Studying School Transport Planning Policies through Government Documents in the Middle East and Knowing Their Role in Transport Sustainability

Abdullah Almtairi

[1] [2] P.hD Student, The University of Leeds at the Institute of Transport Studies
Corresponding Author Email: [1] Eng.a.k.m@hotmail.com

Abstract— The purpose of this paper is to examine Middle Eastern government documents that include information on school transportation planning regulations in order to understand their significance for transport sustainability. The researcher examines sustainable transport policies as well as school transport policies in the Middle East. Secondary data used in this study were collected from data published on official websites. Several significant conclusions are drawn, including the fact that there is no system or official policy on sustainable school transportation in Middle Eastern nations. Furthermore, it is necessary to draft unique papers, such as rules and regulations, for sustainable school transportation.

Index Terms— Policies, School, Sustainability, Transport.

I. INTRODUCTION

The aim of this paper is first, to study sustainable transportation policies in the Middle East and second, to study school transportation planning policies through documents published by governments in the Middle East to determine current policies on school mobility and their role in the sustainability of transportation. This paper is organised as follows: Section 1 provides an introduction, and Section 2 gives a background to the study. Section 3 presents details of the methodological approaches taken, states the research questions, and addresses limitations and data collection methods. Thereafter, Section 4 presents a literature review, Section 5 outlines the results, and Section 6 summarises the findings, which are further discussed in Section 7. Recommendations and conclusions are given in Section 8.

II. BACKGROUND

Government documents are a highly reliable source of information because they have an official provenance and typically contain information of high quality [1]. Therefore, many studies have used such documents to investigate school transportation, including safety regulations for students on the road. For example, Reference [2] conducted research in Denmark and Reference [3] in New Zealand; other studies touched on the study of school choice policy, such as Reference [4] in Hong Kong, while Reference [5] considered financial support for school transportation in UK, and Reference [6] examined home-to-school transport by linking all the agencies indicated in the 'Home to school travel and transport statutory guidance for local authorities' in the UK. Meanwhile, Reference [7] gathered school transport policies in the USA, which vary across states, cities, and schools.

References [2] and [3] investigated policies related to safe commuting for children on their journey to and from school as laid out in multiple government schemes, including Safe Routes to School in Denmark [2] and Travelwise and Walking School Bus in Auckland, New Zealand [3]. These schemes aim to provide pupils with a safe environment and encourage them to walk and bike by beautifying and renovating routes to make them more appealing for pedestrians. They also contribute to the provision of safety education programmes that explain traffic and safety legislation to persuade parents to let their children walk [2] [3]. The researchers concluded that such programmes should pay more attention to creating safe corridors that include infrastructure for walking and cycling to facilitate active travel; thus, there is a need for future research to develop measures of behaviour and context for the perception of traffic safety and the environment around the school for use in school travel behaviour [3] as well as studies examining the relationship between walking and safe routes for students [2].

Reference [4] researched the policy and systems in Hong Kong that govern how children choose the schools in their local communities and around their homes. Some parents opt for schools at a considerable distance from home because they believe these institutions have excellent standards and a good reputation, and they do not want to have certain restrictions on enrolling their kids at nearby institutions [4]. This issue may be resolved by giving parents more reasons to select local schools, such as enhancing the quality of instruction and long-term reputation of schools in the neighbourhood (Burgess et al., 2015 cited [4] pp. 87). The researchers contend, however, that policymakers should also take into account neighbourhood environment improvements and move towards safe, pedestrian-friendly designs where parents can be confident that their children are safely supervised at home or at after-school activities, while children can get the physical activity they require.

References [5] and [6] applied different methods to investigate the British government's policies of subsidising school travel. Reference [5] gathered data and standards from each English local authority's website in order to develop guidelines for selecting pupils who qualify for school transport assistance. Reference [6] researched the literature associated with all the agencies mentioned in the 2014 Department of Education review to determine how the government-funded home-to-school transport system in England functions.

Reference [7] found that there are differences in policies across states, areas, and school sectors relating to school transport throughout the USA. The availability of transportation for children also varies depending on their location, school, and age, the kind of school attended, the state of the city's public transit system, and other elements. The researchers carried out a systematic search for all government education legislation, but, due to the significant differences in states, they needed to comprehend the law and the verse as well as how to deal with and interpret it. Within their educational regulations, several states establish divisions specifically for transferring pupils. In order to gain the necessary information from states where the rules were ambiguous, the researchers thoroughly searched the education regulations in all states' legislation.

No similar research has been carried out on sustainable school transportation policy or government policies on school transportation in the Middle East. Moreover, no scientific research has been conducted on official documents in the Middle East connected to sustainability, especially sustainable school transportation. The aim of this paper is to study school transport planning policies through government documents from the Middle East and determine their role in transport sustainability.

III. METHODOLOGY

A. The following research questions were formulated:

1) What transportation issues are acknowledged by the governments of the Middle East, especially those related to school transportation?
2) What are the most important goals that nations are attempting to achieve in terms of vision and policies for transportation and school transportation in the Middle East?
3) What planning standards for schools are available in government documents from the Middle East?
4) Is the information for the school transportation in government documents in the Middle East countries operate provide sustainable school transportation?

B. Method:

B.1 overview:

Qualitative analysis was chosen for the present research, namely, the review, evaluation, and interpretation of government documents to gain understanding and develop knowledge (Corbin and Strauss, 2008; Rapley, 2007 cited [8] pp. 1).

This paper collected and analysed a collection of Middle Eastern official papers. After the government papers had been collected, the data were organised and structured to enable analysis of the findings to achieve the paper's main aim. The steps taken to study government documents are summarised in see Figure 1:
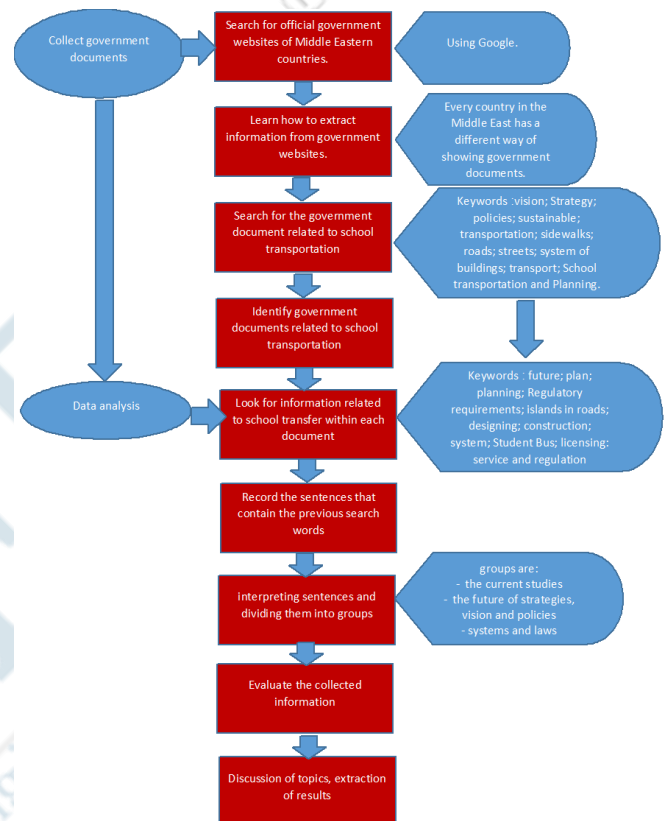

Figure 1: An outline of the steps taken in the present research

B.2 Method of data collection:

Collection government documents:
1) Google was used to find and access government websites in the Middle East.
2) Having located official government websites, the researcher sought the relevant documents, because every country in the Middle East has a different way of showing government documents. The search engines available on the official government websites were used to extract documents.
3) The following keywords were used to search the available government documents: vision; strategy; policies; sustainable; transportation; sidewalks; roads; streets; system of buildings; transport; school transportation; planning.

