CHAPTER 3
OVERVIEW OF URBAN DEVELOPMENT IN TEHRAN

3.1 Introduction

One of the most important observations of chapter 2 was that; encouraging children to choose active commuting to school is spreading worldwide, both in developed and developing countries. Based on researches promoting active (healthy) modes of children travel to and from school in developing countries; is a response to the problem of traffic congestion and air pollution. Therefore, it is likely to be prominent in any proposal for making routes between home and school safer for children to walk to and from school in these countries.

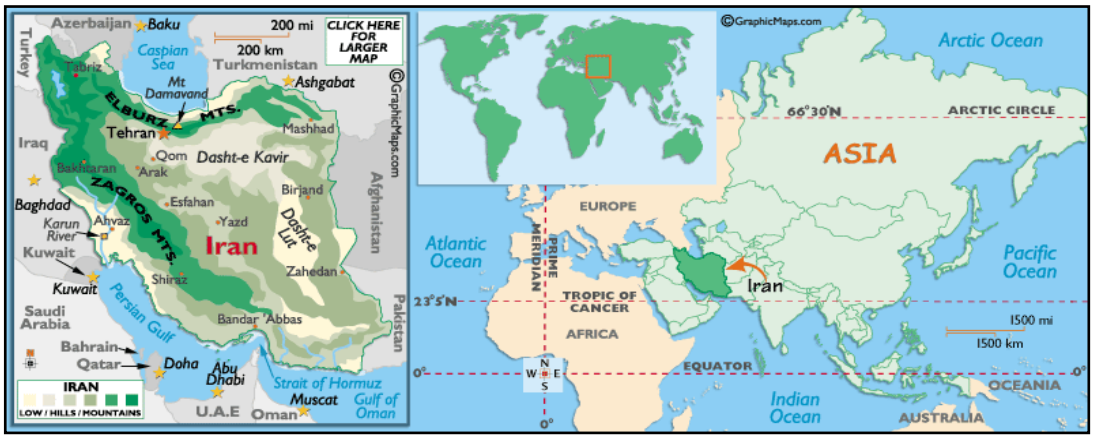
Like so many other big cities in developing countries, Tehran is suffering from severe air pollution with the main source being car emissions (as discussed in chapter 1). Additionally, in recent decade city officials in Tehran have started targeting children's travel to school to address the environmental problems in the city. However, there are no comprehensive policies with a deep understanding of the influential factors. Therefore, exploring the contributing factors concerning children's trip to school in Tehran seems vital with a link to policymakers about this issue.

The majority of studies have been conducted about urban transportation in Tehran focused on fuel cost and air pollution, not looking at social and ecological factors

correlates with that. As such with a socio-ecological approach in this study there is a need to define the natural specifics and geography of Iran and Tehran. It is also necessary to review the urban development in Tehran to examine the influence of this rapid urbanisation on urban transportation and what effects it has had on the environment. Then, it emphasizes to define the environmental problems (traffic congestion and air pollution) in Tehran and its resources that are motor vehicles, followed by presenting the existing policies to improve the problems in the city. The policy makers aimed at children to improve the environmental problems by promoting active modes of travel to and from school for them.. As such to identify why they were not successful, presenting general information about the educational system and schools in Iran seemed vital as well as clarifying the status of children across different areas in Tehran.

3.2 Natural specifics and urban division

The Islamic Republic of Iran covers an area of 1,648,195 km^2; and has a population of more than 71 million, which is divided into 30 provinces. This country is located in southwest Asia and is among the Middle East countries, between Armenia, Azerbaijan, Turkmenistan, Afghanistan, Pakistan, Turkey and Iraq. The Persian Gulf and the sea of Oman are located to the south of the country, which is bordered by Kuwait, Bahrain, Dubai, Oman and Saudi Arabia. The Caspian Sea is situated to the north of Iran, thereby making Iran a neighbour of Russia and Kazakhstan.

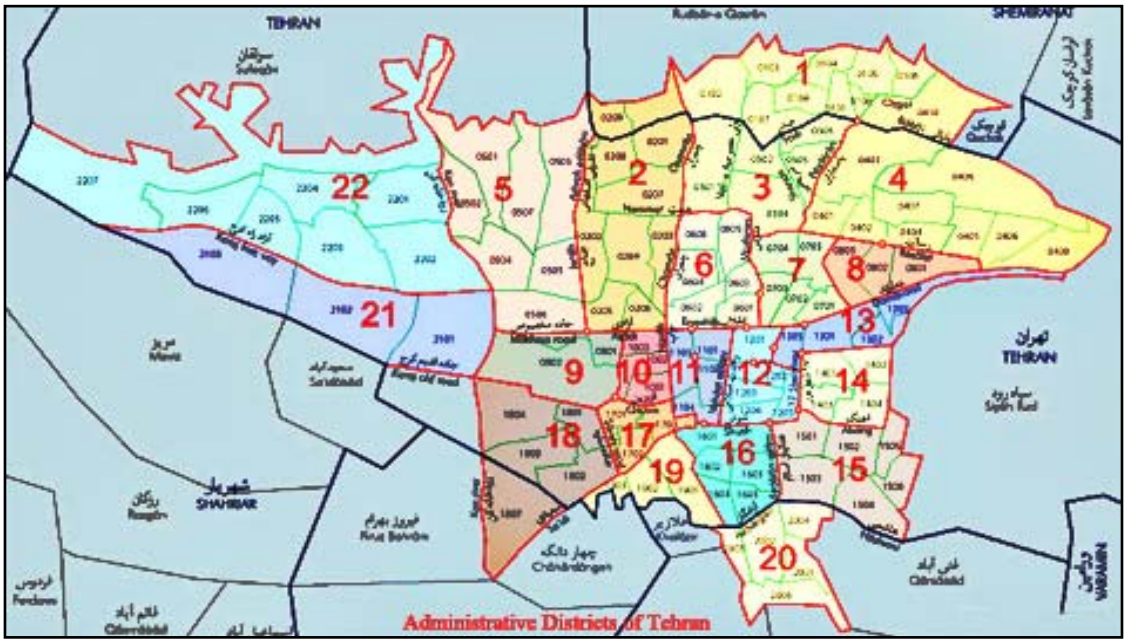


Map 3.1: Map of Iran and its location in Asia; Source: www.worldatlas.com

Tehran the capital city of Iran is now the most populated city in the country; with a population of 7,160,094, and covers an area of 754 square metres (Tehran's Master plan, 2006). It is also the political and economic centre of Iran, the seat of Iran's Parliament and the centre of Tehran Province (Statistical Centre of Iran, 2006). It is restricted by the Alborz Mountains in the North, Karaj in the West, Lavasan in the East and Varamin in the South (Madanipour, 2006) refer to map, 3.2).

