

# Evolution of Settlement Pattern in Saudi Arabia

## A Historical Analysis

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### ABSTRACT

Historical growth of settlements in the Kingdom of Saudi Arabia has been significantly influenced by the ecological and institutional factors. The evolutionary process of settlement growth in the Kingdom could be classified into four distinct stages: the trade and pilgrim routes of the pre-national unification period, the sedentarisation process of the unification period, the oil discovery and extraction period of the early 1960s and the oil boom and development planning period of the 1970s. In spite of the distinct ecological and physical conditions of desert and arid environments and tribal structure of regions, certain notions and processes of historical evolution of settlements and growth dynamics could be generalised. This paper is an attempt to identify the institutional process of evolution and growth of settlements in the Kingdom of Saudi Arabia.

### INTRODUCTION

Lying between 16' 30' N and 32' N, with an area of 2.25 million km<sup>2</sup> Saudi Arabia has one of the lowest population densities in the Middle East, with only Oman and North Yemen having lower densities. The natural setting of the country could be divided into six regions. The Rub-al-Khali and other deserts in the Central and Northern regions take up 50% of the geographical area. The Central Plateau comprises 32%, Hijaz and Assir Mountains 7%, Tihama and the Western coastal plain 2%, the Eastern Lowlands 5% and the Northern Plain and Jouf region 4% of the total geographical area.

The Village Survey conducted in 1983<sup>1</sup> lists 10,365 villages and *hijar* (nomadic settlements) in the country. In addition, the country has 103 municipal urban areas and 45 village cluster centres (VCCs). The VCCs are unique to this country and act as the transitional stage in the rural-urban continuum.

The great sand deserts of Rub-al-Khali, Nafud and Dahna influenced the location and linkage pattern of the early settlements in the Najd and Northern regions of the country. Hostile *Sabkha* areas along the coastal regions, particularly in the Eastern region, limited the agricultural potential of the area. These physical constraints had a great effect on the pattern of space organisation and the growth dynamics of cities and villages.

Settlement and population distribution patterns correspond with the watershed areas of the country. Growth of settlements and their physical spread, conditioned by the harsh climate and water scarcity, were balanced during the period prior to the oil boom (Figs 1 and 2). Introduction of modern technology

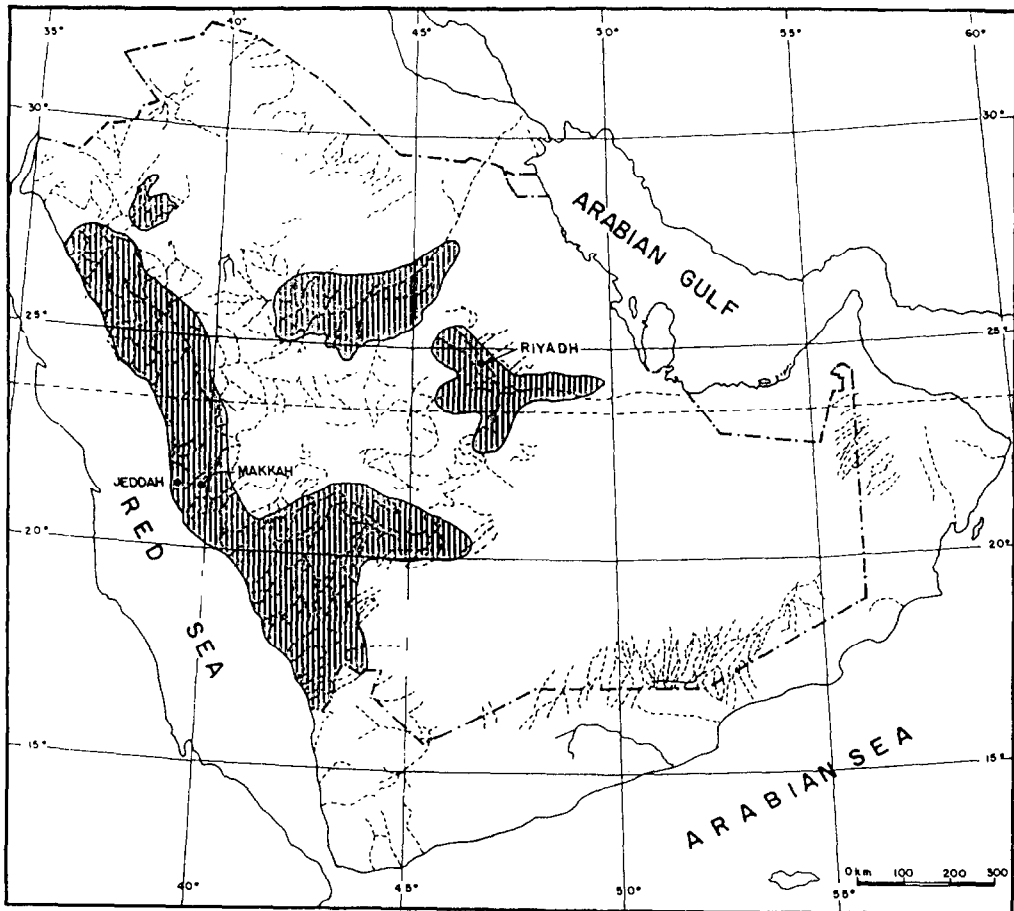


Fig. 1. Wadis and watershed areas.