B.3 Method of data analysis

After the documents were collected, document analysis began.

4) The researcher searched for words within each document that might be directly or indirectly related to school transport, including the following: vision; strategy; policies; sustainable; sustainable development; future; structural plan; transportation planning; regulatory requirements; sidewalks; roads; islands in roads; streets; designing roads and streets; construction; system of buildings; transport; student bus; licensing school transport service providers; school transportation regulation; planning standards for public; planning standards for public services.

5) The sentences that contained the search words listed above were recorded.

6) The recorded sentences were interpreted and then divided into three groups:

   A-current studies.

   B- future strategies, vision, and policies.

   C- systems and laws.

7) The collected information was evaluated, and similarities and differences were identified.

8) Topics were discussed and results extracted.

C. The paper limitations

The researcher encountered a few obstacles, namely:

• Some government websites in Middle Eastern countries lacked information.

• Some government websites were protected, preventing access to them outside the countries in question.

• There were differences in language: government websites that were not in Arabic or English were difficult to read.

Therefore, he accessed those government documents that did not present these obstacles (see table 1).

D. Data collection

Middle Eastern countries have a variety of laws and policies, and each nation has a unique law-making process. Therefore, the researcher had to learn how to obtain government documents from these nations' official websites. Some of these countries have official websites where anyone can look for and download government documents; in others, data are gathered through the relevant ministries and authorities, and in a further group, the researcher had to identify the parties in charge of school transport and categorise their responsibilities as follows:

- Rules and regulations. These are related to, first, the city's urban planning, as they demonstrate the precise width of the pedestrian sidewalk – taken into consideration because students need pedestrian paths to get to school – the streets, and the organisation of school sites and their surroundings. Urban planning departments frequently go by the names of the Urban Planning Authority or the Ministry of Municipalities. Second, these have to do with school transportation, such as walking and buses.

- Visions and policies are ideas that can be connected to school transportation and are related to the development of transportation, the transformation of transportation

methods, and the change in the nature of life.

- Government studies: as government studies can give information about the current situation in the countries considered, the researcher collected the documents listed in Table 1.

Table 1 Government documents used in the research paper.

	Countries	Government document available on the internet
Studies carried out under the supervision of government agencies	Kuwait	The main memorandum for the project is the structural plan decree of the State of Kuwait for the year 2007
	Egypt	Egypt's medium-term plan for sustainable development
		Sustainable development to meet Egypt's vision
	Jordan	Jordan 2025 – National Vision and Strategy
	Saudi Arabia	Guide to designing sidewalks and islands in roads and streets
		Guidelines for the urban design of the city of Riyadh, public transport axes – main roads and streets
Visions and policies	Bahrain	The economic vision of the Kingdom of Bahrain until 2030
	Kuwait	Kuwait Vision 2030
	Egypt	Medium-term Sustainable Development Plan
	Jordan	National Transportation Strategy – Long Term/Phase III and Implementation Plan 2021-2023
	Oman	Oman Vision 2040
	Saudi Arabia	Saudi Vision 2030
	UAE	UAE Future
Regulations and laws	Bahrain	Regulatory requirements for construction in various regions in the Kingdom of Bahrain
		Application of student bus gathering points guide for smart devices
	Jordan	The system of roads and sidewalks within municipal boundaries
		Instructions for licensing school transport service providers for

	Countries	Government document available on the internet
		educational institutions, specifications, conditions, and means of school transport for the year 2019
		The system of buildings and the organization of cities and villages 2022
	Oman	School transportation regulation
	Saudi Arabia	Guide to designing sidewalks and islands in roads and streets
		Methodology for the management and follow-up of school transport
		Mechanism for implementing the provisions of the regulation regulating educational transfer activity
		Planning standards for public, regional, and local services and their different levels
	UAE	School transportation guide
		Planning standards guide for public services in the Emirate of Dubai 2019

IV. LITERATURE REVIEW

A. Sustainable school transportation

As school transportation is important, numerous studies have examined or recommended new policies in this area. Some researchers have proposed laws that make it simpler for children to commute to and from school using sustainable modes of transportation [2], [4], [9], while others have suggested safety policies for students on the road [3], and others still have reviewed the applicable policies [5], [6]. It is not the responsibility of the competent authorities to ensure safe school transportation in cooperation with parents or the school only. As a result, school transportation aid programmes have been established by a number of relevant authorities [3]. Some institutions, government agencies, and even schools have developed policies on sustainable school transportation [10]-[13] that reduce the use of cars to transport students to their schools.

Despite the health advantages enjoyed by children who commute to and from school by walking and using sustainable transportation, the growth rate of active travel is modest, and the use of cars is rising (Aubert et al., 2018, Sattlegger and Rau, 2016 cited in [3] p. 57). These developments are due to parents' lack of confidence in their

children's ability to safely travel to and from school on their own (Mandic et al., 2017 cited in [9] p. 3), [14]. Despite the fact that many parents understand the value of sustainable transportation, many choose not to use it out of concern for their children's safety due to potential traffic hazards [15]. This concern may result from factors including the lack of a suitable environment for sustainable transportation and active travel to and from school [14], [16]; for example, there may be many lanes and traffic intersections leading to and from the school, or motorised transportation in the area surrounding the school and in the neighbourhood may have increased [4], [9], [14], [17]. Parents believe their children will be safer in cars than on foot (Hillman et al., 1990 cited in [4] p. 79); hence, traffic in the area around the school and in surrounding areas increases (Tsai et al., 2004 cited in [4] p. 79).

School transportation policies encounter challenges and shortcomings in all countries because school transportation is linked with several governmental organisations, laws, and areas of practice as well as commercial interests and parental [6]. As a result, several studies and the agencies in charge of monitoring sustainable school transportation have proposed a range of ideas, which may be summed up as follows:

- Work to develop and establish infrastructure, especially for cycling and pedestrians, to help encourage sustainable school transportation, and to develop strategies to meet the needs of children, young people, and, especially, school students by helping them ride bicycles and walk [10]-[13]. Reference [15] found that improving and developing infrastructure help convince parents that their children can go to school on foot or by bike.