Map 3.2: Location of Tehran in Iran
Source www.mapsasia.blogspot.com

Tehran is now divided into 22 regions and 119 administrative divisions (Map 3.3). All forms of urbanism in Iran, including different cultures and religions, are represented in Tehran's population**.** More than 98% of Tehran's inhabitants are Muslim, with a majority of 65% Shiite Muslims and 35% Sunni Muslims. There are also Zoroastrians, Christians (Armenian and Assyrian) and Jews. However, a large number of Jews left the country after the Islamic Revolution in 1979. The official language in Iran is Persian.



Map 3.3**:** Administrative districts of Tehran, red lines show the boundaries between the districts and green lines show the areas,
Source: en.tehran.ir

3.2.1 Tehran climate

Tehran is located at 35° 40'N 51°25'E, almost in the northern part of Iran, with an altitude of 1,191 metres above sea level. It has four seasons, with a pleasant and dry climate and cool evenings. The table below displays the average monthly climate indicators in Tehran based on 8 years of historical weather readings (Table 3.1).

Table 3.1: Average monthly climate indicators for Tehran (Temperature: Centigrade)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. temperature	5	6	10	17	22	28	30	31	25	18	11	6
Avg. Max. Temp.	8	11	15	22	27	33	36	36	31	23	16	10
Avg. Min. Temp.	1	2	6	12	17	21	24	25	20	13	7	3
Avg. Rainy days	3	3	6	4	3	1	1	0	0	2	4	3
Avg. Snowy days	2	1	0	0	0	0	0	0	0	0	0	0

source: http://www.climate-zone.com/climate/iran/fahrenheit/tehran.htm

3.3 Urban development in Tehran before revolution

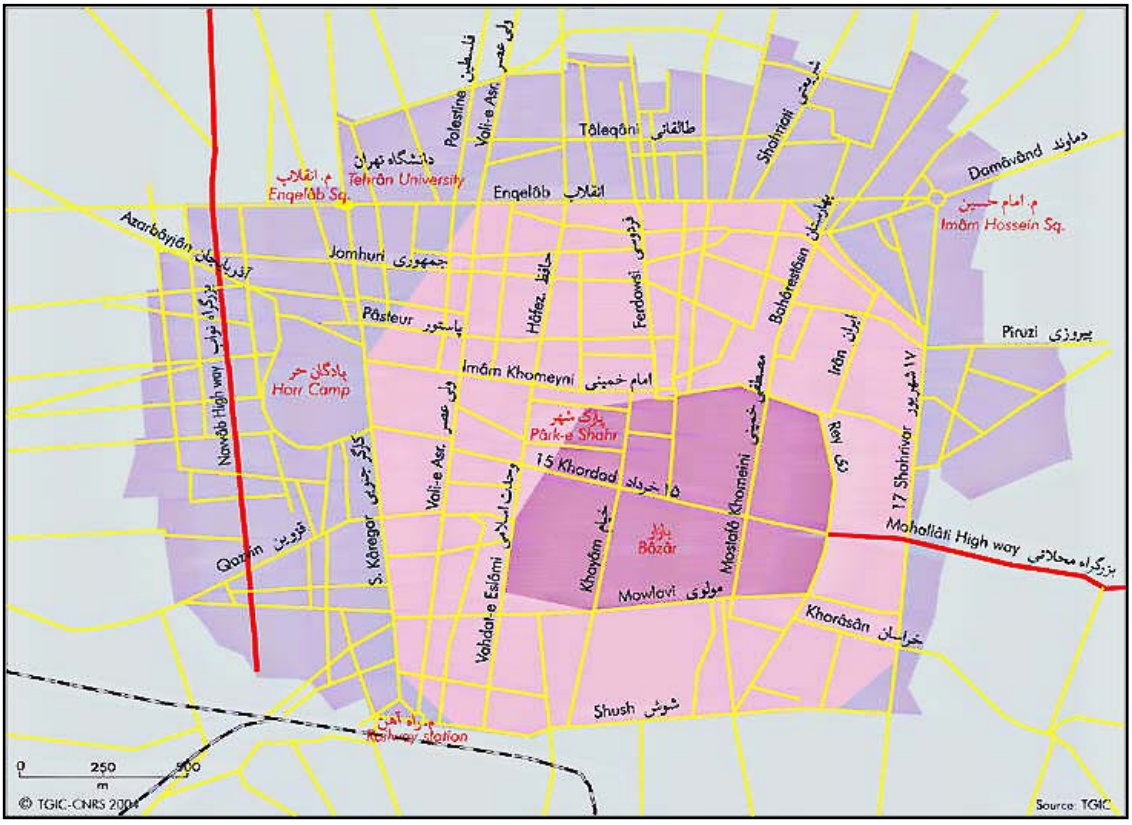
Tehran was a village near the city of Ray in the 9th century. After the Mongol invasion, the city of Ray was seriously destroyed and most of the people who were living there moved to Tehran. This was the starting point for the growth of Tehran, and, gradually, this village, which was famous for its fine fruits and beautiful gardens, undertook new developments.

The first phase of Tehran's planning refers to the period before the Second World War, it set the framework for the city's growth and development by these three attempts: walling the city (1550s), expanding the walled city (1870s) and building a new urban infrastructure (1930s) (Madanipour, 2006) refer to Map3.4.

Tehran became a residence of the Safavid rulers in the seventeenth-century. In 1785, Tehran became the capital of Persia (during the Qajar Dynasty), and remains the capital to this day (Madanipour, 1999).

At the time of Nasereddin Shah, Tehran became an important city with gates, squares and mosques, also the city's master plan was prepared and modern streets appeared (1930s). Later, large central squares like Toopkhaneh Square and several military buildings were constructed. After the Qajar dynasty, was the starting point for

the construction of large government buildings, new streets, recreation centres, urban service establishments, and academic and scientific centres.



