Strong
	Use of Public Transport	3.00	%	0.0%	Under moderate
Street Connectivity (83.0%)	Intersection Density	109.60	#/km2	100.0%	V. Strong
	Land Allocated to Streets	27.87	%	72.9%	Strong
	Street Density	15.21	Km/KM2	76.1%	Strong

Based on the concept of the wheel of urban prosperity which emphasizes that share prosperity in cities is more about balance than a blend of high and low CPI scores. For the city of Riyadh to achieve some balance, it needs to focus on raising up the indicators identified as weak including population density, number of public libraries, physician density, average broadband speed, and usage of public transport.

Figure 4: Infrastructure Development Indicators



Quality of Life Index (QoLI)[10]

A prosperous city is one that ensures that its inhabitants have access to adequate basic services and amenities to improve their wellbeing and happiness. Access to social services, education, health, recreation, safety and security enable citizens to lead a fulfilling life and to maximize their individual potentials for the betterment of the society, economy, and environment. The analysis shows that Riyadh has a quality of life index of 64.7%, according to the scale of city prosperity rating this is a moderately strong quality of life. This can generally be attributed to quality health care provision with a score of 82.8%; good safety and security with a score of 76.8%, safety and security reduce fear, therefore, it is a very important factor in determining the quality of life. On the other hand, the education sub-dimension is under moderate with a score of 47.7% and lastly, the availability of public spaces for recreation is also moderate with a score of 51.7%. These indicators contribute to lowering the general quality of life in the city.

Table 4: Quality of Life Index (64.7%)

Sub-Dimension	Indicator	Actual	Units	Standardized	Comments
Health (82.8%)	Life Expectancy at Birth	72.30	years	67.6%	M. Strong
	Eradicate Maternal Mortality	-	#/100,000 live births	-	-
	Eradicate Under-5 Mortality	-	#/1000 live births	-	-
	Vaccination Coverage	98.00	%	98.0%	Very Strong
Education (47.7%)	Early Childhood Education	13.00	%	13.0%	Under moderate
	Net Enrolment in Higher Education	33.99	%	34.0%	Under moderate
	Literacy Rate	93.38	%	92.3%	V. Strong
	Mean Years of Schooling	7.20	%	51.4%	Moderate
Safety and Security (76.8%)	Homicide Rate	3.01	#/100,000 inhab.	85.1%	V. Strong
	Theft Rate	353.01	#/100,000 inhab.	68.4%	V. Strong
Public Space (51.7%)	Green Area per Capita	12.25	m2 / inhabitant	81.6%	V. Strong
	Accessibility to Open Public Space	21.81	%	21.8%	Under moderate

The indicators that contributed to high scores in the health care sub dimension includes high life expectancy and vaccination coverage. Good safety and security in the city can also be linked to low theft rate and low homicide rate in the city. Although the education sub dimension is rated under moderate, the literacy level in the city is very high, the low rating can therefore be attributed to factors such as low rate of early childhood education, low net enrolment rate in higher education and low mean years of schooling among city dwellers. Other areas where the city is performing dismally or rated weak includes, availability of public spaces - open public spaces refer to natural green areas with plants, trees, and grass for recreation; these should be available in the city and accessible to the public. Although the green area per capita in Riyadh is very high, accessibility to these public spaces is very poor. People living in towns should have open public spaces within 400 meters from their residence, accessibility is defined the proximity.

[10] ADA, Riyadh Urban Observatory Report, Riyadh, 2016

The bar chart below highlights lack of balance among the indicators of quality of life. The quality of life index still requires more to be done to achieve the required balance depicted by the round wheel of urban prosperity. To achieve this balance the city needs to address the issue of access to open public spaces, access to early childhood education, enrolment in higher education and mean years of schooling among its population.