- Some schools have taken the initiative to encourage sustainable transportation by getting parents to walk with their children to school [11]. Parents' participation in walking to school helps achieve the goal of sustainable transportation as they are the ones who determine the means of transportation for their children. For example, the Green-Schools Travel programme at St. Joseph's Boys National School encourages students to walk and increase physical movement. The school has also actively promoted a Walk on Wednesday programme to encourage pupils to walk to school every Wednesday [11]. Reference [3] pointed out that some schools have developed programmes that support parents, such as walking school buses, which are considered successful in facilitating active mobility.

- Some city councils and schools conduct road safety training tailored to sustainable means of transportation, such as walking and cycling. According to their official website, Gateshead Council in the UK indicated that it is designing safety education for roads to help students deal with road conditions according to the means they use they go to school (e.g., walking or cycling) [18].

- Some schools plan student travel to and from the school and position a guide on the paths between the school and

students' homes for their safety. This is safe and has the means and the mark maps that are needed. It helps to understand students and conduct exercises in tasks such as independent travel training [10], [13]. Gateshead Council indicated that some schools participate in the Schools Go Smarter project, which seeks to encourage safe and active travel to school by foot, bike, or public transport [18].

B. Sustainability Transportation in the Middle East

Many Middle Eastern countries are witnessing rapid growth in their populations and number of buildings [19]-[21]. As a result, the demand for transportation has increased [19], in turn increasing the exploitation of energy resources and the burden on the transportation infrastructure. This growth has been accompanied by an increase in car ownership as well as a decrease in sustainable transportation, such as public transportation and non-motorised means of transportation [20], [21]. According to some studies, the Middle East's cities are not sustainable and urgently require sustainable transportation to reduce related difficulties [22]. Hence, an orientation towards sustainability is needed to reduce energy waste and tackle other problems, such as environmental pollution [23].

Few studies on sustainability have specifically examined transportation in cities in the Middle East [24], but many solutions have been proposed to improve sustainability and urban transportation difficulties in developed and developing nations [21]. Reference [25] demonstrated that there is a weakness in the strategic planning geared towards transportation planning, which faces issues including the frequent use of private vehicles, poor coordination of public transportation, and the absence of a safe infrastructure for walking or riding bicycles [25].

Middle Eastern countries are similar in many ways, including their cultures, economies, and urban layouts [26]-[27]. Comparisons may also be drawn among the elements influencing sustainable transportation [26], [27], and numerous issues affect walking, biking, mass transit, and car-use practices in the region [26]-[27].

One of the problems affecting sustainable transportation is the pervasive use of cars for daily travel. Some researchers estimate that dependence on cars has negative effects within cities in Middle East, including on the economy, environment, and lifestyle [23]. People prefer to use cars because they are comfortable, quick, and practical as well as because city planning encourages car use [26], [27].

The transportation system in Middle Eastern countries relies primarily on private cars, which is evident in the design of its road networks. The dependence on cars and growing population have led to an unanticipated lack of parking spaces [28]. However, certain modern technologies can be used along with infrastructure development to formulate sustainable transportation strategies. Therefore, the competent authorities should find new methods to improve sustainable transportation services [29].

Due to the proliferation of cars, many cities face transportation challenges, including traffic congestion, road accidents, poor public transportation services, and environmental problems (Pojani and Stead, 2015 cited in [30], pp. 1-2), that reduce demand for sustainable transportation such as mass transit, walking, and cycling [31]. For instance, 72% of trips made in the city of Cairo are by private car, with the remainder being made by taxi or bus [32].

Cars are responsible for an increasing percentage of air and environmental pollution. Such pollution has exceeded the permitted limit due to the dominance of private cars and the weakness of the public transportation system [32], [33]. Cars also causes high rates of sound pollution [33]. The major source of pollution in the Middle East is caused by transportation [19].

Middle Eastern countries suffer from inadequate mass transit systems because the backbone networks are designed for much smaller populations and cannot keep pace with urban population growth [21]. People take public transportation less frequently for several reasons, including sociocultural issues, discomfort, and speed [26]. Public transit is even less appealing because many people have cars [27], and poor-quality public transportation services are not conducive to providing sustainable transportation [28]. In addition to the public transport not adhering to the specified dates, the vehicles designated for public transport are old [33], and investment in public transport is lacking [19].

According to several studies, the road network and its intersections frequently experience traffic congestion, which causes delays in travel times, greater travel expenses, and poorer mobility [33]. Moreover, it increases the number of traffic accidents [19], [33], and the current road network and infrastructure suffer from lack of capacity [33].

In addition to the transportation problems mentioned above, there is a distinct lack of planning and implementation of sustainable modes of transportation, such as walking and cycling [19], including the lack of places designated for pedestrians and bicycles and the absence of security and safety conditions for pedestrians [33]. According to Reference [26], a sizable fraction of individuals dislikes walking and cycling since too few factors support these activities. Some neighbourhoods lack public amenities and a central location or focal point [26], [27]. Furthermore, pedestrian routes are not well designed, with sidewalk services being absent in some streets; thus, it is difficult for pedestrians to cross these streets, especially when traffic is heavy and moving at high speed [28]. People choose not to cycle because their cities lack infrastructure and services [26],[27].

Middle Eastern nations confront numerous issues and difficulties, but most struggle with administrative challenges and lack funds to address these issues [21]. This is a result of the lack of a well-defined institutional structure, as the role of each authority is not clear [19]. There are also shortcomings in the application of traffic rules, and such rules are

inconsistent with technological and informational advances in the field of transportation [33].

Some countries in the Middle East are expanding existing streets and constructing new ones [33], while others have found different ways to reduce the use of cars: the city of Riyadh in Saudi Arabia, for example, has established a metro system to improve public transportation that can attract about 30% of car users [34]. As this study was directed more to people who use taxis or do not have cars. Other countries, such as Egypt, have also tried to establish an intermodal station to reduce the burden on the roads [33].

Although countries in the Middle East have improved transportation, some researchers in this field see the need to reconsider current laws and strategies and use modern strategies when preparing transportation plans, as modern strategies take into account the principles of sustainability and achieve efficiency [22], [25], [33]. It is also suggested that these strategies be accompanied by the improvement of mass transit and the rehabilitation of the meter lines, with the provision of paths designated for walking [25], [32].

Reference [22] observes that wide streets can be redesigned and special paths for pedestrians and steps be added and considers these measures a way for many Middle Eastern cities to provide sustainable transportation and increase the number of children walking to school.

Although past research identified obstacles to the development of sustainable transportation, Reference [26] demonstrates that it is still possible to design transportation planning strategies to enhance transportation and facilities for walking and cycling. Doing so ensures opportunities in a variety of sectors of urban planning and transportation, including connecting the road networks designated for walking and bicycling [26], [27]. Thus, measures should be developed to increase the attractiveness of public and non-motorised modes of transportation, such as creating priority intersections, increasing the frequency of services, investing in new train equipment, and expanding pedestrian areas [21].