Map 3.4: Historical growth of Tehran,
Source: en.tehran.ir

Dedicated narrow alleys for local traffic and mixed land-use patterns are the main characteristics of traditional Iranian cities. The majority of people used non-motorized travel modes in past decades and, according to statistics, 87.1% of girls/women and 77.4% of men/boys in Tehran were interested in walking on foot (Master report for pavements in Tehran, 1994).

Influenced by the west, Reza Shah reshaped Tehran in the 1920s. Urban development in Tehran targeted two goals: changing the building form and street pattern in the old city and the construction of very impressive administrative buildings in the western style in the northern part of the old city. One of the typical aspects of this urban renewal policy was the “Street Widening Act of 1933”. Constructing modern

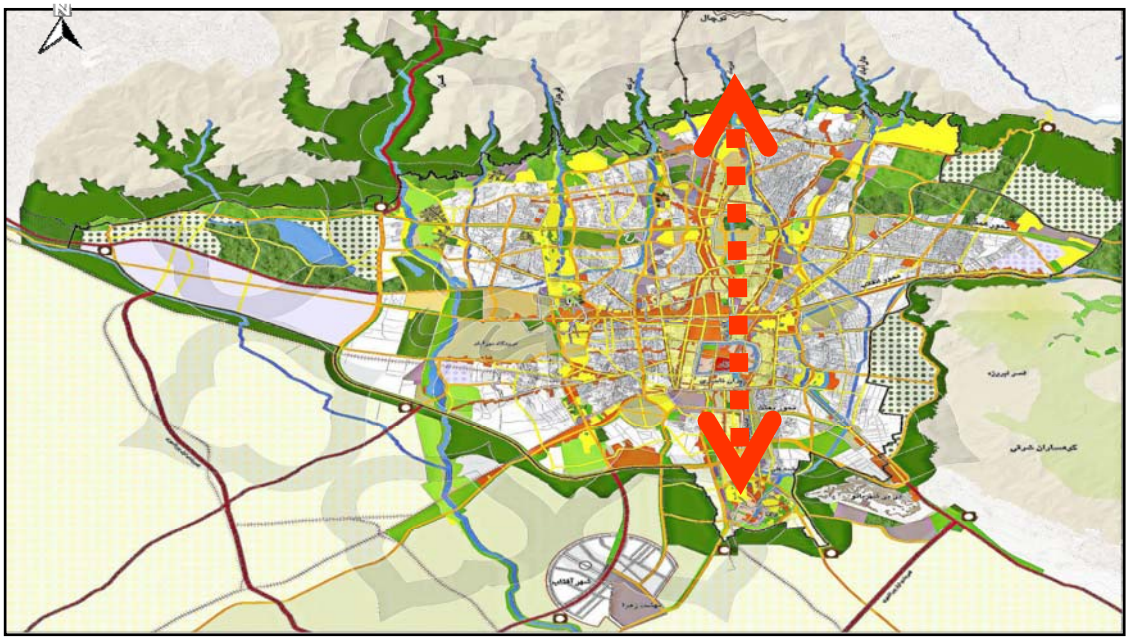
street patterns in Tehran made the town accessible to motorized vehicles (Madanipour, 1999).

Reza Shah lived in his palaces in the north-west of the town, with large avenues cut to link the southern and northern parts of the city together through the main axis of the Bazaar. This was the beginning of the vertical north-south axis that was followed by expanding the city in all directions (Map 3.5). The north had higher and larger buildings, higher land prices, lower densities, smaller households and higher rates of literacy and employment. The rich moved out of the old city to the modern part, which created the foundation for a socio-spatial divide. Moreover, the dramatic difference in height elevation (almost 640m higher in elevation) between the northernmost and southernmost parts has had major implications for the physical and social characteristics of the city; which is so characteristic of Tehran and is kept to this day (Madanipour, 1999).

In the 1960s, Mohammad Reza Shah continued his father's policies; consequently, high-rise buildings began to appear. Following World War II, Tehran's older landmarks suffered under the rule of Mohammad Reza Shah. He thought old buildings should not be part of a modern city. This urban transformation has basically changed the image of the city from a traditional, Middle Eastern city into a modern one. This can be observed through the street pattern, building form and land use.

In the 1920s and 1930s, Reza Shah concentrated the economic activities in Tehran to start industrializing the country. This continued after the Second World War, which led to the establishment of more than half of the country's industries in and around Tehran. After the Islamic Revolution in 1979, a religious government was established. A new governmental policy aimed to decentralize the facilities in Tehran and liberalize the economy. However, Tehran has always been the biggest and the most important city

in the urban system. As such, it has absorbed more than 70% of the economic, social and cultural facilities and forces for development (Statistical Centre of Iran, 2003).



Map 3. 5: North-South axis in Tehran,
Source: en.tehran.ir

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During the last three decades, the population of Iran has grown from 33.7 million (in 1976) to 69.5 million (in 2005), and is currently about 72 million, with the growth occurring mainly in the cities. From 1956 up to 1996, urbanization in Iran increased from 31.4% to 61.3%. Whereas in 1976 slightly over half of the population was urbanized, in 2002, about 65% of the total population lived in urban areas and by 2005

it was expected to reach 70% (Roudi-Fahimi, 2002). This shows that for more than two decades (from 1976 to 2002), the urban population of Iran has seen the greatest growth and, thus, the urban population has grown by up to four times, most of which occurred in Tehran (Fanni, 2006). Some of the reasons for this rapid growth of population are explained below:

The Iranian revolution was followed by the Iran-Iraq war in the 1980s, which led to a number of urban changes in Tehran (Modarres, 2006):