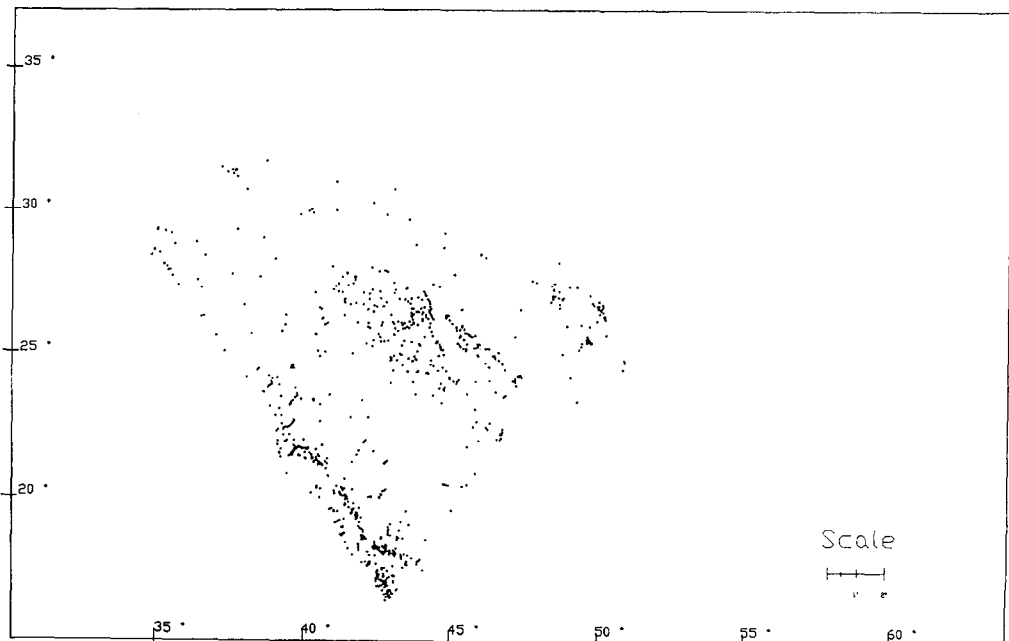


Fig. 2. Inhabited areas, 1957. Note: this computerised mapping is based on the geo-coordinates of inhabited area taken from the work of Abdo, Asa'ad S; *Mu'ajam al-Asnaa al-Geographiah al-Maktouba 'ala Kharit al Mamlaka al-Mamlaka al-Arabia al-Saudiah (A Dictionary of Places Names, written on Maps of the Kingdom of Saudi Arabia)* (Al Madani Library, Jeddah, 1984, in Arabic).

and the prevailing system of socio-political organisation significantly changed the structure and form of settlements.

A settlement pattern evolves sometimes gradually and sometimes rapidly. The spatial system develops at some particular place, spreads and interacts with other systems. Analysing the changes in the spatial system over time has been the concern of many disciplines. To understand an existing spatial pattern, an analysis of the evolution of areal patterns is needed.<sup>2</sup> We must first examine the genesis of cultural forms and secondly we must try to understand the processes of change over space and time. A study of such processes forms the vital link between historical analysis on the one hand and studies to explain the causal elements of current spatial distributions on the other.

The main objective of this paper is to discuss the evolutionary process of settlements in the Kingdom of Saudi Arabia both temporally and spatially. Our premises on the processes shaping the evolution of settlement pattern in Saudi Arabia revolve around the institutional developments taking place during the past few centuries. Transition of tribal institutions to modernity is manifested through the transformation of social and spatial organisations. We presume that the developments of networks and the process of spatial movements of people are the outward expressions of institutional changes taking place in the country during its various stages of settlement growth. We may call it the institutional model of settlement evolution.

The history of settlement process in this country, unlike many other countries, has continuous and discontinuous dimensions. The Arabian Peninsula, known for its pre-Islamic and Islamic culture, experienced historical tides which have been both progressive and regressive. Existing settlement patterns and the form and structure of urban areas retain only traces of their past glory. In the absence of positive evidence we can only put together scattered information based on the travel documents of earlier writers and the recent archaeological and anthropological research findings to understand the settlement pattern during the pre-national unification period. Information is more structured for the later years from the time of national unification.

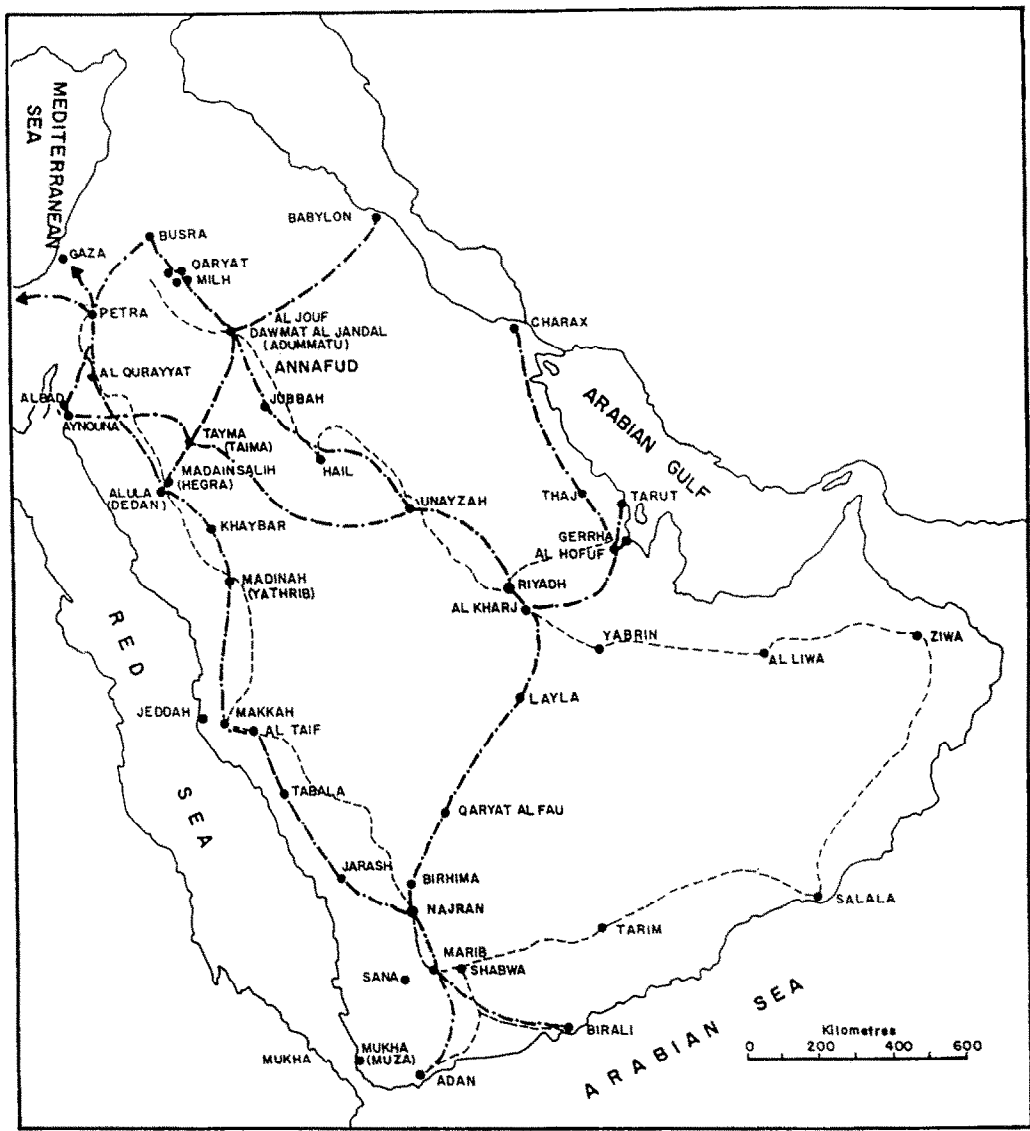
### EVOLUTIONARY PROCESS OF SETTLEMENTS

The historical process of settlement evolution in Saudi Arabia can be categorised into the following four broad periods. Interestingly, the modern history of the country itself could be chronologically categorised into these periods.