Figure 5: Quality of Life Indicators

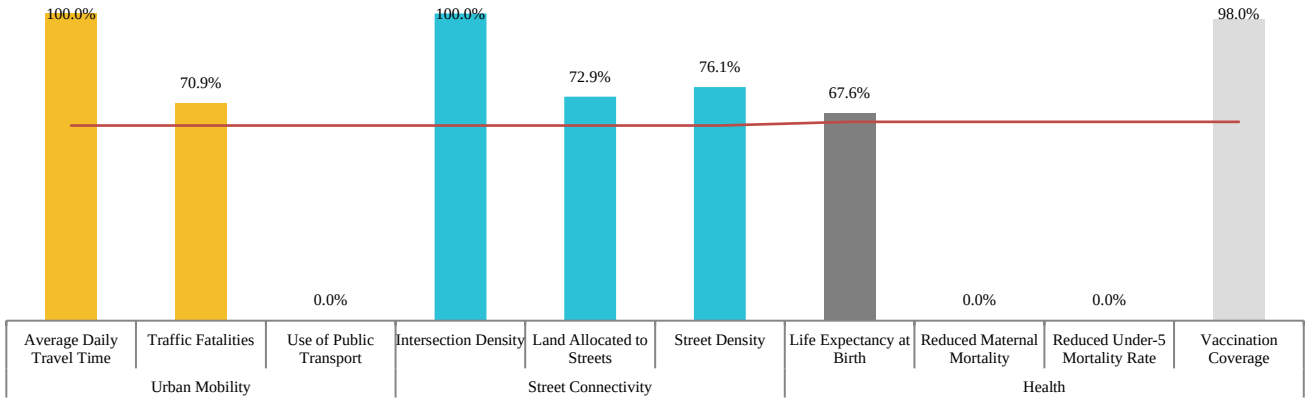
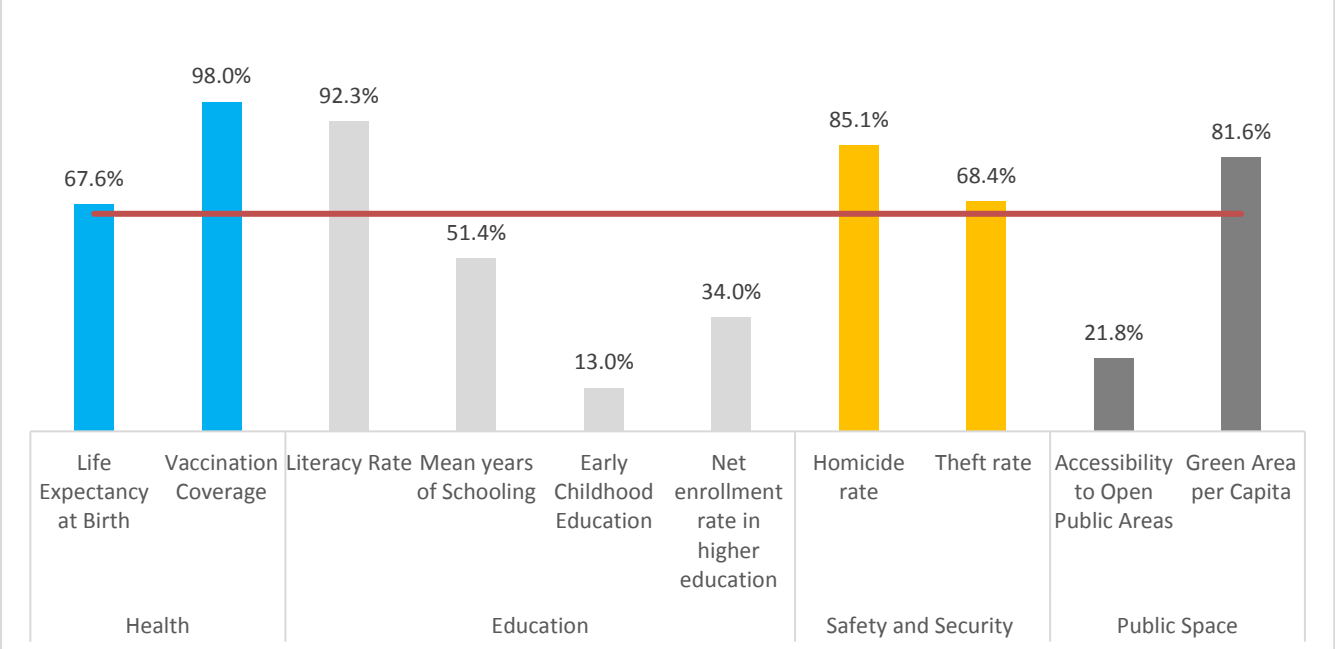