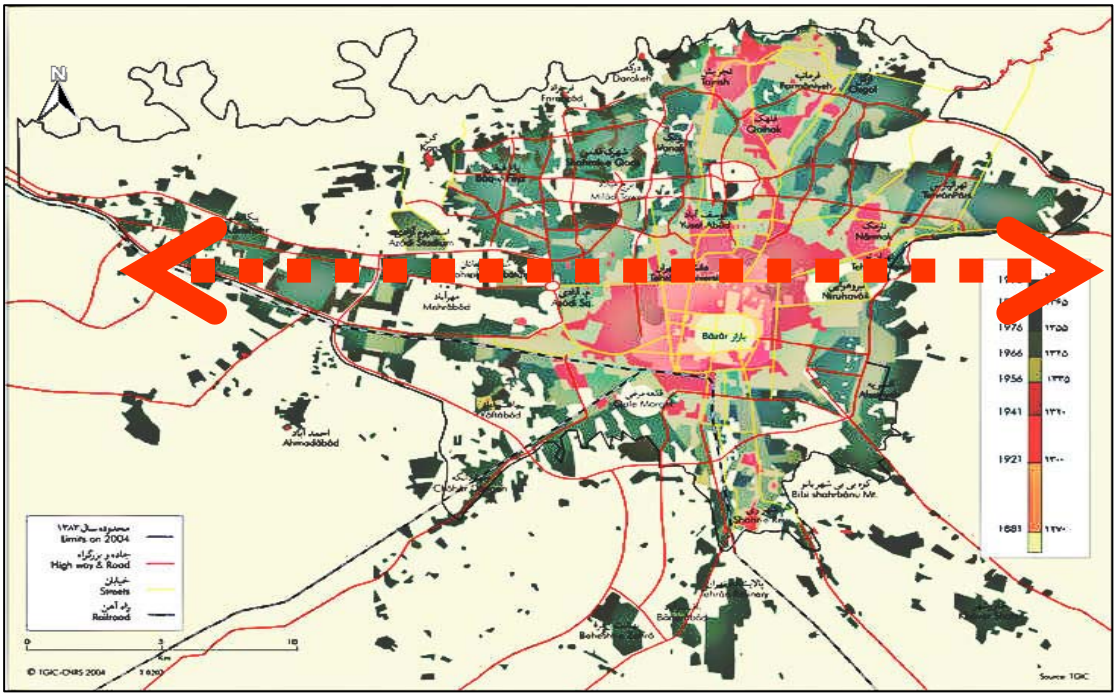
1- Migration from war-torn cities to Tehran.

2- Migration of the young generation from rural areas to cities to get jobs.

3- Migration of foreigners from countries, such as Afghanistan and Iraq to Iran.

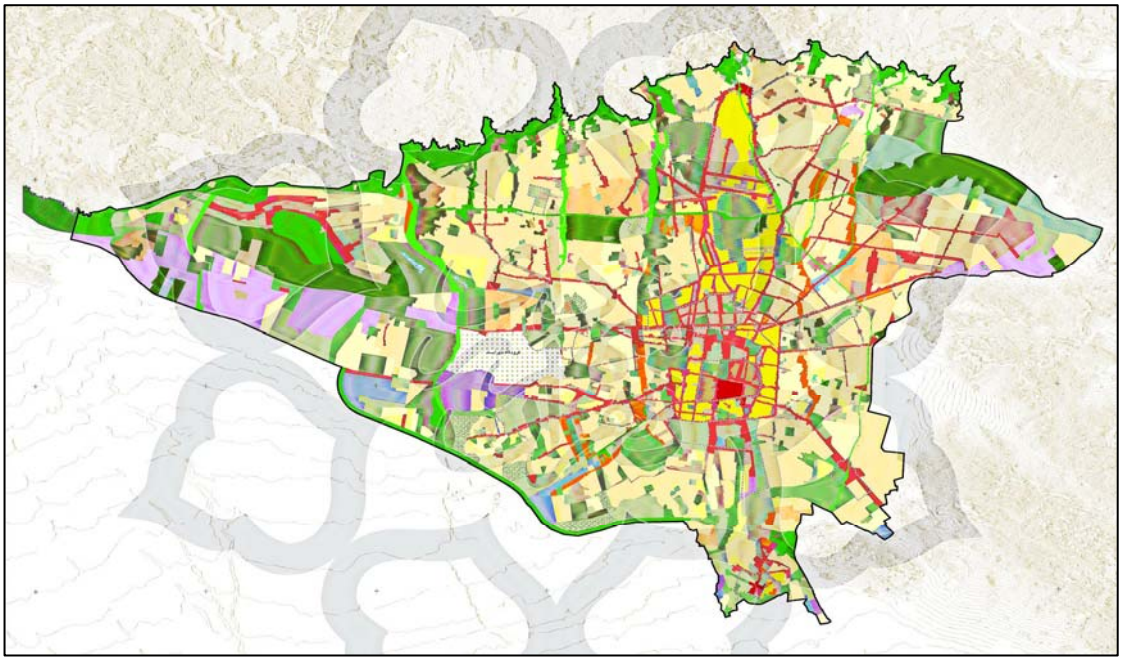
Therefore, the most important reason for this growth in the urban population in Tehran is the migration of mostly low-income group people. As such, Tehran has the highest number of poor people in the country (Roudi-Fahimi, 2002).

Moreover, the absence of birth control policies during the Iran-Iraq war, particularly in big cities such as Tehran, resulted in an increase in the birth rate, which reached 5.6 in 1986. In 1990, a social movement followed by economic problems and a successful comprehensive family planning programme reduced the population growth rate (Roudi-Fahimi, 2002). In addition, the tendency of reducing the size of family after the Iran-Iraq war (average of 4.3 per household) has resulted in a decreasing birth rate, 1.8% in early 2006 (Statistical Centre of Iran, 2006; Roudi-Fahimi, 2002). However, the growth of Tehran's urban structure has been limited by the mountains to the north and east and by the desert to the south, so the city could only expand westwards (sees Map 3.6).



Map 3. 6: Tehran has expanded along the West-East axis,
Source: en.tehran.ir

Furthermore, most of the commercial and official activities are concentrated in the central part of the city, which has led to an increase in the daily commuters along the east-west axis. About 3 million people from the towns around Tehran come to this city to work every day, which has resulted in multiple travel demands. In addition, the absence of reliable and integrated public transportation encourages people to use their own car, which has led to more traffic congestion in the downtown areas. (Ziari, 2005, Halek et al., 2004) see Map3.7. It pointed out that the incompatibility of current land usage with the transit network caused these problems. Therefore, the government needs to pay special attention to the social equity dimension of transportation planning with an aim to improve it (Zebardast, 2006).



Map 3.7: Concentration of official and commercial activities in the central areas
Source: en.tehran.ir

3.4 Environmental problems in Tehran

It is a fact that the increase in urbanization rate has been universally considered as an indicator of modernization. However, urbanization in the west is completely different from the urbanization process in developing countries. Urbanization in the western world has been an outcome of industrialization. In contrast, the urbanization of the developing societies has been the result of the unusual growth of the economy or services, which has resulted in many environmental problems.

