

# Public transport system in the Gulf region, a case study of the city of Riyadh

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## Abstract

Public transport systems are very important in any city and they usually give an indication of how well cities are organized. The Kingdom of Saudi Arabia is one of the Arab Gulf States and also one of the Gulf Cooperation Council (GCC). The other members of the GCC are Qatar, Oman, United Arab Emirates, Kuwait and the Kingdom of Bahrain. One of the most important fields is transportation, which is vital to cement the union between the Gulf States. It is necessary that all GCC members have a good network of transport both inside and between the states. Unfortunately Saudi Arabia does not have an efficient public transport system although the kingdom is the largest oil exporting country which provides the necessary financial means for an efficient system. The city of Riyadh is the capital of Saudi Arabia and this paper will investigate the public transport system in this city. Like many of the GCC cities public transport in Riyadh is facing numerous problems and difficulties. A lack of strategic planning in the past has contributed greatly to the deficiencies of the system. The city of Riyadh was initially designed as a compact city but this design could not cope with the huge influx of people and consequently the large growth in population. The city started to expand in a horizontal manner and because this was unexpected the public transport system of the city could not cope efficiently with the large growth. Public transport in Riyadh suffers from traditional, cultural and religious influences and beliefs. This paper will investigate the problems and difficulties that public transport in Riyadh is facing and highlight the ongoing problems in the GCC.

*Keywords: public transport, integrated transport, Gulf Cooperation Council (GCC), Riyadh.*



## 1 Introduction

There is no doubt that one of the most important elements of a modern city is its transportation system. If this system is efficient it is safe to say that this city is well developed, as the transportation system is the main factor affecting the infrastructure of the city. In addition the economic and social growth is dependent on the transportation system of a city. This is so because the transportation system facilitates activity for all other sectors such as agriculture, industry, mineral industry and commerce. People benefit from a good transportation system because they can achieve their objectives easily in different areas of the city. They can also easily shop, go sightseeing, go to work and pay visits if the system is well designed.

Dimitriou [7] defined two sets of transport problems in third world cities. The first are root problems such as the increase in car ownership, poor traffic management and enforcement, inadequate transport facilities, mixed traffic, high population growth, urban expansion and inadequate land use control. The second set are manifestation problems such as traffic congestion and a high rate of road accidents.

In many of the developed and developing countries public transport has encountered numerous difficulties that have necessitated the intervention of the governments of these countries. The interventions have ranged from ownership to operation and regulation. The aims of governmental interventions are wide and complex, but the most important of these aims are safety, transportation, efficiencies, energy conservation, and protection of the environment and better mobility for those who have specific needs. As a result of this the public transport system had to be operated under regulated conditions and consequently this required more effort and responsibility from both central and local government. Financial aid was thought unnecessary and inefficient in some countries because it was thought that this had reduced the efficiency of the industry while it had not helped to stop the declining trend of customers support. The shortage of supply of public transportation, lack of good access, overcrowding and high fares force passengers either to walk, use other methods of transport such as bicycles, animals or make the period of working hours longer which causes even longer peak hours. The shortage of public transport is mainly due to the inadequate investment and it is this that led to the emergence of Para-transit operators which start to compete in the market.

## 2 The city of Riyadh

Riyadh is situated on the Najd Plateau at a height of 625m above sea level. [Fig.1].

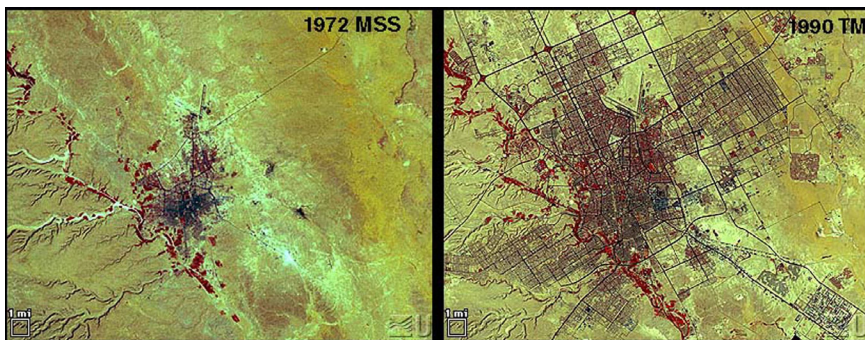
The topography of Riyadh is quite flat, and ranges in height between 580m in the south to over 660m in the north. The most famous topographical feature in Riyadh is Wadi Hanifah and this watershed is the main landmark on the western side of the city. Tributaries run almost vertical to the west of the main valley. A number of them have eroded the plateau into wide steep valleys, which in some