1. The pre-national unification period (before 1900).
2. The period of national unification (1900–1940).
3. The period of oil discovery and commercial production (1940–1970).
4. The period of planned national development (after 1970).

#### *The pre-national unification period*

*Trade routes.* The important role played by the early Arabs in trade and commerce is well documented. Southern Arabia, known for its frankincense and myrrh, traded with other regions of the Fertile Crescent near the Mediterranean and with Egypt. Southern Arabia was also a focal point of transit for goods from India and Eastern Africa. Available archaeological evidence indicates that the pre-Islamic trade from Southern Arabia mainly took inland routes to Northern Arabia and to the Fertile Crescent. The classical trade route<sup>3</sup> and the 'coffee route'<sup>4</sup> used for trading spices, incense and coffee passed through the Hijaz and Central region to Northern Arabia (Fig. 3). The majority of present day cities sprang up along these routes and the large camel caravans generated



Source:  
 1 - William, 1980  
 2 - Al-Ansary, 1983

**LEGEND**  
 Route Mentioned in The Classical Sources of Ptolemy -----  
 Coffee Route Based on The Archeological Evidences At Qaryat Al-Fau - . - . - .

Fig. 3. Pre-Islamic trade routes.

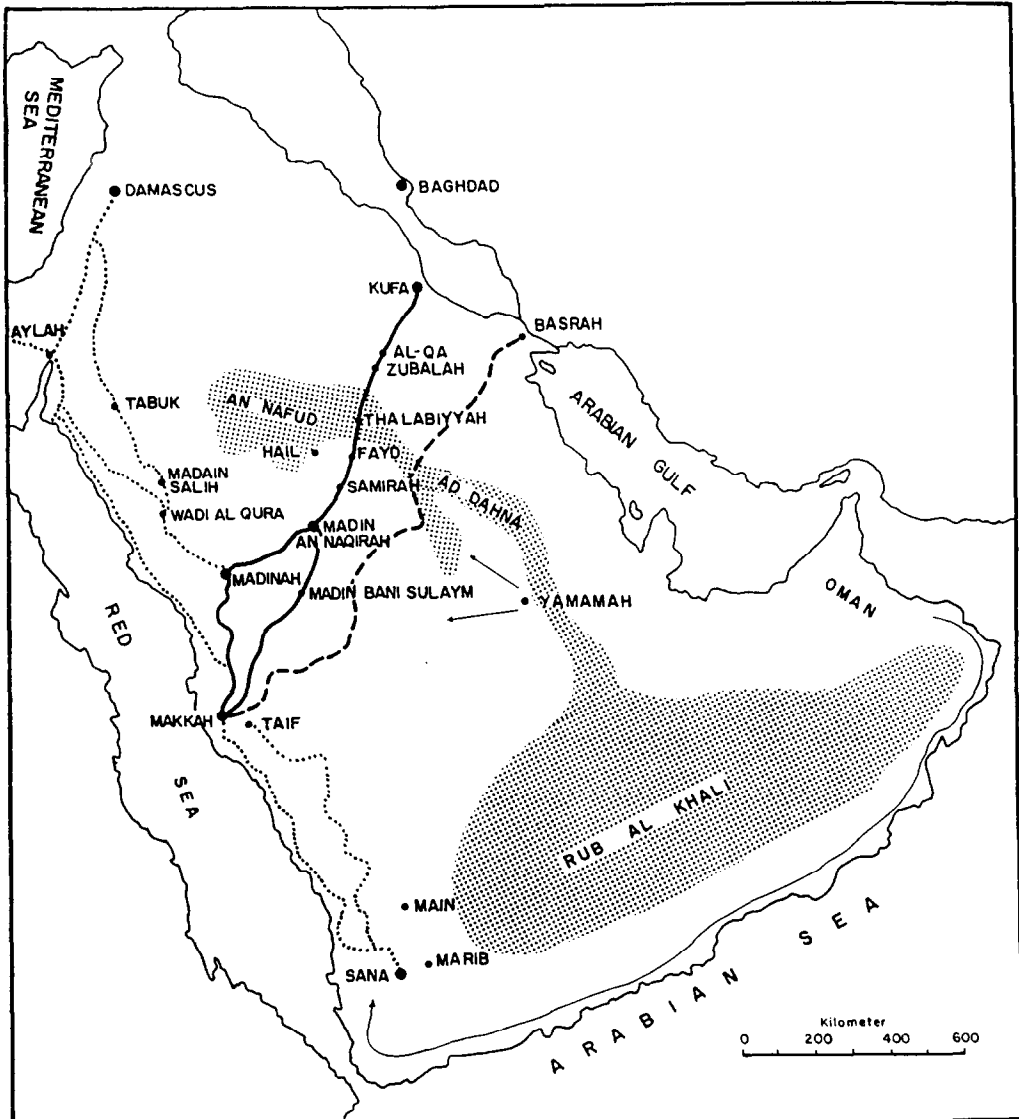
significant amounts of activities to sustain a sizable settled population (Dequin, 1976).

*Pilgrim routes and the settlement growth.* With the rise of Islam, pilgrims from all over the Arabian Peninsula, North and Eastern Africa and Asia visited Makkah. The various routes taken by these pilgrims became the main corridors of spatial development during the Islamic period. Pilgrim routes followed the early trade routes but instead of the north-bound flow of the early trade routes, pilgrim routes gravitated towards Makkah and Madinah.

About seven major pilgrim routes were identified by historians. It is not surprising to find that today's major settlements fall along these corridors. The most prominent major routes were: the Kufa-Makkah route, the Basrah-Mak-

kah route, the Egyptian and Syrian routes, the Sana-Makkah route and the Oman-Makkah route (Fig. 4).

*Settlements in major geographical regions during the pre-national unification period.* The geographical centrality and more favourable physical factors of the Najd (Central) region attracted more population compared to the desert region of the North. Availability of more fertile land and water created larger settlements in Najd as compared to the smaller sized *bedouin hijar* of the North. Even though the Zubaydha-Makkah pilgrim trail and Basrah-Amman-Tabuk trade trail passed through the edges of Nafud desert they were only of local interest.



Source: Saad A Al Rashid, 1980

**LEGEND**

- Sana - Makkah .....
- Egyptian - Routes .....
- Syrian - Routes .....
- Kufa - Makkah Route —————
- Basrah - Makkah Route - - - - -
- Oman - Makkah Route - . - . -

Fig. 4. Pilgrim routes.