This is true in the case of Tehran as a large city in a developing country. Unfortunately, the processes of rapid urbanization in Tehran did not consider the prerequisite principles of urban sustainability within development. Moreover, the lack of accurate and unique urban management caused many environmental problems in this city including inadequate housing, socio-economic separation, traffic jams and, consequently, worsening the urban condition (Fanni, 2006, Modarres, 2006).

According to the available air quality data, the city of Tehran is facing severe air pollution (Atash, 2007). In the last few years, the air pollution level in Tehran has reached dangerous levels that have spoiled the life quality and threatened the health of its residents (Atash, 2007). In 1968, the first master plan for Tehran was approved; however, it did not address the environmental problems in the city. Therefore, to address the air pollution crisis in Tehran in the year 2000, the integrated 10-year master plan was launched to reduce air pollution. The aim of the strategic plan was to create a multifaceted city of six distinctive qualities: a clean city, a moving city, a green city, a cultured city, a dynamic city, and a modern city (Abtahi, 2003).

The primary cause of air pollution in Tehran is the exhaust emissions from motor vehicles and motorcycles. Stationary sources (industries and residential/commercial services) accounted for approximately 29 percent of the air pollution while about 71 percent of Tehran's air pollution was related to mobile sources (Atash, 2007). As such, city officials started phasing out old motor vehicles, constructing the Metro to access most parts of the city, and one day each year called "National Clean Air Day" it urges the city residents not to use their cars on that day unless it is essential.

Additionally, the absence of reliable public transportation has led to extreme dependence on automobiles, which accounts for about 60 per cent of all daily trips in Tehran. Moreover, historically low fuel prices in Iran caused an increase in the use of automobiles, which has also reduced the encouragement for introducing fuel efficient technologies. As such, the existing cars in the fleet consume about 50 per cent more fuel on average than more up-to-date technologies due to their inefficiently designed engine and poor maintenance (Tehran Transport Emissions Reduction Project, October 1993). In addition, every day 1,200 vehicles and 600 motorcycles join the existing fleet in Tehran (Ronaghy, 2001). The most recent data indicates that about 33% of all vehicles

in Iran are located in Tehran, while the city has about 10% of Iran's total population (Hamshahri, 7 August 2006, United Nations Department of Economic and Social Affairs/Population Division, 2005).

Moreover, the topography of the city (mountains to the north and east, and flat terrain to the south and west), wind direction and speed (calm most of the time with mild winds from the west/northwest that spread the emission of the factories, which are located in the western part of the city), sunshine direction (35.4N latitude), and frequent temperature inversions (about 260 in one year, usually occurring during the night and lasting till mid-morning, especially in Autumn and Winter) cause more air pollution (Ronaghy, 2001). However, there has not been any organized traffic and transportation related data for Tehran, neither has there been any systematic land use planning coordinated with the transportation facilities planning in recent years.

Therefore, the Traffic Control Centre of Tehran Municipality was established in 1991 to develop a computerized traffic control system as well as to monitor air quality at strategic locations of the city on a real time basis. They tried to develop a computerized route guidance system to assist drivers to avoid congested parts of the network. As a part of the evaluation process, the environmental effects of transport were explicitly considered. They found that air quality could be maintained by controlling the traffic situation. As a result, the municipality started developing a travel modal shift model to understand the various pricing, travel demand and travel behaviour. Furthermore, the municipality attempted to improve the physical infrastructure and manage the urban transportation to reduce the emission from mobile sources. The following describes some of the key processes:

a. Emissions Inventory and Air Quality Monitoring:

- Development of emissions estimates, covering both mobile and stationary sources;
- Specification of the air quality monitoring system to be used in assessment of air quality changes; and
- Establishment of baseline air quality data, and target air quality standards.

b. Traffic Management:

- Assessing an appropriate travel pattern shift model, adjusted for Tehran;
- Assessing emission factors associated with various transport modes under various operating conditions;
- Assessing potential emission reductions; and
- Assessing the traffic management strategies, with a focus on parking management, developing restricted traffic zone as well as a restricted zone for trucks, implementing odd/even plate programme, intelligent traffic signalling and alternative traffic flow pattern with respect to air quality impact.

c. Vehicle Fleet and Fuel Improvement:

- Design of a comprehensive policy for rapid fleet renewal;
- Enhancement of Tehran's Inspection/Maintenance and tune-up programme, targeting at efficient fuel consumption;
- Introducing alternative fuels such as natural gas, and higher quality fuels such as reformulated gasoline;
- Developing a programme to introduce Emission Standards for new vehicles, to reach air quality standards;
- Developing electrical trolley bus; and
- Identification of costs.

3.4.1 Traffic management policies

Unfortunately, little data is available on traffic volumes in different areas in Tehran. However, visual observations show that the central parts of the city are more congested because of absorbing a lot of daily travel. Therefore, since the mid 1980s the city centre has been designated as a restricted traffic area.

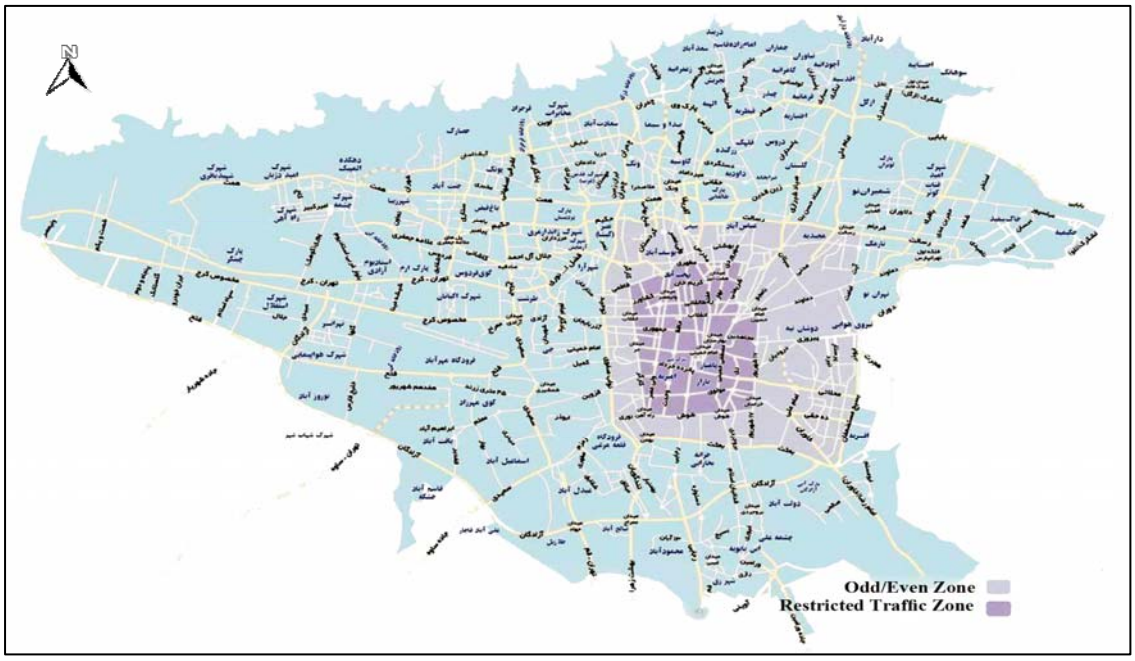
This area covers about 23 square kilometres (see Map 3.8). On weekdays, private vehicles are not allowed to enter this area during restricted hours (6:30 am till 5:00 pm). However, about 10 per cent of the vehicles in Tehran have been issued stickers that allow them to access this area during restricted hours.