Figure 5: Quality of Life Indicators



Equity and Social Inclusion Index (ESI)[11]

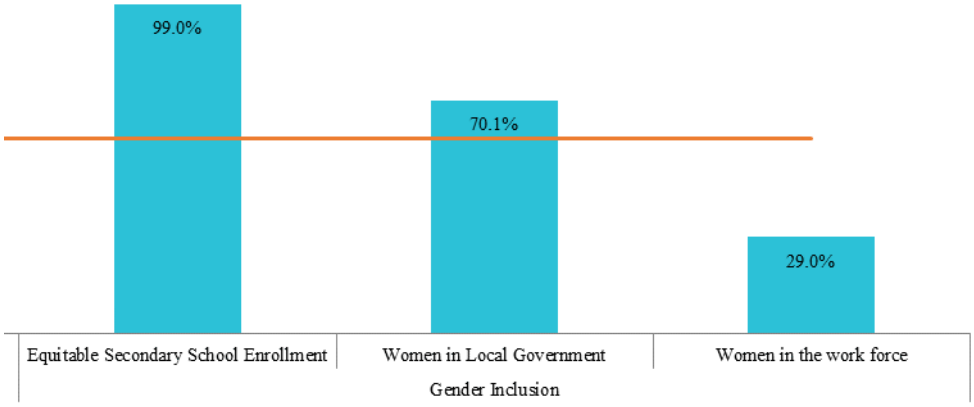
Prosperous cities should ensure equitable distribution of the benefits of prosperity among its people, ensure that as the city moves to a greater height in the prosperity ladder it moves with all its people and that no segment of the city population is left languishing in poverty and deprivation. The equity and social inclusion dimension measures the level of achievement of cities in the distribution or sharing of the benefits of prosperity among its inhabitants. Due to data unavailability problems only one of the three sub dimensions of equity and inclusion was used, the gender inclusion sub dimension. Based on the available data, the city of Riyadh has a gender inclusion sub dimensional index of 66.0%. This is indicative of a fairly gender inclusive city.

The city of Riyadh has considerable achievements in gender inclusion especially in terms equitable secondary school enrollment (99%) and proportion of women in local government (70.1%). However, there is a need to increase the number of women in the workforce to further strengthen the gender inclusion sub dimension.

Table 5: Equity and Social Inclusion Index (66.0%)

