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**PROGRESS MADE IN THE IMPLEMENTATION OF
THE WORK PROGRAMME**

**THE DEVELOPMENT OF LAND TRANSPORT LINKS
IN WESTERN ASIA**

Note by the Secretariat

I. INTRODUCTION

1. The purpose of the present report is to apprise the Commission of the study on "Development of land transport links in Western Asia" which was prepared in accordance with the ESCWA transport work programme for the biennium 1984-1985. This report is based on the above mentioned study (E/ECWA/TCT/85/8): describes the main intraregional highways and railway links and interregional land transport links and contains recommendations to ESCWA member States.
2. In order to carry out the study, a questionnaire on roads and railways was circulated to all ESCWA member States in June 1984 and a reminder was sent in February 1985. The replies received were utilized in the preparation of the study.
3. Owing to budgetary constraints, it was not possible to visit all member countries; therefore only one field mission was carried out in Egypt in December 1984.

II. THE STUDY

4. The study on "Development of land transport links in Western Asia" provides general information about the ESCWA region, i.e., geographical characteristics, natural resources, trade and modes of transport. It covers land transport in particular, including intraregional and interregional links, and contains findings and recommendations.

A. Background

5. In a region such as Western Asia, where waterways are limited, road and railway transport have become a major factor for overall economic growth. Well-developed road and railway networks not only reduce transportation costs and travel time but would also contribute to the expansion of national and international trade and tourism.

6. A number of commodities which figure predominantly in international trade within Western Asian countries require low-cost transport. They include rice, dates, potatoes, cotton, tobacco, sugar, meat and minerals such as iron ore, phosphate rock, limestone and salt. These commodities, instead of being moved between countries by sea routes, could in many cases be moved more economically by roads and railways. Industrially the region is also developing rapidly and most countries which were mainly suppliers of raw materials have now begun industrial production, which has been growing during the last two decades and includes production of cotton goods, cement, sugar, iron and petroleum. These products are produced over almost all of the region and the highways and railways in some countries form or should form the most important links between the industrial areas. There are also other factors such as intraregional and interregional tourism and pilgrimage itineraries which will enhance the importance of the role of road and railway transport links in the region.

7. As far as the interregional links are concerned, the highways and railways could be connected with the most intensive areas of economic activity in the world and would thus contribute to increasing trade relations between Western Asia and adjacent regions such as Africa, Asia and Europe. On the other hand with the development of the new technologies such as Roll on/Roll off (Ro/Ro) and lift on/Lift off (Lo/Lo), and ferries linking the well developed road and railway network in Europe to North African and Western Asian countries, transport between these regions has become easy. Furthermore, when peace comes to the Western Asia region, the tunnel under the Suez Canal and the railway and highway connections between Iraq and Iran will provide adequate land links between the North African countries, Asian countries and Western Asian countries respectively. Without any doubt the links would be a means of strengthening economic and social relations among these regions and subregions.

B. Intraregional links

8. Keeping in mind the ever increasing socio-economic needs of the region the Governments of the Western Asian countries have embarked upon large-scale

schemes for railway and road transport development within their respective countries. Particularly and recently the region has achieved a remarkable accomplishment in the construction of roads the length of which was increased considerably within a short period of time.

9. Some of the sections in this report below are mainly concerned with providing a descriptive overview of intraregional links and international highways and railways in the ESCWA region. These sections also highlight the main bottle-necks and problem areas that have to be overcome in order to achieve the required degree of international integration and the smooth flow of people and freight.

(a) Highway links

10. Intraregional links are provided by so-called international highways, and the development of these highways in the ESCWA region over last 10 years has been accorded the highest priority in the development plans and programmes of all member countries. A total length of 36,000 km of paved roads in the whole region in the year 1974 increased to approximately 107,000 km in 1983, i.e., an increase of almost three times in 10 years.

11. National roads in the region are used for international traffic and provide long-distance highways for intraregional traffic. Considerable development of these international highways has taken place in the recent past: some sections have been changed into dual carriageways with higher road standards.