In addition, there is a larger area, covering about half the city, where truck restrictions have been applied. In this area only about 10 per cent of the truck fleet can enter during restricted hours (5:00 am to 9:00 pm). No restrictions are placed on motorcycles throughout the city. Since 2005, Tehran Municipality has implemented an odd/even plate programme in an area of about 90 square kilometres to ease traffic congestion and improve air quality between 6:30 am and 8:30 pm (BBC Persian.com, December 12, 2005). The initial response and outcome has been positive.

Since 2006, a new programme is under consideration to ban Single Occupant Vehicles (SOVs) from travelling in the restricted traffic area of the city. Although no data exist, traffic policymakers believe that these restrictions have a significant impact on reducing traffic in the city centre.

Additionally, in order to improve the traffic in the morning, a staggered work hours programme was instituted in Tehran about two years ago. The programme called for the separation of educational (school), government, and commercial start times

(7:00 am, 8:00 am, and 9:00 am, respectively). The programme failed because it caused more trouble for parents who are both working to send their children to school.



Map 3. 8: Restricted traffic zone and Odd/Even area,
Source: en.tehran.ir

3.4.2 Parking management policies

A major part of an urban transport system is providing enough places for car parking. At present, the parking is mostly in the form of on-street spaces and there is a major shortage of off-street parking lots and multi-storey parking garages. As a result, road space is not used efficiently, and there is no separation between the traffic and pedestrians.

3.4.3 The Policies affect urban transportation

Policies relating to fuel pricing, enhancement of public transport and land-use are targeting a sustainable urban transport system in Tehran. Although in previous two decades, the policies of city officials targeted at promoting car ownership for all households, the Municipality is now actively pursuing a number of public transport initiatives, such as express buses from Park and Ride locations, the Metro and Trolley

Buses. However, the success of these efforts depends on low fuel prices, or reliance on more subsidies for public transport (Williams, 2006, Atash, 2007).

The economic difficulties of the national and local governments are imposing a greater financial limit on the full implementation of policies. The implementation of these strategies has hit a low point.

3.5 Status of children in Tehran and their education

3.5.1 Status of children in Tehran

In order to get a clear picture of the status of children in Tehran, it is useful to have a look at how well a child is supported in Iran and, particularly, in Tehran. Children are the most vulnerable group in society. Although their rights may be ignored, they are not able to do anything about it, therefore, many countries, including Iran, have special agreements to protect children. In 1991 they signed the "Declaration of the World Convention on Children" (Sheikhy, 2006).

For centuries, children have had high status among families in Iran, mainly because the family has always been the most important institution in Iranian society. Unfortunately, this general rule is no longer valid when families face extreme poverty or when one of the parents suffers from mental or any behavioural problems.

. To understand the children's need and status two important questions must be answered: When did Iranian society start considering children as different from adults? How do thinkers define a child and their special needs? The turning point occurred in the late nineteenth-century and early twentieth-century, when such new factors entered the scene:

1- new educational concepts,

2- the start of translations from the West,

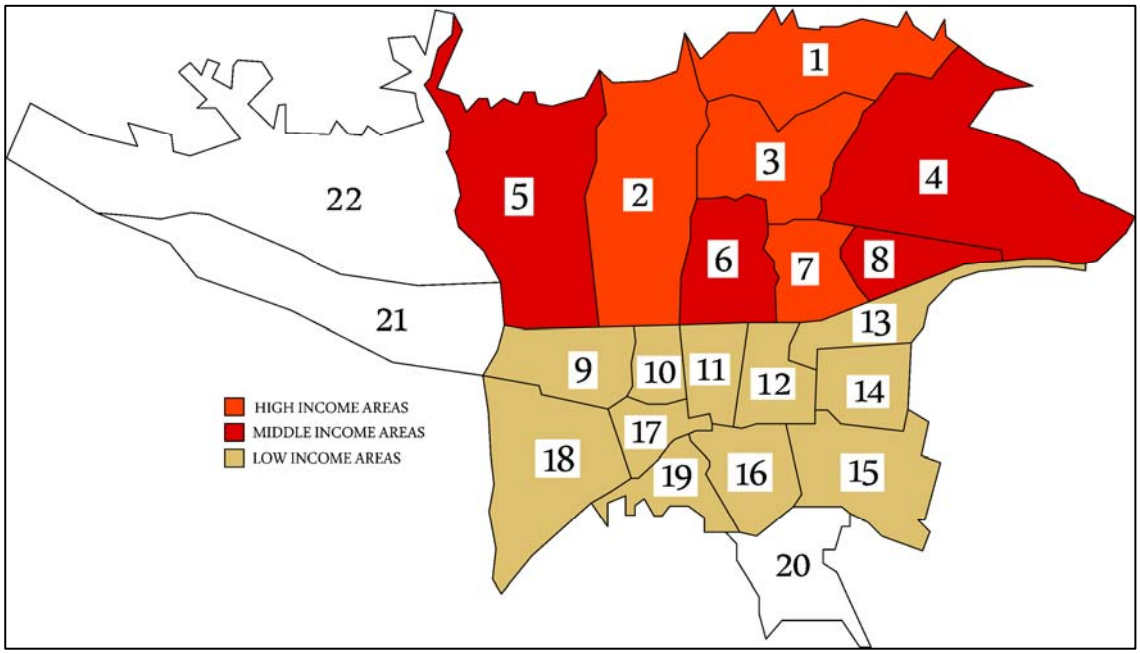
3- the start of the printing industry in Iran,

4- establishment of new schools, and

5- the study of child psychology (IRHCLI, 2000).