places are more than 100m in depth. The valley floors are flat and in places are several hundred meters wide. Historically, they were used for agriculture, mainly date plantation, but now they provide a location for extensive urban developments and some of these have had a negative impact on the environment.

## 2.1 Background

The fast growth of the city of Riyadh was the main reason that led to a dramatic increase for the need of transport within the city. This increase shows the extent of the need for the improvement of the transportation system in order that these problems, as well as congestion and environmental dilemmas, can be solved adequately and efficiently.



Source: Arriyadh Development Authority ADA [2].

Figure 1: Riyadh in 1972 and 1990.

The growth of the city is expected to continue at the same rate in the future. In the city of Riyadh, the network of roads is the most important part of the transportation system. The improvement of this network has proved to be very difficult because of many reasons such as cost, land acquisition and inconvenience during the construction periods. A survey conducted in 1999 by King Abdul Aziz City for Science and Technology found that 73% of planners and traffic engineers said that “it is very important to develop and improve” the public transport systems while the rest only said that “it is important”.

From 1974 to 1999, an annual growth rate of more than 8% was recorded. This represents one of the highest rates of population growth in the region. There are many factors that drive this growth rate, which include consistently high natural birth rates of Saudi nationals, migration within the Kingdom to Riyadh and immigration of foreign nationals.

## 2.2 Transportation

As can be seen from table 1 population growth and car ownership in Riyadh is one of the highest in the world. The average incomes are also high which is why car ownership is increasing rapidly.

Table 1: Average Annual Growth Rates (AAGR) of Population, Car Ownership, and Urbanization for Selected Cities.

City	Population AAGR 70-80 (%)	Car Ownership AAGR 70-80 (%)	GNP/capita 1980 (\$)
Ankara	4.4	14.2	1,470
Bangkok	9.1	7.9	670
Bombay	3.7	6.1	240
Cairo	3.1	17.0	580
Lima	4.2	12.1	2,050
Rio	2.4	12.1	2,050
Riyadh	10.3	37.5	11,260
Kuwait	6.3	13.8	13,200
London	- 0.9	2.6	7,920
New York	- 1.0	--	11,360
Tokyo	- 5.6	2.5	9,890

Source: Al-Mosained [3].

### 2.3 Public transport

The public transport system in Riyadh began in the 1960s when a number of owners of small coaches used them as means of transport for the public. These coaches were locally known as “coasters” and the services were irregular and disorganised. The services were provided according to the demand for them and the aims of these services did not constitute a public transport system but rather they were means of increasing the income of the owners of the minibuses.

These basic services continued to exist as the only means of transport until 1979 when SAPTCO was founded to provide its services within and between the cities of the Kingdom. The company was awarded a monopoly for all these services except for international transport. The company was run under the control of the Ministry of Transport (MOT). International bus services existed before the foundation of SAPTCO and are still run but are also under the control of the Ministry of Transport.

After SAPTCO was created it was hoped that the services of the minibuses would be phased out but this has not happened. The number of minibuses has risen to more than 7 times the number of buses belonging to SAPTCO. This has led to a service interval of just two minutes for the minibuses whereas the service interval for SAPTCO’s buses is 16 minutes. The main reason for this outcome

was the increase of the ticket prices from one to two Riyals (1GBP=7.2SAR). It is relevant to mention here that SAPTCO is subsidised and regulated by the government which impose many controls and restrictions on their buses whereas the minibuses (coasters) have much less control and restriction. This of course has led to more flexibility for the minibuses and provided them with a significant advantage over SAPTCO's buses.