12. A summary descriptive inventory of the M₁, M₂, and M₃ highways, which are actually the main intraregional road links in Western Asia, as well as of some other highways such as the M₇, M₈, M₉, M₁₀ and M₁₅, which forms the west-east connection of member countries, is given below (see map).

The M₁

13. This road from Bab Al-Hawa at the Syrian-Turkish border to Aden in Democratic Yemen has a total length of 3,772 km. Apart from being the longest throughgoing highway of the region, it is also a most important one for international traffic. Because of heavy loads, some stretches (168 km in the Syrian Arab Republic, 8 in Jordan and 72 in Saudi Arabia) have already been brought to class 0 standards.

14. In the Syrian Arab Republic the stretch from the Turkish border to Aleppo is being improved to class I. In addition, upgrading of the section Saraqib - Hama and Homs to a class 0 highway has also been undertaken. For the remaining part (Damascus - Jordanian border) a feasibility study on improving the road has already been prepared. When these projects are completed the whole of the M₁, as far as the part located in the Syrian Arab Republic, will attain class 0 standard. By that time, it will probably be necessary to further increase capacities of the portions north and south of Damascus.

15. In Jordan the section from the Syrian border to Amman has been made the subject of a feasibility study. Terrain difficulties lead consultants to propose a new alignment for a class 0 road. For the sections south of Amman no extensions are planned as yet: Present traffic indeed does not really justify expansion apart from the section immediately south of Amman.

The M2

16. Traffic data suggest that the section from Mosul to the Turkish border has little regional significance, but this may be due to the present low standard of the road. The Iraqi Government does not plan to improve the road until Turkey improves the E24, the continuation of the M2 in that country. As regards the stretch Mosul to Baghdad no improvements are planned either, despite congestion near Baghdad. Beyond Baghdad there are two possible routes to Basrah (M2a and M2b). However, the alternative along the Euphrates Valley, M2a although it is longer than the Tigris Valley alternative route at present and has relatively lower standards, has been selected to be considered as an international highway and an integral part of route M2.

17. The continuation of the M2 in Kuwait is generally of a sufficient standard to cope with the traffic. The same applies in fact to the Saudi-Arabian part, but owing to the importance of the road to connect the port of Dammam to Kuwait and Iraq, the Government of Saudi Arabia is reconstructing the section between Dammam and Abu Hadriya.

The M3

18. The feasibility of upgrading the M3 in the Syrian Arab Republic to a class 0 highway (capacity up to 24,000 ADT Average Daily Traffic) is being investigated. Similar plans exist for the part on Lebanese territory. The stretch from Tripoli to Tabarja planned for completion in 1980, but serious delays have to be expected for the rest. This stresses the importance for the M₃₁ (Tartous - Homs) to allow traffic to switch to the M₁.

The M7

19. This route, which links the port of Lattakia with Aleppo and with the M₈ near Baghdad, is an alternative to the M₈ for cargo from Europe to Baghdad and the Gulf. Traffic flows on this road were considerably higher than on the M₈, reflecting the problems in the port of Beirut and Lebanon. With regard to the stretch from Lattakia to Aleppo, the section from Al Riha to Aleppo already has class 0 standard. It is planned to upgrade the remaining part (Al Riha to Lattakia) to class 0; financing is being sought for design and construction.

20. In the Syrian Arab Republic the section Raqqa - Deir ez Zor to Abu Kamal, which at present is of a low standard, may be upgraded to class 1, but pre-feasibility studies still have to be initiated. From the border to Haditha (Iraq) the road is paved.

The M8

21. Together with the M₂ from Baghdad to Kuwait and its continuation further sothward, the M₈ connects Beirut with the Gulf via the major cities of Damascus and Baghdad. This link seems essential for the region not only because it connects the three largest cities of the region, but also because it provides the Gulf (and Baghdad) with a convenient connection with Europe. If the port of Beirut is to retain its role in transit of cargo, the road must of course have sufficient standards and the plans to reconstruct and enlarge the port must materialize. The section Beirut - Damascus can be seen as a collector road for the M₁ and could have an important function in the transport of cargo from Europe to Jordan and Europe to Saudi Arabia. For planning it would be advisable to follow closely the plans in Greece to extend the Ro/Ro capacities. Regarding the plans for improving the link, a feasibility study for the stretch from Beirut to the Syrian border was already completed, but execution was delayed as a result of the war. Design studies are now in progress, but the completion date of the construction is uncertain (probably not before 1985).