C. School transport in the Middle East

Studies of school transportation are very uncommon in the Middle East despite their immense local and global relevance [35]-[37]. The parties concerned practices that offering safe school transportation lowers fuel usage and traffic congestion [37]. As many students are driven in private cars, traffic congestion is becoming an increasingly serious issue [36], [37]. Establishing and offering school transportation is thus essential [37].

The bulk of Middle Eastern research focuses on motorised vehicles as a means of school transportation. Nevertheless, automated transportation has a number of drawbacks, including a dearth of vehicles suitable for school transportation [35], a lack of safety measures within automobiles, and a high rate of traffic accidents [35]-[37]. Besides the outrageous price of the service [37], there are also not enough seats to accommodate the demand for school

transportation [36].

V. RESULTS

A. Introduction

Therefore, the researcher gathered data from government studies and papers in order to correlate school transportation to sustainability. During the search for government documents, the researcher found considerable information, which he divided into three subsections in order to answer the papers' questions.

B. What planning standards for the schools is available in government documents in the Middle East?

1) Transport

Some information about school transportation was found during the search for government documents on websites. Most of this information relates to the process of issuing legal licences for bus users, which is represented by the technical specifications of the cars and their external appearance, the conditions available to business owners and those that must be present in offices and businesses, and the cadre conditions between two administrations and two legs [38]-[41].

Certain Middle Eastern nations, including the Kingdom of Saudi Arabia, have established systems for providing transportation to and from schools in exchange for a fee. Also, you must submit it and evaluate it based on particular criteria, such as the distance between house and school, and all pupils must take the school bus to get to school from their homes [42]. The State of Bahrain has established a specific route for school buses to follow in order to facilitate the transportation of students to and from school, and parents are able to track the progress of the buses as well as the time of their arrival at the pickup location through the programme Edu bus [43].

2) Sidewalks

In the Middle East, there are no specific laws or rules governing the movement of students by active modes of transportation such as cycling and walking. As a result, the researcher gathered data about sidewalk width and discovered differences in the Middle Eastern pavement sidewalk systems. The Kingdom of Saudi Arabia has set two criteria to determine the width of the sidewalk, namely, the width according to the type of street and the width required by its users [44]. Jordan has established a standard for the pavement based on street width [45]. The system Bahrain has put in place is that the distance between the building and the side of the street is 5 meters, and that part of it is used for parking spaces is 3 meters wide [46] (see Table 2).

Table 2 Street appearances in the Middle East

	Standard used	Subdivisions	View sidewalk	Notes
Saudi Arabia	Street type	Local street	1.8 m	Afforestation and lighting included
		Street assembly	3 m	
		The secondary arterial route	3.5 m	
		The main arterial route	4 m	
		Highways	0	
	Number of users	55 people	3 m	
		90 people	4 m	
		130 people	5 m	
		170 people	6 m	
		260 people	8 m	
		360 people	10 m	
Jordan	Street width	20 m	3 m	It is possible to bridge the pedestrian width of 2 m and above– -1 m basin for the basin for tree planting
		16-18 m	2.5 m	
		14 m	2 m	
		12 m	1.5 m	
		10 m	1 m	
Bahrain	The front setback of the buildings separating them from the street for pedestrians is used to add to the car parks, extensions of 3 m			

3) Planning standards for schools

Site designs and unique standards for parking lots servicing schools have been considered in relation to the particular planning standards and regulations for schools. In Saudi Arabia, the location of a school must meet certain requirements, such as being situated adjacent to local roads for accessibility and in the heart of a residential area [47].

Government papers in the Middle East also establish guidelines for the setbacks around schools, which can serve as pedestrian walkways (see Table 3).

Table 3 Throwbacks around schools

Country	School type	Rebounds
Saudi Arabia [47]	Kindergarten	0
	Primary schools	2.5–4 m
	Middle Schools	2.5–4 m
	Secondary schools	0
Bahrain [46]	All schools	For the front bounce 10– - the side bounce 5– - the back bounce 15 m
UAE [48]	Public schools	Setback 3 m for all school sites

The space allocated for car parking varies from one country to the next, as shown in the following table, but pay attention to the car parking space (see Table 4).

Table 4 Parking lots at schools

Country	School type	Car parking		Bus parking
Saudi Arabia [47]	Kinder garten	20% share the land as car parking		0
	Primary schools	20% share the land as car parking		One place for every 50 students
	Middle schools	20% share the land as car parking	3 positions per class	0
	Secondary schools	30% share the land as car parking	5 positions per class	0
Bahrain [46]	Kinder garten	0.667 parking spaces per 100 square meters		
	All schools	0.12 positions per student		
UAE [48]	Public schools	1 position per class		1 position per 3 classes
Jordan [49]	Public schools	1 position per 100 square meters		

C. What are the transportation issues recognized by the governments of the Middle East?

Most countries in the Middle East have conducted many government studies on the current situation that set out some of the problems faced (see Table 5).

Table 5 Current problems with transportation according to government documents

Means of transportation	Problems
Cars	- The primary mode of transportation [44] - Increase in traffic on road networks [50], [51] - The majority of the streets exceed the capacity that the current network was designed to carry [50]-[52]

Means of transportation	Problems
	- There are many accidents on the roads [51], [53], [54] - The amount of vehicle pollution is high [50], [51], [54]
Walk	- Cars are the dominant element on the roads, which has reduced interest in pedestrians [50] - Most streets lack a specific space for walking [50] - There are no traffic instructions for pedestrians [50] - Pedestrians are frequently involved in traffic accidents [50] - Sidewalks differ in height and specifications and are not homogeneous [50]
Other	- Infrastructure is lacking [50], [51] - Mobility options are inadequate to support public transportation systems [51]

D. What are the more important goals that nations are

attempting to accomplish in terms of vision and policies for transportation in the Middle East?

Due to the concerns outlined above, several Middle Eastern nations have developed plans for modernising their cities and have developed their visions differently depending on their requirements. Table 6 represents some Middle Eastern countries and their visions and includes projects presented on official websites to help realise these visions.

1) Some countries are moving towards administrative development and raising functional efficiency, such as Oman and Jordan.
2) Others are interested in increasing the capacity of streets through the establishment and expansion of projects that serve private cars, such as Kuwait. Some countries aim to establish a good public transportation infrastructure, such as Egypt, Saudi Arabia, and Jordan.
3) Others are attempting to increase the capacity of public transport, such as Bahrain, Egypt, and the UAE (Abu Dhabi).
4) The Emirate of Dubai (UAE) takes another perspective on sustainable transportation, which is to reduce the use of cars and direct people towards the use of walking and cycling.