### 2.3.1 Saudi Arabia Public Transportation Company (SAPTCO)

At its foundation in 1979, the company started with only one route, which runs from the city centre to the airport. After this humble beginning the routes have increased many fold and passengers carried reached 7.874.000 in the first year. In the next four years a huge growth had occurred and this number reached 35.140.000 passengers per year. The number of the major routes has now reached 13, running a total distance of 578 km.

The inter-city services are under the control of SAPTCO. All of the services originate and terminate at Al-Batha area where SAPTCO has its centre. Other companies also have their centres in neighbourhoods in the same area. SAPTCO uses the city of Riyadh as the centre for all inter-city services. Seventy to ninety departures and arrivals are scheduled on a daily basis. The service schedules are increased during the high season e.g. the time of the major pilgrimage (Hajj) and the lesser pilgrimage (Omra) as well as at vacation times. In these times more than 200 buses are run and according to SAPTCO's sources about 705.000 passengers were carried in the year 1995. This constituted about 20% of the total number of the inter-city trips. These trips have been increasing steadily over the last years. This increase was 5% between 1988 and 1992 and 15% between 1992 and 1995. A report by the MOT, carried out in 1993, found that 66% of the passengers were non-Saudis and about 7% were women.

From 1982, the number of passengers carried by SAPTCO in Riyadh decreased from 35.1 million to 14.3 million in 1985 and to 6.1 million in 1989. From 1979 to 1982 SAPTCO annual passengers increased by 27.2 million and dropped by 29 million between 1982 and 1991. According to Al-Qadhi [4], the sharp decrease in ridership on the buses of SAPTCO (30% in just one year) was partly because of the doubling of the fare in 1983. The other important reason for the big drop in the number of passengers of SAPTCO after the peak year 1982 was the sharp exodus of workers during the mid-1980's.

Table 2: Public transport daily ridership in May 1992.

Period	SAPTCO	Small coaches	Total no. of passengers
Weekdays	15.800 per day	74.300 per day	90.100 per day
Weekend	16.700 per day	94.600 per day	111.300 per day

Source: Al-Qadhi [4].

Table 2 shows a major difference between the number of passenger carried by SAPTCO and the number carried by small coaches. It was reported by SAPTCO



that at times only 58% of their buses were in operation. This has led to the small coaches being able to exploit the situation and fill the gaps in schedules left by SAPTCO'S missing buses. The bus schedules of SAPTCO'S buses gave much longer journey times than those of the small coaches, which made SAPTCO, lose many passengers..

According to SAPTCO in 1990 it had 13000 passengers per day and this number had decreased dramatically to just 8800 in 1992 and according to independent sources the real situation is possibly worse than these estimate indicate. This poor performance by SAPTCO has made the company unable to honour its creation contract and it found itself in a difficult situation with the government.

Table 3: Performance of SAPTCO between 1985 and 1990.

Year	1985	1990
Length of all routes	668.5	505
Number of trips	1.682.000	873.000
Distance travelled in Km	13.540.000	8.760.000
Number of passengers	11.510.000	6.120.000

Source: SAPTCO Annual Report (1998).

In an effort to alleviate its difficulties SAPTCO embarked upon active Special Contracts services programmes by which buses with their drivers are contracted or rented out to customers. Their customers included government, schools, and private companies and organisations. Out of the 440 buses of SAPTCO'S buses that are allocated to the city of Riyadh 315 of them are used for this program - that is 71% of the total. The program is on the increase, as it was found very profitable and the profits are being used to support the intra-city services. SAPTCO reported that the government subsidy stopped two years ago.

### 2.3.2 Small coaches (Coasters)

Private buses existed before the foundation of SAPTCO and as a result they had more experience which gave them an advantage. These buses were small in size (only 26 passengers) and run irregularly but very frequently which allowed for free movement and flexibility. The drivers take individual decisions regarding working hours and the routes taken. In addition, the driver can stop anywhere and there is no connection or collaboration between these buses. It is worth mentioning here that only men can take private buses, as there are no spaces for women. The number of these private buses in the city of Riyadh is 1200 and, they are usually used by non-Saudis, as national passengers constitute only 8.1% (Al-Qadhi, [4]). Most people in Saudi Arabia dislike this service as about 90% of these buses are at least 22 years old and this is reflected in the services they provide.