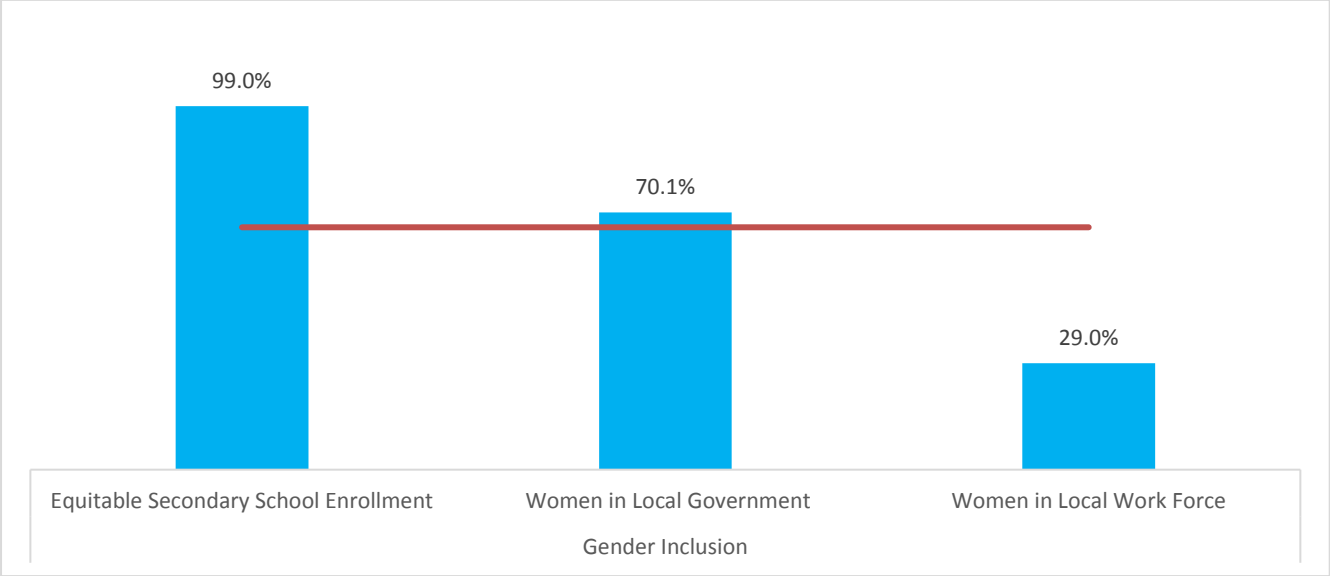
Sub-Dimension	Indicator	Actual	Units	Standardized	Comments
Gender Inclusion (66.0%)	Equitable Secondary School Enrollment	1.01	∞	99.0%	V. Strong
	Women in local government	35.05	%	70.1%	Strong
	Women in the workforce	14.51	%	29.0%	Under moderate

Figure 6: Equity and Social Inclusion Indicators



[11] ADA, Riyadh Urban Observatory Report, Riyadh, 2016

Figure 6: Equity and Social Inclusion Indicators



Environmental Sustainability Index (ESI)

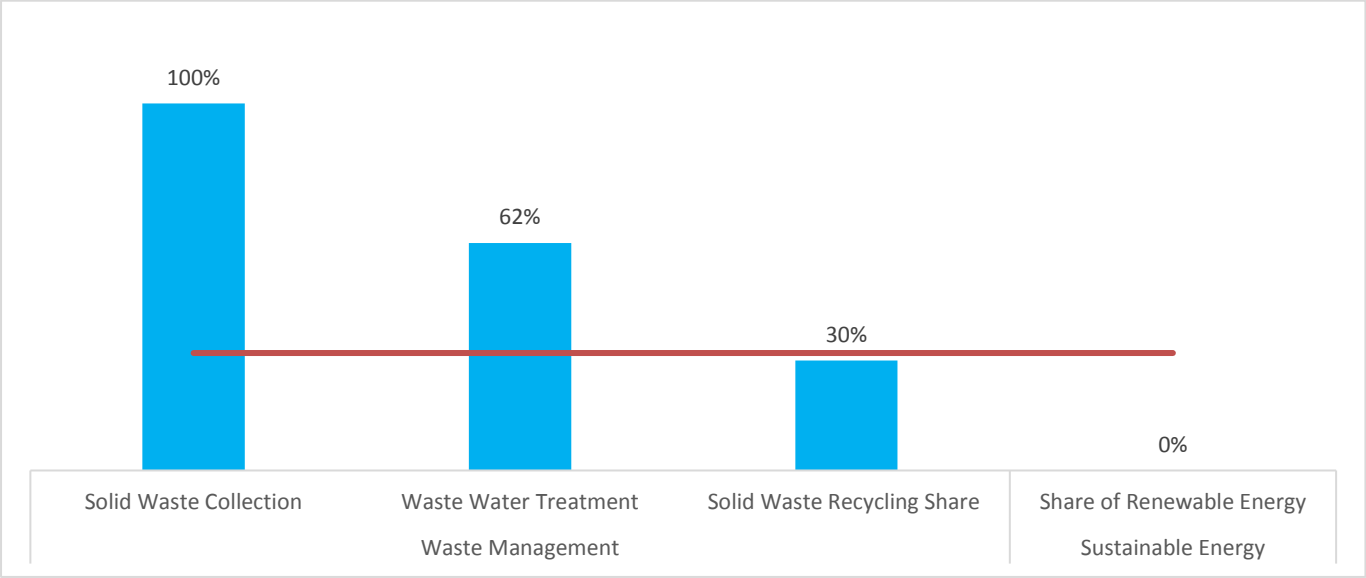
Prosperous cities ensure that as they grow and develop economically the city environment is not destroyed or degraded but remains healthy and liveable; the city's natural assets are preserved for the sake of the future generation. The results in the table below show that Riyadh city, like all other cities in the Kingdom, performs poorly on environmental sustainability. The main challenges the city is facing includes recycling of solid waste and recycling of waste water; although the waste collection is very well managed and solid waste collection is almost 100%, only 15% of the collected solid wastes are recycled. This may end up being counterproductive since the solid waste will eventually form landfills and results in environmental pollution.