Settlements like Tabuk, Tayma, Linah and Hail were centres of trade between Najd and Egypt. The poor resource base limited the size of these settlements with the number of families ranging from 60 to 200 in 1845.<sup>5</sup>

Until the discovery of oil, Najd comprised three distinct geographical sub-regions: the sand dunes along the Dahna desert, the range land with scattered water points inhabited by the *bedouins* and the osases with fertile land and adequate water providing better opportunities for settled habitation. Within the region the settlement pattern was largely linear in a north-south direction from Al-Kharj to Buraidah. The alignments of trans-Arabian trade routes and the pilgrim trails connecting Eastern Arabia and Oman with the Hijaz region generated the growth of urban areas and in turn attracted large populations. Major regions like Qassim and Al-Hasa were inhabited by about 20,000 people in 1865. Areas like the Aredh (which includes Riyadh) and the Washam, Wadi al-Dowasir, Qatif and Al-Kharj were large settlement clusters each inhabited by about 8000–10,000 people.<sup>6</sup>

As compared to the Najd region, Hijaz and Assir regions had a large number of trading centres. Major centres were established along the western coastal areas and along the high land routes connecting Sana and Petra. The population of Hijaz during the nineteenth century lived in urban, oases or interior Hijaz areas. Nomadism was predominant in the interior Hijaz. Historians have recorded that the urbanised population of Hijaz and the nomadic *bedouins* of interior Hijaz led contrasting ways of life. Major settlements in the north were Muwaylih, Dhuba, Al-Wajh and Al-Ula. Trading centres like the Umluj, Yanbu al-Bahr and Madinah dominated the Central Hijaz while Jeddah, Makkah and Taif were major centres in Southern Hijaz.<sup>7</sup>

Assir region, stretching from the Southern Hijaz town of Lith to the Yemen, was one of the densely populated regions during the nineteenth century. Due to the favourable climate the region was the abode of a large settled tribal population. However, the physical inaccessibility and tribal law limited the size of settlements in this region. Before World War I settlements like Qunfidhah, Birk, Shuqaiq, Jizan and Midi were the major ports importing arms and other goods to the region. Major trading centres for the inland trade were Jebel Razih and Khamis Abidah, dealing in the coffee trade and servicing the pilgrims from Sana and Oman. Many settlements like Sabiyah, Rijal, Khamis Mushayt, Abha and Khamis al-Makwar grew as tribal trading centres during the nineteenth century.<sup>8</sup>

Najran, another centre in the Southern region, was throughout the Middle Ages the largest city in Southern Arabia. It lay on the Sana-Makkah-Petra and Sana-Riyadh-Gerrha caravan routes. Local tradition claims that the old city covered an area twice the present urbanised area.

The Eastern region, earlier called the Al-Hasa region, extends from Kuwait in the North to the Rub-al-Khali in the South. During the pre-Islamic and Islamic period the Eastern region was thriving with pearling industry and agriculture, particularly dates, and was the transit port for the trade between India, Egypt and Eastern Africa. However, the regional economy declined during the Ottoman period and the re-routing of Indian trade made its economic collapse inevitable. The regional economy at the time of its separation from the Ottoman Empire was pastoral. Qatif and Uqair were the main trading centres in the region. The main political and economic centre of the region was Al-Hasa until the re-structuring of settlements occurred after the oil discovery.

### *The period of national unification*

Even though the process of nation building started in 1764 with the subjugation of Riyadh by Emir Muhammad Ibn Saud, the systematic national unification

process only began with the control of Riyadh by King Abdul Aziz III Ibn Abdu Rahman Al Faisal, popularly known as Abdul Aziz or Ibn Saud, in 1902. The process started with the integration of Riyadh and Najd in 1902–1904, culminating with the British recognition of the Kingdom as a sovereign state by the treaty of Jeddah in 1927 and the declaration of the Kingdom of Saudi Arabia in 1932. The present boundary and areal control of the Kingdom was completed by the treaty of Taif in 1934.

One of the main tasks of King Abdul Aziz was to gain control and support of the various tribes controlling the vast expanse of inner Arabia. About 100 tribes, distinct in size, power and degree of nomadism, were identified.<sup>9</sup> These tribes controlled various parts of the country. To encourage these tribes to settle in organised communities, King Abdul Aziz initiated what was later known as the *Ikhwan* movement. The spirit of the movement was to unite all true believers under the State, devoid of tribal loyalties. The movement, with its first project initiated in 1912 at Artawiyah, 300 km north of Riyadh, succeeded in establishing more than 200 *bedouin* villages. The movement was highly successful and in 1916 *bedouin* tribes were asked to pay alms tax (*zakat*).<sup>10</sup>

The late King Abdul Aziz had successfully organised the tribes to integrate and control most of the Arabian peninsula and created the modern state of Saudi Arabia. The movement produced a formidable state and central authority that unified Arabia and imposed peace and order on its nomads and settled its population for the first time since the time of the early Caliphs.<sup>11</sup> By 1926 King Abdul Aziz had received the support of all major tribes in the Najd and Northern regions. The total number of fighters recruited from the *bedouin hijar* amounted to 76,500 in 1926.<sup>12</sup> Based on this estimate we can assume that about 300,000–400,000 *bedouins* were settled in *hijar* by the mid 1920s.

The de-tribalisation policy and settlement approach initiated by Abdul Aziz led to a sedentarisation process, particularly in the Central and Northern regions of the Kingdom, and it has been continued to this date by the modern government through its program for settling nomads. The As-Sirhan Project set up near the Jordanian border in 1958 and the King Faisal Settlement Project in Haradh in the Central Province in 1970 were significant efforts in this direction.

*Sedentarisation process and settlement growth.* The sedentarisation process of the 1920s was influenced by many factors. We may summarise them as:

(a) Since Islamic law is best suited for a settled population, it encouraged people to settle and draw benefit from the law.

(b) Poor *bedouins* were more willing to settle than richer ones.<sup>13</sup>

(c) The abolition of the *hima* system in 1953 denied the tribes their customary rights to range land (*Dirah*), including the right to keep out other tribes.<sup>14</sup> We may note that settlements in the Kingdom, particularly in the Southern region, continue to ascertain their traditional territorial privileges even today.

(d) Establishment of a strong central government and disintegration of tribal loyalties.

(e) Accessibility to new technology and better quality of life in cities and villages attracted nomads to settle.