A particular lifestyle is imposed upon Iranian children, which is the result of rapid changes in society and globalization. The government and non-government institutions, which are working with children in Tehran, are fully aware of the growing poverty and class polarization, which have impact on serving the children in Tehran (Sheikhy, 2006).

According to the Master plan of Tehran (2006), the districts of Tehran are classified based on socio-economic variations, area, shape and population (Map 3.9).



Map 3. 9: Classification of districts in Tehran according to their socio-economic status
Source, master plan of Tehran

Districts 1, 3, 2 and 7 are considered as high-income group, districts 4, 5, 8, 9 and 10 are considered as middle-income group, and the rest of the districts are deemed as low-income group. This shows that the majority of the population in Tehran are from low-income groups (This classification is based on educational, cultural and family income per year).

The situation of Iranian children, in general, and children from Tehran, in particular, is determined by their living environment. In low-income areas, for example, female children are more restricted and constitute easy targets for criminals, especially regarding sexual abuse. However, child abuse is not limited to girls in these places, boys aged 3 to 16 are often abused. In addition, the use of children to sell drugs and flowers in conjunction with begging is frequently recorded (Sheikhy, 2006). The fact is that the social problems that revolve around children have been rapidly increasing in the last 10 years. However, the government of Iran has been investing on issues directly relating to child health and well being, knowing that children will be the future leaders of the country.

The Iranian organizations are set up based upon specialized sectors. Each sector consists of a number of ministries, organizations, and departments, which serve the entire population. Although the Ministry of Education is responsible for the educational affairs of the entire population of the country it focuses on children aged 6 to 18. However, the various needs of children are met by a number of different ministries and organizations, which have not been designed to serve children alone.

Apart from such an arrangement, there are also three other institutions that specifically cover children. These institutions are of two types: The first type attempts to enhance children's well being, mental development, learning improvement and the like. Prominent among them is the Centre for the Mental Development of Children and Adolescents (Kanon Parvareshe Fekrye Kodakan va Nojavanan), which caters for those aged from 2 to 18. The second type covers those organizations or departments that are attached to line ministries but concentrate on children with special needs and problems. The Welfare Organization (WO) of Tehran has also helped elementary, intermediate and high school students in many ways (e.g. education, nutrition, protection from abuse)

Unlike many other municipalities all over the world, Tehran's municipality has limited involvement in children's affairs. It depends on the current Mayor's attitude towards children's affairs and the availability of financial resources. Tehran municipality was assisting children and the youth between 1991 and 1996. They established cultural centres and neighbourhood local cultural houses. A few of them, such as Bahman and Khavaran, were established in the poor areas of Tehran and they soon became suitable places for children and the youth to catch up with their friends in a productive way. During that time, the Municipality added number of parks in most of the neighbourhoods. There were special sections in each park for children, the "Greenhouse" shelter for male street children and the "Reihanh" for the girls. The municipality also implemented a number of projects that required children and youth participation as well as allocating land for small sports grounds in many neighbourhoods. In addition, they provided buildings to many NGOs and supported them financially. However, since 2000, the new mayor changed the direction of the municipality's activities towards children to reduce expenditure.

3.5.2 Types of school in Tehran

There are 3,150 schools of all types in Tehran; 80.5% of them are public, 19% are private and less than 1% of all are Shahed and half-private schools (Ministry of Education in Iran, 2007). All public primary schools enrol children free of charge. According to Islamic Governmental regulations in Iran, there is not any co-educational school in Iran. Boys and girls go to separate schools from the first grade of primary school (7 years old) to the end of the pre-college programme (18 years old).

The country's official educational system consists of 5 levels Preschool (1 year), Primary school (5 years), Intermediate school (3 years), High school (3 years), and the Pre-university level (1 year) (Figure 3.1). The official school calendar is from 22nd

September until the middle of June (based on the Iranian Official Calendar (Solar Calendar)). There is a two-week holiday for Norouz (Iranian New Year) from 19th March until 2nd April, and about 3 months for the summer holiday.

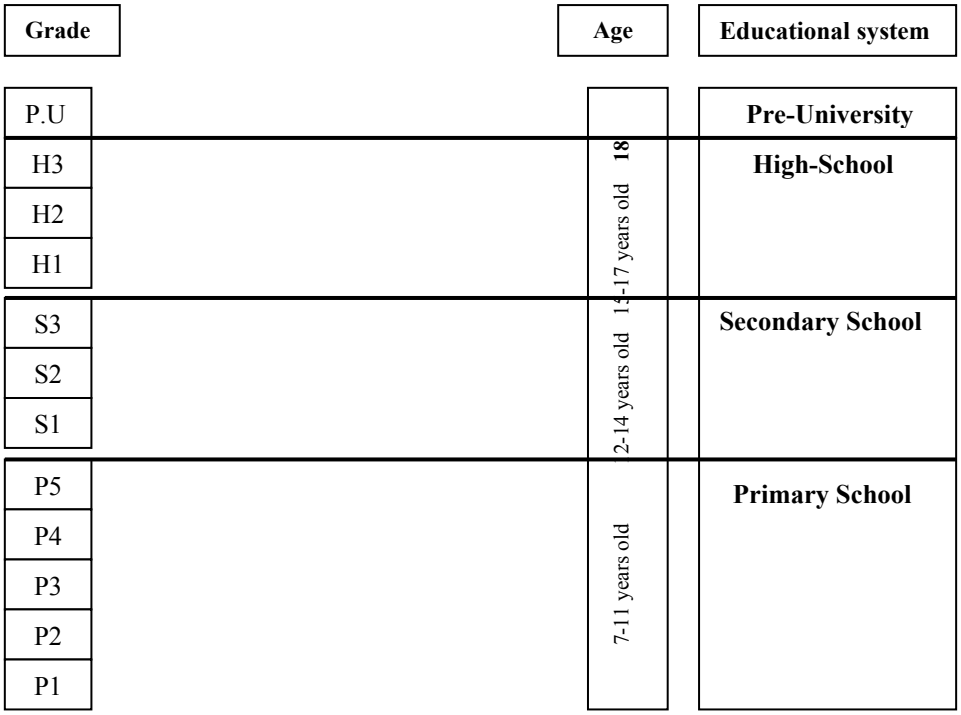


Figure 3. 1: Main aspects of the educational system in Iran

Since almost all of the industries and offices in Iran are government there are only two international schools "Tehran International School" and "Tehran British School (two for male and two for female students):

1- "Tehran International School" is a half-private school that is strongly supported by the government of the Islamic Republic of Iran. This school was established in 1985 in two branches (one for male and one for female students) with the objective of constructing educational links with other nations and render educational services to children of foreigners in Iran. Both branches are located in one of the north-western districts of Tehran with exceptional fresh air as an inseparable feature.