Table 6 Policies and visions of the countries of the Middle East and how they will be achieved

Country	Vision and policy	Types of existing projects available on the internet	Project direction**
Oman	The Oman 2040 vision aims to establish smart and sustainable cities that improve the quality of human life, increase employment opportunities, and improve urban and recreational environments [55].	1- Administrative: - Transferring some powers to city councils - Administrative restructuring of municipal councils and cities - Restructuring urban planning 2- Financing: - Increasing the amounts allocated to projects 3- Fieldwork: - Improving the construction of streets in addition to improving cities	Works to develop functional and administrative performance
Jordan	Jordan Vision 2025 is to develop an integrated, sustainable, efficient, and accessible transportation system that meets their requirements and is in harmony with the environment and human health [56].	- Establishment of intercity buses - Establishing a railway for transportation between Jordan and neighbouring countries - Training courses for its employees - Some administrative projects to improve the administrative organization	It works to develop mobility between neighbouring cities and countries, as well as to improve the administrative system and staff development
Bahrain	Bahrain Vision 2030 calls for the creation of an infrastructure that meets international standards and is marked by safety and security	- Bahrain Metro Project - A railway project to connect the countries of the Gulf Cooperation Council	- They have a public transportation system that indicates stopping points and routes within

Country	Vision and policy	Types of existing projects available on the internet	Project direction**
	elements [57].	- Increasing public transportation capacity within the country - Expansion of private public transportation	the cities. - They are working more on creating, improving, and expanding public transport infrastructure inside and outside the country.
Kuwait	Kuwait Vision 2035 calls for the expansion and modernisation of the nation's infrastructure in order to raise everyone's standard of living [58].	- Projects to create streets and modernise the infrastructure - Road development of main roads - The railway network in the State of Kuwait – the first phase (consultation)	It is building an infrastructure for car service and public transportation
Saudi Arabia	Saudi Vision 2030 places a priority on improving the effectiveness and quality of services inside cities, including public transportation, which involves offering convenient means of transportation servicing cities [59].	Riyadh Sports Track Project Green Riyadh Riyadh metro railway network Riyadh mass transit project	Interested in creating public transport infrastructure
Egypt	Egypt Vision 2030 aims to establish balance and integration between the various transport modes with the creation of legislation controlling this and interest in multimodal transportation [51].	- Create and improve the subway - BRT shuttle bus - Double-decker bus and natural gas - Electric bus The new Alexandria tram - Supplying 600 buses for the Public Transport Authority in Cairo - The central bus station in the new administrative capital	It works to increase the capacity of public transport while modernising the existing system
The UAE	UAE Transportation Vision 2021 is a plan that In addition to protecting the environment, the UAE government is working to promote sustainable growth while striking the optimum balance between social and economic advancement. The UAE Vision 2021 places a strong emphasis on infrastructure and aspires for the nation to have some of the best roads, seaports, and airports in the world [60].		
The UAE-Dubai	The transport policy in the Emirate of Dubai aims to create an integrated and user-friendly infrastructure based on helping to decrease the use of vehicles and encouraging the use of alternative means of transport in a way that reduces carbon emissions and makes it easier to get to attractions [60].	-Projects to double the number of elevated pedestrian walkways and means of speed reduction -Projects to define new paths and parking lots for bicycles -Autonomous mobility projects	Most projects seek to preserve the environment and encourage people to use sustainable transportation.
The UAE-Abu Dhabi	The Abu Dhabi Mobility Management (TMM) strategy's objectives include enhancing accessibility to public transport for all individuals and institutions, addressing mobility demands, and reducing traffic congestion [60].	-The electric bus project in Abu Dhabi -Transportation Systems Corporation -Infrastructure projects and road network -Projects for intelligent	Most of the projects seek to increase the capacity of public transport.

Country	Vision and policy	Types of existing projects available on the internet	Project direction**
		transportation systems	

VI. SUMMARY OF THE FINDINGS:

1) The biggest challenge to transportation in the Middle East is that vehicles dominate daily travel, including travel to and from schools, which causes traffic congestion in the area around the schools and accidents involving drivers and pedestrians.

2) There is currently no specific system in the Middle East that meets the needs of cyclists, although grades have been addressed in some visions and policies in general.

3) Several government organisations in the Middle East are involved in school transportation, and each authority has a different jurisdiction. However, there is no document that links all facets of school transportation, from the student's initial journey from home to school through their choice of mode of transportation to the standard of infrastructure, such as sidewalks others.

4) Several Middle Eastern nations are attempting to improve their inhabitants' lifestyles by tying them to automobiles that switch to sustainable transportation. This also applies to school transportation, but the impact is not on the student, but on the parents, who are looking for two crucial things: safety and security.

VII. DISCUSSION

This section first discusses the applicable laws and regulations and problems mentioned in Section V, after which it discusses some visions for the Middle East.

The Middle East has a unique pedestrian display system, which is described in Table 2 in Section V-B-2. The influence of paving width is a crucial aspect in defining service level [61]. Hence, it is essential to examine the routes taken by students and fix the sidewalk widths in accordance with these routes. This is because the sustainability of a city can only be discussed if the pedestrian space is planned and constructed around how people move and what are the deciding elements [62].

Few Middle Eastern nations have given attention to school transportation services, as explained in section V-B-1. For example, the Kingdom of Saudi Arabia offers a service to transport students from their homes to schools via school buses. However, this service is not supported by a designated path or assembly area, which forces buses to enter residential areas and narrow streets in order to get to the students' homes. Another example is the Kingdom of Bahrain, where the system was established using a mobile service that displays the location where children congregate and the route of buses going to and from the school.

Another important issue in sustainable school transportation is the location of the school. Governmental documents, as shown in Section V-B-3, show the interest of Middle Eastern countries in setting planning standards for site selection, sidewalks surrounding the school, and parking lots, as shown in Tables 3 and 4. Most of these standards are geared towards providing parking spaces, which increases car travel and reduces sustained travel.

As discussed in detail in Section V-B-3, some Middle Eastern countries have criteria concerning where schools should be located, including accessibility and their placement on secondary streets. Reference [63] showed that the location of a school affects the amount of traffic going to and from it and student safety, as schools located on main streets can be dangerous for students.

As mentioned in Section V, some Middle Eastern countries have studied transportation problems, as shown in Table 5, consistent with [31]'s statement that one of the problems of sustainable transportation in the Middle East is the widespread and daily use of cars, which reduces demand for sustainable modes of transportation, such as walking and using public transportation. This increase has led to greater air and environmental pollution [32], [33].

Some governments' research revealed a lack of a strong infrastructure environment in the Middle East, as indicated in Table 5 in Section V-C. Several Middle Eastern countries suffer from inadequate mass transit systems because the backbone networks are designed for much smaller populations and cannot keep pace with urban population growth [21]. Thus, many cities face difficulties and challenges regarding transportation, including traffic congestion, road accidents, poor public transportation services, and environmental problems (Pojani and Stead, 2015 cited in [30], pp. 1-2). This finding is comparable to studies conducted by [26] and [27], which show that the infrastructure of Middle Eastern nations has a number of issues, particularly as concerns sidewalks, since most the streets lack walkways and, when these exist, they are not continuous and connected to one another.

To address these issues, Middle Eastern countries have created visions, which serve as examples of how Middle Eastern cities want to grow their urban areas, improve traffic safety, and protect the environment. These aims might be met through taking further measures to ensure traffic safety and reduce traffic accidents and their tragic consequences [64], [65]. However, most of these visions talk about the basic principles of sustainable transportation; thus, real-life application remains very unlikely because so much work is needed to implement these principles, and neither planning and implementation standards nor implementation mechanisms have been clarified.