The sedentarisation process, propagated by the successful religious teaching, was 'induced' in character as compared to the 'spontaneous' historical evolutionary process of the settlement. Field studies in Qassim region have shown that settlements (*hijar*) established during the national unification period, particularly during 1912–1930, were induced while settlements established after 1950 were spontaneous in character.<sup>15</sup>

The induced process was influenced by factors such as government encouragement to agriculture development, land grants, provision of adequate social services and social security and other welfare programs. As a result, the majority of the *hijar* were established during the 1912–1930 period (early

*hijar*) as compared to the second period of sedentarisation which took place after 1950 (recent *hijar*). Settlement location, size and number of dependent hamlets and villages of *hijar* depended on the size of the land grant. Early *hijar* obtained larger land grants and they grew in population size and functionality at a higher rate than the recent *hijar*.<sup>16</sup>

The second period of sedentarisation has taken place since the 1950s and has been influenced by the economic conditions of *bedouins*. Besides the spontaneous settlement of nomads in areas of water and fertile land, a process of 'diffusion' of existing settlements took place during this period, leading to sedentarisation. Political conflicts between tribes and the ecological factors limiting the land capability to sustain a large number of *bedouins* were identified as factors responsible for this process. In the Qassim region a *hijarah* of 1500 people is observed to take 15 years to reach the stage in its ecological balance which leads to the out-migration of the *bedouins*. This process results in the establishment of new *hijar* which are smaller in size and functions.

A third form of sedentarisation leading to the urbanisation process occurred in established urban centres during the mid 1900s. This process was spontaneous in nature. Tribes began to settle in the peripheries of existing urban centres. This pattern of settlement took the form of a *harah* or a neighbourhood within an existing settlement and was called a *hilal*. These settlements were smaller in size as compared to the early and more recent *hijar*. Economic factors like the high cost of urban land and lack of adequate job opportunities contributed to the smaller and less adequate system of *hilal*. These were squatter and shanty settlements in character and were mostly found in the Central and Eastern regions. However, they disappeared from the urban areas with the construction boom which began in the late 1960s.

#### *The period of oil discovery and commercial production*

The settlement pattern in the Kingdom of Saudi Arabia, particularly in the Eastern and Northern regions of the country, underwent significant changes with the discovery and extraction of oil. Even though oil was discovered in 1934 near the present city of Dammam, 18 km south on an outcrop named Dhahran, its commercial production was started by ARAMCO (Arabian American Oil Company) only at the end of 1938.

The real process of urbanisation in this country started during this period. During the early 1940s, Dammam was only a small fishing village. Hufuf, with 30,000 people, was the largest town in the Northern and Eastern regions. Makkah with its 80,000 people was the largest city of the country, followed by Jeddah and Riyadh, each with 30,000 people and Buraidah and Madinah with 20,000 people each.<sup>17</sup>

With the development of oil-related activities and the transportation of incoming goods and services many dormant towns of the East and West coasts awoke to meet the new functional challenges. Prior to the oil era, early cities were meeting the demand of their small populations and servicing the population of rural hinterlands and *bedouin* settlements at a subsistence scale. As such, they were balanced in their scale of development. The extraction and export of oil, however, changed the economic base of the country. During the short span of time, the economy had changed from the traditional agriculture and nomadic pastoral economy to a competitive and thriving industrial economy with a rapidly growing export and service sectors. Induced by the export of oil, the economic space and the service population of cities spilled beyond the physical boundary of the country triggering the hitherto unknown process of urbanisation. As a result, the level of urbanisation rose to 10% in 1950 and increased to 15% by 1963.<sup>18</sup>



Expansion and growth of the oil industry and its transportation took place away from the then existing settlements of the Eastern and Northern regions. The first oil community was built at Dhahran in 1938. In 1939, a second oil camp was built at Ras-Tanura. This camp served as the base for an oil refinery and loading port for oil tankers. A new oil field was discovered in Abqaiq, 65 km southwest of Dhahran and 60 km north of the city of Hufuf. To handle the transportation of oil barges and incoming goods and services, a new pier was built in Al-Khobar, 10 km east of Dhahran. Al-Khobar with its storage facilities attracted a large number of traders who set up shops and other establishments. However, due to the increase in the volume of trade beyond the physical capabilities of the shallow waters of Al-Khobar, a new port was established at Dammam.

Connected by a new railway line with Riyadh and equipped with larger port facilities, Dammam became the centre of the oil trade during the 1950s. As a result of the recognition of Dammam as the provincial capital of the Eastern region in 1952, Hufuf lost its status as the administrative town of the region. Under the new functional dynamics, Dhahran became the residential town and Al-Khobar became the town for retail trading for the oil community. Abqaiq became the centre for training and Dammam became the centre for wholesale trade and shipping activities. Old cities like Qatif, Hufuf and Mubarez, constrained by the physical distance from the places of oil processing, did not benefit from the new functional demand and were negatively affected by the new functional re-structuring and settlement growth of the Dammam–Dhahran–Al-Khobar triangle.

The construction of the TAPLINE (Trans-Arabian Pipeline) in 1950 along the Northern border of the country, traversing a distance of 1200 km from Qaysumah to the Mediterranean port of Sidon, created several new settlements as service stations for oil pumping activities.

The remote, uninhabited area of the pipeline required the creation of new communities initially at the pumping stations located at Qaysumah, Rafha, Badanah and Turayf. These communities were designed as self-sufficient units (ARAMCO, 1968). A TAPLINE road, built to connect all the pumping stations, and the availability of water and medical services, provided the stimulus for development in the Northern region. The road along the pipeline became the main artery for the movement of goods between Lebanon, Syria, Jordan and Eastern Saudi Arabia and Kuwait. Over a period of time settlements such as Arar, Turayf, Rafha and Qaysumah experienced functional re-structuring and grew rapidly.

As Dammam and Al-Khobar continued to specialise in administrative, manufacturing and trading activities a large number of settlements grew up within the Dammam–Al-Khobar–Dhahran triangle. The pattern of settlements transformed to a linear one with Qatif in the north, Hufuf in the south and Dammam in the centre. The high functional interaction and dependency of closely spaced settlements provided a hierarchical spatial system in the region with Dammam as the first order and Hufuf and Qatif as the second and third order settlements during the mid 1970s.<sup>19</sup>

One of the important consequences of the oil development was the re-structuring of functions and hierarchy of urban settlements, particularly in the Eastern region. It is observed that growth in the relative size of the existing urban settlements and the growth in the number of new urban settlements were inversely related. While new settlements like Dammam, Dhahran, Al-Khobar and Abqaiq grew as important urban centres, existing settlements like Hufuf and Mubarez lost their administrative importance and level of urban growth.

A new phenomenon of dual urban structure also developed during this period. The pattern of dual urban structure was the result of functional re-structuring

of settlements. Agriculture-based centres, such as Hufuf and Qatif could not satisfy the demands of newly emerging industrial and service activities and this process gave birth to new satellite towns. New residential and industrial towns, such as Jubayl, Dhahran and Al-Khobar, therefore, were built in close proximity to existing towns.