22. The section from the Lebanese border to Damascus was upgraded to a 4-lane, double-carriageway in 1980. For the stretch from Damascus to Tanf only repavement is planned because of present low traffic volumes.

23. The section in Iraq (from Tanf in Syria to Baghdad) is part of a large development scheme (expressway No. 1). A double-carriageway of 4 to 6 lanes is foreseen with a phased development running into the 1990s.

The M9

24. The first section from El Durra (Saudi Arabian border) to Aqaba (22 km) is an excellent highway, but the section from Aqaba to Ma'an has to cut across very difficult terrain in a number of sections. The section from Rum Junction to Ma'an (74 km) was completely reconstructed in 1980.

25. From Ma'an to Iraq the road is not good, particularly the section from El Jafr to Azraq which at present is only a track, but plans have been made for design and construction on this section.

26. Azraq - H5 (50 km) is newly constructed. From the Jordanian border to Al Rutbah (107 km) in Iraq the surface was improved and widened to 7.3 m.

The M10

27. This highway extends into Saudi Arabia to link up eventually with the existing highway in Saudi arabia parallel to the Trans-Arabian pipeline (Topline).

The M15

28. This highway links Aden, the capital of democratic Yemen, to the important ports of Al Mukallah, salalah and Muscat, the capital of the

Sultanate of Oman. With the development of the port of Mukallah this highway needs many improvements. In Oman the section from Thamarit to Nizwa was completed in 1982 and became the backbone of the future road network in the Sultanate of Oman.

(b) Railway links

29. In the ESCWA region, as in many parts of the world, both standard and narrow gauge lines are used. The current standard gauge (1.435 m) railway network constructed and/or in operation in the northern part of Western Asia and Saudi Arabia comprises the following lines:

<u>Line</u>	<u>Length</u>
<u>North-South main line</u>	(km)
Meydan Ekbeze-Homs	320
Homs - Damascus	202
Akkari - Tartous	38
<u>Old East - West line</u>	
Aleppo - Tchobanbey	62
Tchobanbey - Kamishlie	382
Kamishlie - El Yaroubie	82
Rabia - Baghdad	528
<u>New East - West line</u>	
Lattakia - Deir es Zor	522
Deir es Zor - Kamishlie	213
Baghdad - Basrah	542
Basrah - Um Qasr	59
<u>Saudi Arabia</u>	
Dammam - Riyadh	577

30. The narrow gauge railway system existing in the northern part of Western Asia actually includes two different gauges, namely 1,000 m and 1,050 m. The first one is located in Iraq and the second one is in Lebanon, Syria and Jordan. The fact that they have not been interconnected has helped the railway concerned to avoid the otherwise very difficult operational problems. The current major lines are listed below.

<u>Lines</u>	<u>Length</u>
Beirut - Damascus	147
Damascus - Medina	519
Hattiya - Aqaba	117
Baghdad - Kirkuk	433

31. For international traffic only the standard gauge lines are of significance, especially the line from Um Qasr/Basrah via Baghdad to Aleppo and from there to Tukey/Europe or to the port of Lattakia. When the section from Deir es Zor to Baghdad is completed, the railway should be the most convenient and cheapest way to transport bulk goods from the Mediterranean to the Gulf. In the further planning of improvements of the M₂ highway, it is very important to consider the transport potential of this line in order to avoid possible duplication of facilities.

32. With regard to the narrow gauge system the lines Damascus - Amman - Medina (Hidjaz Railway) and Beirut - Damascus are considered as intraregional links and are of real importance.