### 3 Integration of public transport services

"One of the big advantages of the private car is that if parking is available, it gives a door-to-door service. Public transport will never match this but with the integration of services it is possible to get closer to it than would otherwise happen" (Simpson, [13]: 174).

In some cases there might be a domination of one type of public transport which may have a negative effect on the other modes and for this reason government's or regulator's intervention is sometimes necessary to achieve the integration of public transport (Harrison and Gretton, [9]: 59).

There are means to obtain more benefits from any public transport network. These means include administrative as well as market processes i.e. Land use pattern, traffic regulation and the level of private transport, fare level structures and systems and promoting the public transport network. Public involvement in public transport is another very important issue, i.e. people must be given the opportunity to have a say in the planning, integration and coordination of public transport system. The reason for the need for involvement is that the public are the customers and therefore should be able to put their ideas forward and these ideas should be considered very carefully, as the people use the system and will understand the problems facing it more than others.

It is a fact that railways have a greater need for integration than public buses. One of the reasons for this is that railways are used for longer journeys and go through low-density areas whereas buses usually are not meant for that. It is usually the case that journeys start by bus before taking the train for the main journey. Another reason for the need for integration for railways is the fact that their services are usually less frequent than those of buses. Integration is essential for the specialization of services and in suburbs of low density it is possible to provide more frequent services for a given cost using minibuses. In general, integration of public transport systems offer better services to passengers as the system becomes more efficient, reliable and easy to use. This will also have a positive effect on businesses as public transport plays an important role in the movement of employees and workers.

To make public transport in Riyadh more effective, integration must be implemented as this city has low-density regions in the suburbs. Buses could be used in these areas to take people to the main stations that are served by trains. The main stations should be in places where there is a large concentration of people or shopping centres.

### 4 Future trends

According to Al-Mosaind [3] the city of Riyadh is generating about 3.5 million vehicle trips, which corresponds to 5 million person trips daily. It is also estimated that 40 million kilometres are driven in the city every day, which amount to a million hours of ignited automobile engines every day. Although the number of trips and the number of kilometres driven in the city may increase by 30% to 40% in the next five years, the number of hours of automobile operation



may double in the same period, and may increase by 4 to 5 fold in ten years time due to the anticipated increases in congestion in the city.

With current ridership levels and socioeconomic conditions in Riyadh, the city would not need a high capacity public transport system as the expected ridership for the year 2010 is only 77,100,000 (SAPTCO Annual Report [12]). It has been demonstrated in many world cities, similar to Riyadh, that a good public transport system plays a major role in reducing the number of vehicle trips, thus enhancing the level of service, this in turn reduces the negative impact of traffic and has been exploited in many modern cities to reactivate city centres which had experienced significant slow down in their commercial and social activities as a result of recurrent traffic jams and negative environment consequences.

## 5 Conclusions

- The city of Riyadh had no real public transport system until 1979 when the government, subsidized company SAPTCO was created. In the period preceding 1979 public transport merely comprised private buses or the so-called Coasters which are minibuses that are also privately owned. All of these services were badly organized and run almost without any kind of regulation.
- The city of Riyadh was initially designed as a compact city because it was thought that it would not attract many people. This has not been the case and many people moved to the capital and the city started to grow very rapidly. The roads were designed to serve a compact city and the city grew much larger than expected and many transport problems started to arise. Planners found themselves facing major problems and dilemmas. They used traditional methods such as the expansion of roads, or building extra roads or lanes. These traditional responses were not well-thought out and many problems in transport were not properly solved
- The city of Riyadh is in need of more integration of public transport services as the city has low-density regions in the suburbs.
- This paper on the city of Riyadh will be more useful if linked with a comparison with other of the GCC cities. Such comparison will make it possible to avoid the mistakes that have happened in Riyadh in other cities like Dubai, Kuwait, Muscat and even in smaller cities which are growing at fast rates.
- There should be an organizing body for public transport in the GCC. This body should regulate and oversee the public transport services in these countries. A one organising body will be able to see the whole picture of the transportation problems faced by countries of the GCC.

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