Table 6: Environmental Sustainability Index (32.0%)

Sub-Dimension	Indicator	Actual	Units	Standardized	Comments
Water and Energy (0%)	Share of renewable energy consumption	0.00	ug/m3	0.00	Under moderate
Waste Management (64%)	Solid Waste Collection	100.00	%	100.00	V. Strong
	Solid waste recycling share	15.00	%	30.00	Under moderate
	Waste water treatment	62.00	%	62.00	M. Strong

The analysis did not capture certain key aspects of environmental sustainability due to unavailability of data, however based on the available data on the four environmental indicators below, the city of Riyadh needs to invest on solid waste recycling and increase the amount of waste water treated. There is also the possibility of adopting the use of renewable sources of energy such as wind and solar.

Figure 7: Environmental Sustainability indicators



Governance and Legislation Index (GLI)

Good urban governance and legislation help in the management of the city affairs, people, and finances. The growth of all the other five dimensions of prosperity depends on how the city is governed and the type of legislations that are in place. Prosperous cities have good governance and appropriate legislation, although there was insufficient data for an in-depth analysis on this dimension, there are scanty data indicating that civic participation in governance is increasing. By 2016 the number of registered civic associations in Riyadh had reached 1.5 per 10,000 persons. Access to public information has increased and some amount of information is now available to the public through the websites managed by city authorities. According to recent data on governance published by the High Commission for the Development of Ar Riyadh, public satisfaction rate in the city is 96%.

SWOT Analysis based on City Prosperity Index

This section uses the results of the CPI analysis to highlight areas of Strength or Weaknesses, identify challenges and Opportunities for growth so that appropriate recommendations and action plans can be formulated.