Section V of Table 6 shows that the projects of countries that generally focus on sustainability, whether of cities or transportation, largely concentrate on improving administration and training government employees. This

finding is similar to [33]'s indication that there are administrative and human deficiencies in the application of the law, and development is needed to raise the level of the field of transport.

Most Middle Eastern countries have paid attention to infrastructure, as is clear from their visions; for example, Kuwait is more concerned with the construction and development of roads and has more interest in cars. Reference [33] states that the construction and development of streets is a traditional solution to congestion. However, [22] believes that the current strategies do not help to develop the laws and regulations needed for sustainable transport.

Some Middle Eastern countries use the vision for their cities to show their interest in multimodal transport, as mentioned in Section 6-3, such as Egypt; multimodal transport is the use of multiple means, including walking, cycling, cars, and public transportation, in one trip [66]. It is considered to have many benefits for humans by saving time and cost and contributes significantly to sustainability and raising the efficiency of cities [67]. However, most of the projects are directed towards raising the level of capacity of public transport and developing it without addressing similar projects in each of the other areas of sustainable transport, such as walking and cycling.

Some Middle Eastern countries envisage raising the efficiency of public transportation in their cities, such as the Kingdom of Saudi Arabia, which has developed a number of projects in public transportation and in major cities such as Riyadh [65]. However, these projects are often aimed at people who do not have cars.

Improving public transport infrastructure is commendable, and, in the past, this was one of the visions of the Arab Emirate Dubai. Now, Dubai is following policies to encourage its citizens to modify their lifestyles, stop driving, and start adopting sustainable modes of transportation, such as walking, bicycling, and buses, as mentioned in Section V-D. As people may choose their method of transportation, a plan must be developed to encourage people to choose sustainable means, such as cycling and walking, rather than driving [68], [69].

Nevertheless, government documents and policies do not link sustainable school transportation directly, sufficiently, and explicitly with Middle Eastern nations' visions: no competent authority in a Middle Eastern nation has set in place all the mechanisms for school transportation, from the student leaving their home through selecting a mode of transportation to finally arriving at school. However, [6] noticed school transportation policies throughout the world face challenges because school transportation is linked with several governmental organisations, legislation, and practice areas as well as commercial and parental interests.

VIII. RECOMMENDATIONS AND CONCLUSION

A. Recommendations for government investigators:

1) Visions for urban development and the transition to

sustainable transportation have been created in Middle Eastern nations. As a result, it is essential to reevaluate municipal planning practices and work to create additional chances for sustainable mobility, such as focusing on sidewalk infrastructure and constructing dedicated bicycle lanes.

2) Bicycle usage is one form of sustainable transportation in the systems of Western nations and is seen as a useful mode of transportation, but the Middle East has no specific system that caters to bicycle riders. As a result, guidelines, rules, and legislation must be implemented to create a bicycle-friendly infrastructure.

3) There is no document that links all facets of school transportation, from the student's initial journey from home to school and choice of mode of transportation, to the standard of infrastructure, such as sidewalks. Governments in the Middle East must thus produce a document that is specifically focused on all facets of school transportation and establishes the principles and benchmarks for developing and executing sustainable school transportation.

4) Elephant countries from the Middle East are trying to improve their inhabitants' lifestyles by tying them to automobiles that switch to sustainable transportation. This also applies to school transportation, but the impact is not on the student, but the parents, who are looking for two crucial things: safety and security. As a result, when developing the infrastructure environment, particularly for pedestrians, Middle Eastern countries should consider two aspects, namely, security and safety, achieve them through regulations and irrigated instructions, and lay the foundations around the school and the sidewalks on which students walk to school.

5) In regard to school transport, countries in the Middle East should think about building pedestrian infrastructure with the necessary facilities so pedestrians do not have to share spaces with cars, leading to greater security. Doing so might entail reducing the space allocated to cars for the benefit of pedestrians.

B. Recommendations for researchers:

1) The field of transportation in the Middle East suffers from many problems and needs a great deal of scientific research to determine appropriate solutions.

2) The visions of Middle Eastern countries indicate a move towards sustainable transportation, but sustainable school transportation has not been addressed. Hence, a scientific method that links sustainable school transportation with the lofty visions of Middle Eastern countries is needed.

3) When developing visions of transportation in the Middle East, there is a need for politics and surrogates to help improve transportation, and they need a simulation process to avoid problems.

4) Researchers interested in road design and city planning should think about finding appropriate solutions to increase pedestrian traffic and encourage students to go to

school on safe roads. Solutions may be found by taking areas of the streets designated for vehicles and expanding those designated for pedestrians.

C. Conclusion

In this paper, it is discussed how Middle Eastern government records were mined for information on planning regulations for school transportation, and how that information was then connected to sustainability and developed nations with expertise in sustainable school transportation. To extract government papers from Middle Eastern websites that are available, use the descriptive researcher that after searching the government documents in Table No. 1, it was concluded that there are no system or official policy on sustainable school transportation in the Middle Eastern nations. In order to support sustainable school transport, the researcher advises anyone interested in this sector to conduct interviews with planners and city planners about what their policies are in school transportation. The researcher also advises those interested in school transportation to find appropriate solutions in reducing the movement of cars to and from the school, to increase the number of pedestrian paths, and to make travel to the school safe, with the use of simulation programs to clarify the results. In conclusion, the researcher presents this research so that researchers in the field of school transportation in the Middle East can benefit from it. He also presents it to government agencies to help them develop their systems.

REFERENCES

[1] P. Mackieson, A. Shlonsky, and M. Connolly, "Increasing rigor and reducing bias in qualitative research: A document analysis of parliamentary debates using applied thematic analysis," Qualitative Social Work., vol. 18, no. 6, pp. 965-980, 2019.

[2] K. Clifton, and K. Kreamer-Fults, 2007. "An examination of the environmental attributes associated with pedestrian–vehicular crashes near public schools", Accident Analysis and Prevention., vol. 39, no 4, pp.708–715, 2007.

[3] E. Ikeda, S. Mavoa, A. Cavadino, P. Carroll, E. Hinckson, K. Witten, and M. Smith, "Keeping kids safe for active travel to school: A mixed method examination of school policies and practices and children's school travel behavior," Travel behavior and society., vol. 21, pp 57-68, 2020.

[4] K.Y. Leung, and B.P. Loo, "Determinants of children's active travel to school: A case study in Hong Kong," Travel behavior and society., vol. 21, pp. 79-89, 2020.

[5] J. Van Ristell, M. Quddus, M. Enoch, C. Wang, and P. Hardy, "Quantifying the impacts of subsidy policies on home-to-school pupil travel by bus in England," Transportation., vol. 42, no. 1, pp. 45–69, 2015.

[6] C. Gristy, and R. Johnson, "Home-to-school transport in contemporary schooling contexts: an irony in motion," British Journal of Educational Studies., vol. 66, no. 2, pp. 183-201, 2018.