2- The British School is located in the northern suburbs of the city and serves the educational needs of children aged between 3 and 14 years old from the foreign community.

The official and educational language in Iran is Persian/Farsi (even at university level). However, all subjects are taught in English in these two international schools. As such, Iranian families are not encouraged to send their children to these schools.

Shahed schools are special schools for children who have lost their father or one of their close family members during the Iran-Iraq war, or those whose fathers passed away when they were on their duty. These schools are fully supported by the government; however, they offer more facilities in comparison to other public schools. Other children are also encouraged to register in these schools, but they have to pay the school fees and pass the replacement test.

The primary schools and population in Tehran are not distributed evenly across the city. Based on the literature, a large number of primary schools (6.8%) are located in district 4, where 9.1 percent of the children's population is living; 10.1 percent of children between 6-12 years old are living in district 15, and only 5.3 percent of schools are located there. As such 487 public schools are located in rich districts, 775 schools are located in middle-income districts; and 1,270 schools are located in low-income districts.

3.6 Policies relating to children's travel mode in Tehran

"School Mayors of Tehran" was carried out in 1994, 1997 and 2000 to enhance children's cultural development, their active participation in society and their awareness of the role of the citizen. The municipality used a participatory approach, which is the best tool to encourage people to have concern for their environment; it was a successful project.

Therefore, the Municipality of Tehran, with the cooperation of the Centre of Traffic Studies and the Ministry of Education, targeted primary-aged children to change their travel pattern and cultivate the habit of walking in them, as well as engendering awareness about traffic. The following are some key policies regarding this issue:

1- Providing neighbourhood government primary schools and imposing some restrictions for them to enrol students
2- Establishing educational Traffic Park
3- Educating children in school in traffic safety
4- Improving the immediate environment around the government primary schools

Government schools have to enrol students who live within a reasonable walking distance from the school based on their home address. However, those students who do not live in the catchment area but whose parents work in that area can also go to that specific school based on their parents' work address. The aim of these policies is to decrease the distance between home and school. The diameter of the catchment area depends on the size and number of students in that specific primary school. It is clearly clarified by the Department of Education in each district of Tehran. They consider the distance that children are able to walk, without getting tired. However, there are not any restrictive rules for private schools, unless they have their own regulations and requirements, such as entrance exam and so on. Moreover, a school bus is provided for public schools.

Since 1989 the "Educational Traffic Park" is known in some countries including Austria, Switzerland, Poland, Germany, France, England, Russia, Portugal, Spain, Japan, Finland, Singapore, the Netherlands, India and China to educate children in traffic safety in a safe and practical traffic environment. Children can go there within

groups and learn how to behave on the street under the trainer's supervision. The aim of establishing these parks is to improve the children's performance in a real traffic environment and have fun as well.

In 2002, the first "Educational Traffic Park" was established in Tehran. It covers a 3.5 Hectare area in a middle-income zone in the north-west part of the city. The principals of the schools need to apply to set a time to take children between 9-12 years old to the park. They can go there on weekdays during office hours to learn about traffic safety in a semi real traffic environment. This park has a variety of educational traffic safety programmes including theatres in an auditorium to teach the traffic signs, on-site training to learn how to behave in a semi real traffic environment and driving small cars. Only senior children can drive the cars and it helps the other children to be aware of traffic and makes this form of education more enjoyable for them.

However, one park was not enough to respond to all the demands and some schools have to wait for two years to set a time to send the children there. Moreover, constructing more parks needs financial support and time as well. Therefore, city officials attempted to find a more practical way to educate a large number of children about traffic safety in a short period of time.

Since 2007, the Department of Traffic and Transportation in Tehran, in cooperation with the Department of Education and the police, aimed to positively affect a child's trip to school by making the route safer and pedestrian-friendly through:

1- Educating children by having police officers visit the schools and give special cards called "Police Assistant Card" to children after having passed the programme. Children are encouraged to ask their parents to drive at a lower speed and to give more priority to pedestrians.

2- Enforcement of speed bumps, pedestrian crossings and warning signs in front of main school entrance gates.
3- Selecting children's crossing guards among senior students after being educated by visiting police officers, to help children to cross the roads in the mornings and afternoons.

This project failed after 2 years due to the lack of visiting police officers to educate new students. In addition, parents did not feel comfortable allowing their children to become a crossing guard, which put them at high risk (Department of Traffic & Transportation in Tehran, 2007).

3.7 Conclusion

All the strategies that were introduced to address the environmental problems in Tehran were not enough or failed after a few years due to the lack of knowledge about the situation, financial problems ignoring the people perception about the issue. Although related organizations realised that improving traffic congestion will decrease the air pollution, they have not done any comprehensive studies to identify the links with the built environment and social aspects in the neighbourhoods and people perceptions. Studying the situation in Tehran shows the polarization in the city affects the status of children as well as their modes of transportation to and from school that need to be considered by policy makers. Therefore, one type of strategy cannot address the problem in the whole city and there is a need to have a new approach to address the problem.

It seems that a socio-ecological approach is the best to understand the environmental problems and the first step is to raise the people's concerns about the issue and understand their perceptions. A travel modal shift cannot happen without knowing the peoples' perceptions about other transportation mode options and barriers

they may face while choosing the current modes of travel. People stick to their habitual travel pattern rather than respond to physical changes in the environment. Therefore, the next chapter discusses the existing methods and methodology in this field to analyse the data and chooses the appropriate ones to answer the research questions. It also explains how the socio-ecological framework is suitable for this study and helps to identify the relationship between variables to address the problem.