Another important consequence of rapid urban growth during this period was the initiation of urban planning exercises in the Eastern and Northern regions. The haphazard growth of Dammam and Al-Khobar urged the ARAMCO to prepare land sub-division plans and city plans for a large number of settlements. In 1947 planning for Al-Khobar started, based on a grid-iron pattern, and a layout for Rakah was prepared in 1955. Subsequently, town plans for Jubayl, Hafar al-Batin, Al-Qurrayat, Al-Ula, Anik and Saihat settlements were prepared.<sup>20</sup>

Even though the institutional structure for the municipalities at the national level was initiated in 1937, their role remained passive until the late 1960s. However, formulation of measures to control and direct the location of urban activities and measures to regulate the land and building development during the early 1940s were important steps in the planned urban development of the country.<sup>21</sup> These development controls and physical planning efforts initiated during the 1940s and 1950s culminated in the preparation of Master plans for the major cities in the 1970s, thus opening up a new period of planned urban development in the country.

### *The period of planned national spatial development*

The planned phase of urban and rural development started in 1970 with the preparation of the First Five Year Development Plan (1970–1975) by the Central Planning Organisation. During this period a comprehensive approach to urban and regional development was adopted. As a first step in this direction the Ministry of Municipal and Rural Affairs (MOMRA) had carried out five regional studies to formulate regional development strategies as well as to prepare regional physical plans.<sup>22</sup> This was the first time a national level approach to local planning was adopted.

The second phase in urban planning was initiated in 1976 with the Action Master Plan Projects commissioned by the MOMRA for seven cities: Jeddah, Riyadh, Dammam, Madinah, Taif, Abha and Jizan. The first National Spatial Strategy prepared by MOMRA in 1980 provided the basic perspectives for balanced settlement planning in the country.<sup>23</sup>

Compared to the 1970s, efforts in the 1980s were largely concentrated on developing an appropriate institutional mechanism for plan implementation. Two development policy directives initiated during 1982 and 1985 are noteworthy efforts.

One of these is the Cabinet of Ministers Resolution of 1982.<sup>24</sup> This charges the MOMRA to prepare a general policy for comprehensive development of villages in the country and to ensure sectoral coordination and cooperation for the execution of the policy. The concept of Village Cluster Centres (VCCs) was introduced during this period. VCCs are important nodes in the rural-urban continuum and perform the function of rural growth centres. Accordingly, Local Village Development Committees at the village levels are instituted with full sectoral representation and the Deputy Ministry of Rural Affairs of MOMRA is entrusted with powers to formulate policies for integrated rural development.

The other important institutional development concerns the scale of urban growth in the Kingdom. In 1985 through a decision by the Council of Ministers, urban expansion was frozen for two years in all the 103 municipalities.<sup>25</sup> During that period MOMRA, in collaboration with the local municipalities, prepared studies defining the growth limits of each municipality with the

projected development phased over 20 years. This policy is a positive step for integrating the spatial and functional dimensions of development.

By the end of the Third Five Year Plan (1980–1985), the country entered the third phase of planning. Comprehensive Regional Development Plans at the Emirate level were initiated for Al-Baha, Al-Qassim, Hail, Tabuk and Makkah Emirates. These plans are more comprehensive than earlier studies in terms of regional development strategies and master directive plans for urban centres and VCCs.<sup>26</sup>

*De-centralisation and regional dispersion strategy.* De-centralisation of government decision making and budgetary powers, introduced by the national planning efforts in the Kingdom have two functions. First, it is designed to spread political power and it is considered as a means to improve the general environment for free enterprise and individual initiative, which together strengthens the role and spiritual well-being of the individual in Moslem society. Secondly, de-centralisation is valued as an instrument to accelerate economic growth and to spread its benefits to a larger segment of the society.

In city management, the Second Five Year Development Plan (1975–1980) called for a new categorisation of municipalities to give them varying degrees of autonomy in decision-making.<sup>27</sup> In the Second Plan the objectives of “regional balanced development of industry” and “regional dispersion of industry” obtained greater importance than the First Plan. The same priority for regional development continued during the Third and Fourth Development Plans.

Specific courses of actions, such as developments of ports, roads, airports, housing, power, water and communication were recommended to achieve the regional dispersion strategy. Another important course of action was the regional re-distribution of population. One of the main issues well appreciated by the planners is the concentrated pattern of existing settlements and the highly polarised growth of major urban centres, such as Jeddah, Riyadh and Dammam. The re-distribution of regional population objectives is designed to achieve simultaneously objectives like “regional balance”, “economic growth”, and “distribution of national wealth”.<sup>28</sup>

The conceptual framework suggested in the Third and the Fourth Plans to achieve these objectives is the hierarchical system of national, regional and local centres for the provision and effective spatial and sectoral coordination of development services. The strategy is based on the growth pole/centre settlement structure of national space. The basis of this strategic framework is set out in the National Physical Planning Strategy for Settlements (1980–2001) and the National Spatial Strategy (1990–2010) by MOMRA.<sup>29</sup> One of the main contributions of the latter spatial strategy is the concept of development corridors and its emphasis on fostering long term integration of development corridors with isolated urban nodes.

Major elements in the proposed national spatial strategy are: efficient utilisation of infrastructure and utilities available at the major centres, capitalising on the economic potentials of selected growth centres, improving the spatial accessibility to higher order functions, integration of growing urban areas with adjacent lagging areas, development of marginal areas and comprehensive development of rural areas. To achieve these strategic objectives, policy instruments such as public investment, economic and social subsidies, spatial incentives to direct private investment and government directives and regulations to promote structured physical development, are recommended.

### A CONCEPTUAL FRAMEWORK OF THE EVOLUTION OF SETTLEMENT PATTERN

Schematic presentation of the development process of settlements is attempted in Fig. 5. The spatial system during the pre-national unification period (Stage I) was 'closed' in nature with poor regional linkages. The tribal system, with its territorial rights, called the *hima* system, limited spatial mobility of both nomadic and sedentary population. As a result, the settlement pattern was widely dispersed during this period. Ecological factors like the availability of water and fertile agricultural and green pastures created a balanced settlement distribution. Major trading and pilgrim centres were the main poles for inter-regional trade. Growth of isolated tribal towns and large settlements created a primate pattern of settlement.