[7] M.Q. McShane, and M. Shaw, "Transporting School Choice Students: A Primer on States' Transportation Policies Related to Private, Charter, and Open Enrollment Students,"EdChoice, vol. ED605559, 2020.

[8] G.A Bowen, "Document analysis as a qualitative research method," Qualitative research journal, vol. 9 no. 2, pp. 27-40, 2009.

[9] A. Siiba, "Influence of parental attitude and perception of built environment attributes on children's active travel to school in Ghana," Case Studies on Transport Policy, vol. 9, no. 2, pp. 805-812, 2021.

[10] Victoria Transport Policy Institute Updated (VTPI), "School lTransport Management, Encouraging Alternatives to Driving to School," [Online] Victoria Transport Policy Institute, [Accessed 09 February 2021]. Available from: https://www.vtpi.org/, 2018.

[11] Department for Education (DFE), 2014. Home to school travel and transport guidance Statutory guidance for local authorities. [Online]. Crown copyright. [Accessed 09 February 2021]. Available from: https://docs.publishing.service.gov.uk/, 2014.

[12] Department for Transport Local Government and the Regions (DTLR), "Levels of Activity Relating to School Travel Plans and Initiatives," [Online] London: Department for Transport Local Government and the Regions, [Accessed 09 February 2021] Available from: https://trimis.ec.europa.eu/ , 2001

[13] Hertfordshire's Sustainable Modes of Travel Strategy (SmoTS), "Healthier, safer, greener journeys to school," [Online] Hertfordshire County Council, [Accessed 09 February 2021] Available from: https://www.hertfordshire.gov.uk/home.aspx, 2019

[14] M. Smith, E. Ikeda, G. Hawley, S. Mavoa, J. Hosking, V. Egli, ... and K. Witten, "An integrated conceptual model of environmental needs for New Zealand children's active travel to school," Journal of Transport & Health, vol 16, 2020.

[15] N. Nasrudin, and A. Nor, "Travelling to school: transportation selection by parents and awareness towards sustainable transportation," Procedia Environmental Sciences, vol. 17, pp. 392-400, 2013.

[16] D. Sims, and M. Bopp, "Using parental active travel behavior and beliefs to predict active travel to school among children," International journal of sustainable transportation, vol. 14 no. 5, pp. 343-348, 2021.

[17] K. Wilson, A.F. Clark, and J.A. Gilliland, "Understanding child and parent perceptions of barriers influencing children's active school travel," BMC public health, vol. 18, no 1, pp. 1-14, 2018.

[18] Gateshead Council, "Education and training," [Online], [Accessed 09 February 2021] Available from: https://www.gateshead.gov.uk/, 2021.

[19] United Nations Human Settlements Programme (UN-Habitat), "Mainstreaming Transport and Mobility into Jordan's National Urban Policy Thematic Guide," [Online], [Accessed 18 June 2023] Available from: https://unhabitat.org/, 2021

[20] I. Abubakar, F. Al-Shihri, and S. Ahmed, "Students' assessment of campus sustainability at the University of Dammam, Saudi Arabia," Sustainability (Basel, Switzerland), vol. 8, no. 1, pp. 1–14, 2016.

[21] S. Enzelberger, M. Kahramane, "Big Cities, Big Challenges: Sustainable Urban Transport across Major Middle East and North African Cities," [Online], SUTP sustainable urban transport project [Accessed 09 February 2021] Available from: https://sutp.org/, 2015.

[22] I.M. ELBarmelgy, and A.M.H. Alsarfy, "Foundations of

sustainable urban transport for the new Arab city," Journal of Urban Research, vol. 24, no. 1, pp. 1-19, 2017.

[23] O. Alotaibi, and D. Potoglou, "Introducing public transport and relevant strategies in Riyadh City, Saudi Arabia: a stakeholders' perspective," Urban, Planning and Transport Research, vol. 6, no. 1, pp35–53, 2018.

[24] C. De Gruyter, G. Currie, and G. Rose, "Sustainability measures of urban public transport in cities: A world review and focus on the Asia/Middle East Region," Sustainability (Basel, Switzerland), vol. 9, no. 1, pp. 43, 2017.

[25] A. Attari, R. Schiffer, M. Hegazy, H. Zureiqat, R. Semaan, and S. Abu-Eisheh S, "The Mobility Transition in the MENA Region– comparative Policy Perspectives," [Online], [Accessed 18 June 2023] Available from: https://egypt.fes.de/fileadmin/user_upload/documents/public ation/Mobility_Transition_-_Typescript__Bilingual__-_04.1 2.2020.pdf , 2020.

[26] H.E. Masoumi, "A discrete choice analysis of transport mode choice causality and perceived barriers of sustainable mobility in the MENA region," Transport Policy, vol. 79, pp. 37-53, 2019.

[27] H.E. Masoumi, and E. Fruth, "Transferring Urban Mobility Studies in Tehran, Istanbul, and Cairo to Other Large MENA Cities: Steps toward Sustainable Transport," Problemy Rozwoju Miast, vol. 65, pp. 27-44, 2020.

[28] S. Al-Fouzan, "Using car parking requirements to promote sustainable transport development in the Kingdom of Saudi Arabia," Cities, vol. 29 no. 3, pp. 201–211, 2012.

[29] S.M. Rahman, and H.M. Al-Ahmadi, "Evaluation of transportation demand management (TDM) strategies and its prospect in Saudi Arabia," Jordan Journal of Civil Engineering, vol. 4, no. 2, pp. 170-182, 2010.

[30] U.L. Dano, and A.M. Alqahtany, "Issues undermining public transport utilization in Dammam city, Saudi Arabia: An expert-based analysis," Journal of Sustainability Science and Management, vol. 14, no. 2, pp. 155-169, 2019.

[31] D. Gettani and L. Fulton," A High Shift Scenario: Achieving Low-Carbon Urban Transport in the Middle East and North Africa," Institute of Transportation Studies, University of California, Davis, Research Report UCD-ITS-RR-17-06, 2017.

[32] M.A Salama, "The role of sustainable urban transportation in solving the problem of air pollution in Greater Cairo," Fayoum University Journal of Engineering, vol. 4, no. 1, pp. 82-95, 2021.

[33] A. Abdel-Wahhab, "Future Transport Strategies for Major Cities The City of Baghdad in 2030," Diyala Journal of Engineering Sciences, pp. 35-63, 2017.

[34] A. Okil and A. Mohsen, "Sustainable transportation in Riyadh: coverage of the potential journey of the proposed public transportation network," [Online], [Accessed 18 June 2023] Available from: https://www.kapsarc.org/, 2021

[35] H.Z. Abu Amira, "School transport in Jordan between reality and safe," [Online], Electronic Interdisciplinary Miscellaneous Journal (EIMJ), [Accessed 25 February 2021] Available from: https://www.eimj.org/pages.php?page=16, 2018.

[36] A. Al-Alwan, "Effects of the Availability of Safety Factors in School Transport Modes on the Use of these Modes within the City of Riyadh. Case Study for Major Cities in the Kingdom of Saudi Arabia," King Abdulaziz University Journal:

Environmental Design Sciences, vol. 7, no. 1, pp. 3-50, 2013.