Table 7: CPI based SWOT Analysis

STRENGTH	WEAKNESSES
1. Good economic growth factors such as high economic productivity, high household income, low old age dependency ratio. 2. High literacy rate: availability of skilled labour, this can be found in the youth and women who have untapped potential to contribute allot to economic growth. There is allot of unutilised skilled manpower (human capital), especially among women. 3. There are good safety and security and political stability which provide a conducive environment for growth and development. 4. There is good healthcare provision in the city: a healthy population is productive, happy and peaceful.	1. Low economic density- possibly due to many undeveloped lands: re-examine and establish the need for increased densification of economic or commercial activities within the commercial, industrial and even residential areas in the city. 2. Use of public transport is very low and there is over-dependence on private cars for transport even for short distances. 3. Low average broadband speed in a city with high internet access and ownership of home computers. 4. Significant number of household do not have access to sanitation facilities such as the sewerage system.
OPPORTUNITIES	
1. The gap between high green area per capita and low accessibility to public spaces presents a unique opportunity i.e. there are allot of green areas or public spaces that can be made accessible to the public. 2. There is a window of opportunity to sensitise the public and educate them about managing change from private to the use of public transport system before the completion of Metro Train System. Because it will be a complete life style change for many people. 3. High street connectivity should encourage alternative means of transport such as walking and cycling especially early morning and evening or during favourable weather. 4. High internet access and ownership of home computers presents a good opportunity to increase bandwidth and encourage more usage. High productivity, good economic fundamentals, good safety & security and political stability in the city provide a conducive environment for attracting foreign investments.	

Local Urban Observatories

Introduction

Global Urban Observatory Network (GUO-Net) is a worldwide information and capacity-building network established by the United Nations Human Settlement Programme (UN-HABITAT) to help implement the New Urban Agenda at the national and local levels. The GUO-NET consists of national and city-level institutions that function as National and Local Urban Observatories.

The purpose of GUO-Net is to support governments, local authorities and civil society:

- To improve the collection, management, analysis and use of information in formulating more effective urban policies;
- To improve information flows between all levels for better urban decision-making;
- To stimulate broad-based consultative processes to help identify and integrate urban information needs;
- To provide information and analyses to all stakeholders for more effective participation in urban decision-making;
- To share information, knowledge and expertise using modern information and communication technology (ICT);
- To create a global network of local, national and regional platforms for sharing information about the implementation of the New Urban Agenda;

- To share some tools and benefits provided by the GUO network;
- Training on using the urban indicator toolkit for data collection and analysis;
- Training on how to use the results of the urban indicators data for fund raising activities;
- Conferences of the network members for information exchange and city-to-city networking;
- Access to internet resources available at UN-Habitat's website including urban indicators databases and Urban Info system;
- Data used for evaluations done for the World Cities Report published biannually by UN-Habitat.

UN-HABITAT achieves these objectives through a global network of local, national and regional urban observatories and through partner institutions that provide training and other capacity building expertise.

The UN-Habitat and MOMRA have previously established Local Urban Observatories in the 17 cities covered by the FSCP. A rapid survey conducted by UN-Habitat-KSA in June 2015 targeting the 17 LUO/cities, found out that only 15 LUOs existed. The findings also showed that 88% of Local Urban Observatories are under Municipal Departments while 12% are under Authority for Development within Municipality. It also revealed that 71% of the Local Urban Observatories were active while the operations of 23% of them were suspended due to unaccomplished staff/contractual arrangements.

Some of the data the Local Urban Observatories are required to collect in collaboration with the Municipals are GIS related, so there is need to have a collaborative work relation between the LUOs and the GIS departments within the Municipalities. The survey revealed that in terms of connections with the GIS departments, 59% of the LUOs have work relations with the GIS department while 18% do not. There was evidence that 71% of the LUOs have GIS data while 6% do not have.

The Riyadh Local Urban Observatory exist as a department within the Arriyadh Development Authority. It was established in 2013 as an independent and specialized authority that works in collaboration with both public and private sectors as well as the local community to develop a framework for indicators that expresses interests of the population within the urban development process and identifies development priorities. The observatory's main mission is to collect, study and analyse data and information relating to selected indicators to find out strengths, weaknesses and development opportunities for the city of Riyadh.

The High Commission for the Development of Arriyadh acts as the head of Riyadh Urban Observatory under the presidency of HRH Chairman of the Commission. Accordingly, the Commission approves its regular reports and Urban Indicators issued by the Observatory. The commission also defines the mechanisms of development strategies, policies, evaluation, and follow-up

Riyadh LUO has produced one round of urban indicators and now working on the second, in total they have produced 82 urban indicators.

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