One of the main characteristics of the settlement system during the national unification period (Stage II) was the process of sedentarisation. A large number

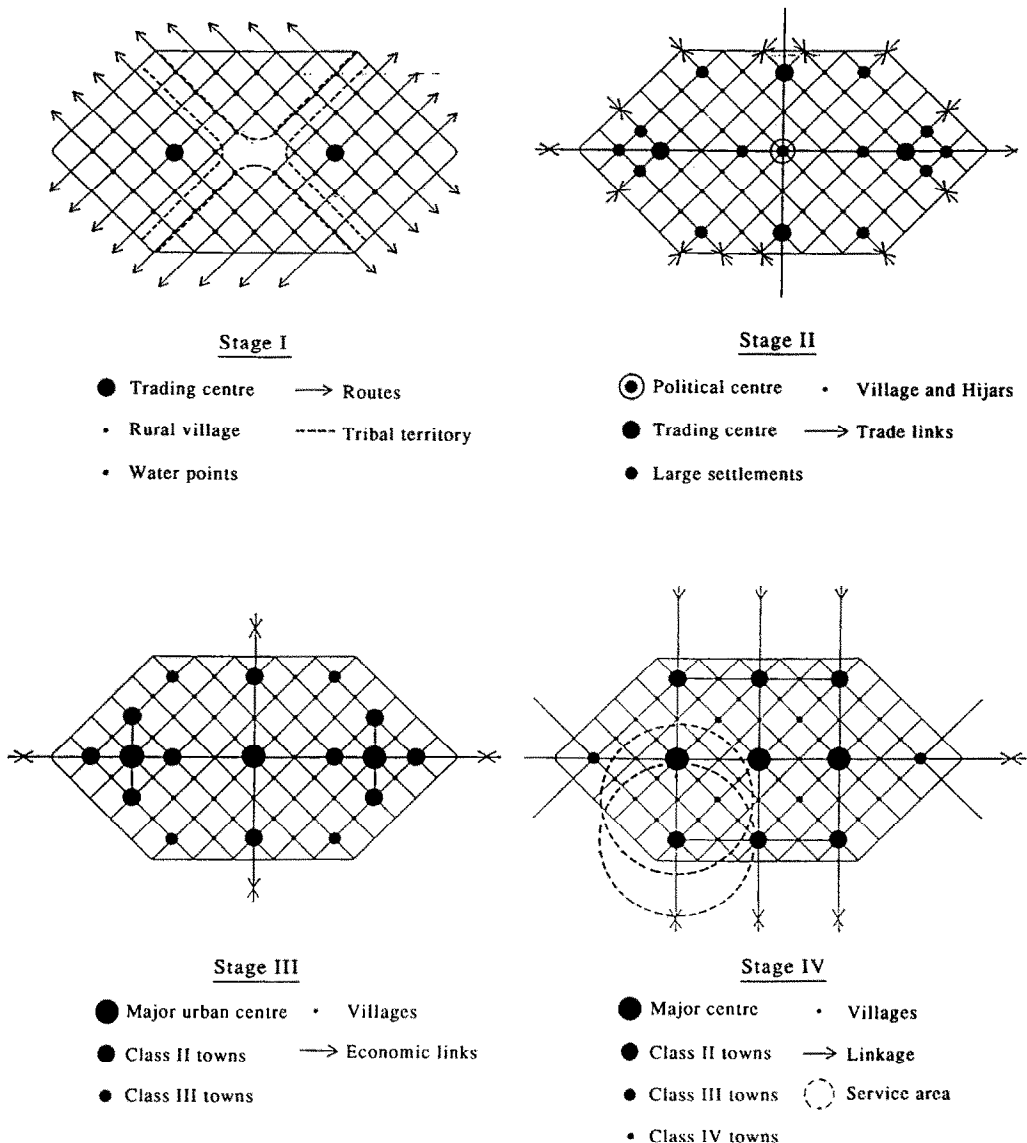
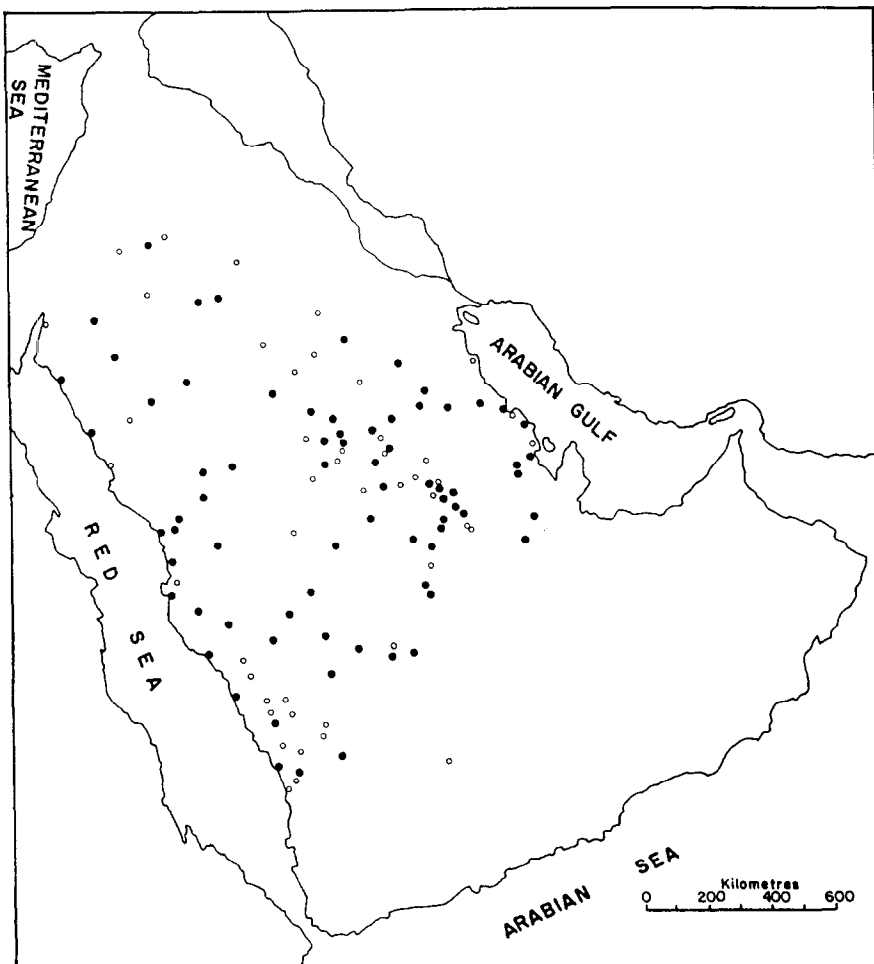


Fig. 5. A conceptual framework of the evolution of settlement pattern in Saudi Arabia.

of *hijar* were established in various parts of the Kingdom. Population became more sedentary by the early 1970s, reducing the share of nomadic population from 70% in 1900 to 10% in 1975<sup>30</sup> and to less than 3.6% in 1989.<sup>31</sup> Location of political power at Riyadh provided a centrality to the spatial system. During this period the importance of Makkah and Madinah as religious centres was enhanced. The role of Jeddah as the major trading centre and the entry point for pilgrims gave it a special status. Simultaneous growth of many major cities took place during this period (Fig. 6).