[37] A.A. Embarrassing, "The reality of school transport services management in education departments in the Kingdom of Saudi Arabia," Mansoura College of Education Journal, vol. 107, no.1, pp. 485-529, 2020.

[38] Transport General Authority - Saudi Arabia, "Mechanism for implementing the provisions of the regulation regulating the educational transfer activity," [Online], [Accessed 01 March 2023] Available from: https://tga.gov.sa/, 2020.

[39] Board of Directors –– Land Transport Regulatory Authority – Jordan, "Instructions for licensing school transport service providers for educational institutions, specifications, conditions and means of school transport for the year 2019," [Online], [Accessed 01 March 2023] Available from: https://www.ltrc.gov.jo/, 2019.

[40] Ministry of Education – Oman, "School transportation regulation," [Online], [Accessed 01 March 2023] Available from: https://qanoon.om/, 2021.

[41] Roads and Transport Authority – UAE, "School transportation guide," [Online], [Accessed 25 February 2021] Available from: https://www.rta.ae/wps/portal/rta/ae/home, 2008.

[42] Educational Transport Development Company –– Saudi Arabia, "Methodology for the management and follow-up of school transport," [Online], [Accessed 01 March 2023] Available from: www.TatweerTransit.com, 2014.

[43] Ministry of Education - Department of Information Systems - Kingdom of Bahrain, "Application of Student Bus Gathering Points Guide for Smart Devices," [Online], [Accessed 01 March 2023] Available from: https://www.moe.gov.bh/, 2016.

[44] Ministry of Municipal, Rural and Housing Affairs - Saudi Arabia, "Guide to designing sidewalks and islands in roads and streets", [Online], [Accessed 01 March 2023] Available from: https://momrah.gov.sa/ar, 2005.

[45] Ministry of Municipal Affairs – Jordan, "The system of roads and sidewalks within the municipal boundaries," [Online], [Accessed 01 March 2023] Available from: https://jordanianlaw.com/, 2016.

[46] Urban Planning and Development Authority - Kingdom of Bahrain. "Regulatory requirements for construction in various regions in the Kingdom of Bahrain," [Online], [Accessed 01 March 2023] Available from: https://legalaffairs.gov.bh/, 2022.

[47] Ministry of Municipal, Rural and Housing Affairs - Saudi Arabia, "Planning standards for public, regional and local services and their different levels activity," [Online], [Accessed 01 March 2023] Available from: https://momrah. gov.sa/ar, (no date).

[48] Dubai Municipality – UAE, "Planning standards guide for public services in the Emirate of Dubai 2019," [Online], [Accessed 25 February 2021] Available from: https://dlp.dubai.gov.ae/ar/Pages/Default.aspx, 2019.

[49] Council of Ministers 2021 – Jordan, "The system of buildings and the organization of cities and villages 2022," [Online], [Accessed 01 March 2023] Available from: https://www.mola. gov.jo/Default/Ar, 2021.

[50] Royal Commission for the City of Riyadh - Saudi Arabia, "Guidelines for the urban design of the city of Riyadh, public transport axes - main roads and streets," [Online], [Accessed 01 March 2023] Available from: https://www.rcrc.gov.sa/ar/, 2016.

[51] Ministry of Planning, Planning and Administrative Reform– Egypt, "Egypt medium- teem sustainable development plan," [Online], [Accessed 01 March 2023] Available from: https://mped.gov.eg/?lang=en, 2018.

[52] Kuwait Municipality, "The main memorandum for the project is the structural plan decree of the State of Kuwait for the year 2007," [Online], [Accessed 01 March 2023] Available from: https://www.baladia.gov.kw/sites/ar/Pages/main.aspx, 2007.

[53] Ministry of Planning and International Cooperation – Jordan, "Jordan 2025 - National Vision and Strategy vision," [Online], [Accessed 01 March 2023] Available from: https://www.pm.gov.jo/Default/Ar, 2014.

[54] Ministry of Planning and Economic Development – Egypt, "Egypt sustainable development Egypt's vision," [Online], [Accessed 01 March 2023] Available from: https://egypt2030.gov.eg/, 2015.

[55] Oman Vision 2040 Implementation Follow-up Unit, "Oman Vision 2040," [Online], [Accessed 01 March 2023] Available from: https://www.oman2040.om/index-en.html, 2020.

[56] Ministry of Transport – Jordan, "National Transportation Strategy - Long Term/Phase III and Implementation Plan 2021-2023," [Online], [Accessed 01 March 2023] Available from: https://www.mot.gov.jo/Default/En, 2022.

[57] The Economic Development Board of the Kingdom of Bahrain, "The economic vision of the Kingdom of Bahrain until 2030," [Online], [Accessed 01 March 2023] Available from: https://www.culture.gov.bh/en/, 2008.

[58] NEWKUWAIT, "Kuwait Vision 2030," [Online], [Accessed 01 November 2022] Available from https://www.newkuwait.gov.kw/plan.aspx, (no date).

[59] Council of Economic and Development Affairs, "Saudi Vision 2030," [Online], [Accessed 25 February 2021] Available from: https://www.vision2030.gov.sa/, 2016.

[60] The United Arab Emirates Government portal, "UAE future," [Online], [Accessed 01 November 2022] Available from: https://u.ae/en/#/, 2020.

[61] L. Kang, Y. Xiong, and F.L. Mannering, "Statistical analysis of pedestrian perceptions of sidewalk level of service in the presence of bicycles," Transportation Research Part A: Policy and Practice, vol. 53, pp.10-21, 2013.

[62] F. Pinna, and R. Murrau, "Age factor and pedestrian speed on sidewalks," Sustainability, vol. 10 no. 11, pp. 4084, 2018.

[63] C. Yu, and X. Zhu, "Planning for safe schools: Impacts of school siting and surrounding snvironments on traffic safety," Journal of Planning Education and Research, vol.36 no. 4, pp. 476–486, 2016.

[64] C. Biyik, "Smart cities in Turkey: Approaches, advances and applications with greater consideration for future urban transport development," Energies, vol. 12, no. 12, pp. 2308, 2019.

[65] R.A. Moussa, "A New Vision for Future City in the Middle East. In Resilient and Responsible Smart Cities," In Resilient and Responsible Smart Cities, vol. 2, pp. 185-205, 2022.

[66] T. Litman, "Introduction to multi-modal transportation planning," Canada: Victoria Transport Policy Institute, 2017.

[67] P.P.Kumar, M. Parida, and M. Swami, M. "Performance evaluation of multimodal transportation systems," Procedia-Social and Behavioral Sciences, vol. 104, pp. 795-804, 2013.

[68] M.A. Mosaberpanah, and S.D. Khales, "The role of transportation in sustainable development," In ICSDEC 2012: Developing the Frontier of Sustainable Design, Engineering, and Construction, pp. 441-448, 2013.

[69] L.C. Wadhwa, "Sustainable transportation: the key to sustainable cities," WIT Transactions on Ecology and the Environment, vol. 39, 2000.