The distribution of settlements during this period was not hierarchically ordered, with a few large settlements at the top and a large number of small urban and rural centres at the bottom of the spatial system. The settlement pattern was typically polarised without any order or hierarchy. However, the spatial distribution of settlements was balanced. One of the characteristics of this stage was the creation of internal links between regions. For the first time the spatial system became 'open' functionally.

The period of oil discovery and commercial production (Stage III) introduced the middle-order settlements in the spatial system. This period also saw growth



Sources. (a) Philby, 1930  
(b) Bindagji, 1978

**LEGEND**  
 PROMINENT SETTLEMENTS BEFORE 1930 •  
 SETTLEMENTS GROWN TO PROMINENCE AFTER 1930 ◦

Fig. 6. Distribution of major settlements.

in many new urban centres like the oil communities, industrial and service towns. The second stage of sedentarisation experienced during the 1950s established a number of *hijar*. The settlement pattern was more ordered during this period with the growth of many medium-sized urban settlements.

The oil industry and related activities gave definite orientation to the movement of goods and services in space. This encouraged growth of core centres like Jeddah and Dammam with Riyadh at the centre of the spatial flow of resources. Concentrated developments in these three poles generated the strong east–west axis for development. One of the important impacts of the oil industry related growth was the re-structuring of settlement functions and spatial order. Traditional centres which specialised in agriculture and nomadic trading activities lost their importance during this period.

The rapid urbanisation experienced during the period of planned development (Stage IV) created a spatial system of intermediary settlement distribution. Sedentarisation of the 1920s gave way to the urbanisation process of the 1960s. Levels of urbanisation increased from an insignificant 15% in 1950 to 73% in 1985.<sup>32</sup> While the three main urban poles continued to attract a large percentage of expatriate labour force and internal population, settlements in the middle and lower order experienced abrupt changes in population distribution. This unique pattern of non-linearity in population distribution is due to the physical distance between settlements and the subsequent functional overlapping of settlement service areas. Uniform growth of intermediate centres generated a combined pattern of polarised and hierarchical settlement system.

The rapid rate of urbanisation and urban concentration of population witnessed during the 1970s and 1980s is the cumulative result of many factors such as the significant level of public expenditure, growing private sector investment participation, and introduction of a strong construction industry which responded remarkably to the increase in personal income of Saudi citizens.

Induced by the planned development opportunities, the share of the non-oil private sector has increased from 11% of the Gross Domestic Product (GDP) in 1974–1975 to 44.9% in 1984–1985 (at current prices). Even though the role of the non-oil private sector was high prior to the oil boom (35.2% of GDP in 1969–1970) it went through a re-structuring process during the oil boom and post-oil boom periods.<sup>33</sup> As result the *per capita* annual income grew from 4800 Saudi Riyals (US\$ 1280) in 1975 to 8200 Saudi Riyals (US\$ 2185) in 1980 (at 1979 prices). The real income is enhanced by additional government subsidies on food, utilities and services to the tune of 29% of the average income during the Third Five Year Plan.<sup>34</sup>

The level of construction sector participation likewise has experienced significant changes during the three plan periods. The proportion of construction sector income in the non-oil private sector income has increased from 15.2% in 1969–1970 to 28.3% in 1984–1985. The highest level of construction sector contribution was registered during the 1979–1980 period, contributing 39.1% of the non-oil private sector income.

The growth of the construction industry, particularly the growth of the residential sector, is highly induced by the land grant and generous housing loan policies of the government. An important factor responsible for the tremendous growth in residential use of land is the public land grant policy with its 'land award schemes' and the 'limited income schemes'. These schemes provided opportunities to every citizen to own residential land in places of his choice.

Government financial assistance in the construction of private housing units and investment assistance for commercial and residential schemes are important policies boosting the construction industry. The Saudi Real Estate Fund (REDF), established in 1974, had disbursed loans worth 90.5 billion Saudi Riyals (US\$ 24.1

billion) up to 1987–1988 for the construction of 413,958 housing units. In addition to the loans to the private housing sector the REDF also granted investment loans worth 4.99 billion Saudi Riyals (US\$ 1.33 billion) for the construction of office and commercial projects from 1976 to 1988.<sup>35</sup>

Another important factor that could be attributed to the growth of small urban centres is the national policy of ‘regional dispersion’ and ‘administrative decentralisation’. Tribal institutions re-structured their functions and level of participation to capitalise on the development opportunities provided by the planned development programs. These factors significantly contributed to the simultaneous growth of many lower order settlements resulting in the polarisation of settlements at the lower scale.

The suitability of *Ekistic* law of 1:7:49, i.e. one region is composed of seven sub-regions and so on, seems to be doubtful in the case of Saudi Arabia. The main factor for the population concentration in the primate urban centre of each region is the extent of service coverage provided by the centre. Service areas of major regional centres grew beyond their immediate zones of influence, resulting in the non-compatibility in population and functional hierarchies of settlements. The tremendous capital investments made in these major centres during the oil period pushed their economic space references beyond the regional scale leading to the process of urban polarisation.

#### **FUTURE PERSPECTIVES OF SETTLEMENT GROWTH**

The processes of spatial movement of population and sedentarisation discussed in this paper articulate the institutional dimensions of settlement evolution and growth. While the forces of settlement evolution in the past were influenced by the local resources and trade routes, the national policies to promote spatial balance and equitable distribution of national wealth across larger segments of the society largely influenced the settlement pattern during the modern era.

Improved transportation and other communication networks and the high level of vehicle ownership have significantly changed the concept of physical distance during the 1970s as compared to the early period. The high level of government subsidy in transport and communication sectors has reduced the impact of transportation cost to an insignificant level in the location of spatial activities. The settlement pattern during the past 15 years was influenced not by the ‘friction of distance on space’ but by easy physical accessibility.

The Saudi Arabian economy presently is in the development stage of spatial consolidation and economic diversification. Rational use of economic resources and maximisation of benefits from the existing socio-economic infrastructure investments are the main future strategic planning objectives. The future scenario of settlement system and structure and form of cities, therefore, will be influenced by these development objectives. Application of new investment criteria and spatial logic based on the efficient utilisation of existing infrastructural resources and enhancing the real comparative advantages of regional centres for attracting private investments, as outlined in the national spatial development strategies, is expected to create a multi-polar and well-balanced settlement pattern in the Kingdom.

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