C. Interregional links

33. Historically speaking, Africa, Europe and the Middle East have been traditional trading partners for many centuries. Recently, however, because of the impact of transport on the development of trade, or conversely because of the demand for transport services due to the growth in trade, or for both reasons, there appear to be some new possibilities for the development of transport and the promotion and expansion of trade. The potential of improved transport services between the three regions in general, and their road and railways networks in particular, must by any standard, be considered tremendous. Such an improvement would not only stimulate trade, but would also revolutionize mass transit between the continents and help close the gap between their economies and end the current disparities.

(a) Links with Europe

34. The trade schemes of the member countries of ESCWA constitute a potential demand on the transport infrastructural connection between these countries and Europe. Although the inland road network of the region has expanded considerably over the last decade, the interregional connections with Europe need to be improved and strengthened.

35. The southern borders of Turkey with both the Syrian Arab Republic and Iraq together with the East Mediterranean coastline of the Syrian Arab Republic and Lebanon constitute the line of the frontier of the ESCWA region with Europe. The interface of the European transport system with that of the Mediterranean seaside region is the ports system of the Syrian Arab Republic and Lebanon which constitute entry points for both freight and passenger traffic. This system is made up of four ports, namely: Lattakia and Tartous in the Syrian Arab Republic and Beirut and Tripoli in Lebanon with the latter port playing the least important role as far as traffic with Europe is concerned.

36. It can therefore be concluded that the Western Asia region has two main connections with Europe: through Turkey and through the seaports.

(aa) Through Turkey

37. Turkey has always been considered as a bridge and as a transit point for passengers between the East and the West, due to its geographical situation. In view of this fact, the transport system of Turkey is supposed to meet the transport requirements of North Africa, the Middle East and Western Asia, as well as its own. For this reason, Turkey, while reorganizing its infrastructure for the transport of transiting goods, at the same time is expanding its main ports, furnishing them with modern equipment and connecting these ports with border check-points by road or railway. The Turkish transit highway project, which has received financial and technical support from the international community, will make possible the speedy, comfortable and easy transport of transit goods to Iran, Iraq and the Syrian Arab Republic through Turkey. The Turkish part of the Trans-European North-South Motorway (TEM) project will greatly facilitate the international transport of goods by connecting countries of the Middle East and Western Asia with the important ports in the Black Sea and the Mediterranean. A new capacity for international transit transport will be created when the implementation of the railway projects is completed by the end of the 1990s.

(i) Road links

38. Highway transport is the most predominant means of both internal and transit transportation in Turkey. There are about 60,000 km of state and provincial roads which are mostly paved and 268,000 of village roads of which at present 135,000 km are paved. The construction of that highway system was completed mostly in the last decades. The network extends to all provincial centres and harbours and creates accessibility to inland points while also creating several continuous and coherent channels for transit traffic.

39. The Mediterranean connecting road in Turkey is called Trans-Turkey Highway (TTH) and it is the same commercial main artery which connects Europe to the Middle East and even the Far East, with almost the same alignment as the historic "silk road" and "spice road".

40. TTH is about 3,200 km in length and it starts from the Turkish - Bulgarian border at Kapikule and, having a connection with Greece, passes by Istanbul, Gerede, Ankara and Adana and then continues to Syria. A branch leaves this route near Adana and continues to Iraq. Another main branch at the north connects Gerede to Iran via Refahiye.

(ii) Railway links

41. The countries of south-eastern Europe which provide the railway links between the ESCWA region and Europe have a dense railway network which is only partly electrified and sometimes of insufficient capacity to meet present traffic demands. The reported delays in forwarding cargo seem, however, to be due mainly to a lack of rolling stock or to operational bottle-necks rather than to the capacity limitations of the track itself. Nevertheless, numerous projects for electrification and doubling of tracks are under way or in the planning stage in several countries, which should result in continuous improvements.

42. In general the railways share of total transport between Europe and the Middle East and particularly to the Eastern Asian countries has continued to decline recently in comparison with roads and seaports. In order to consolidate their position in the transport market for the Middle East via south-eastern Europe, the railways have been making efforts by including some new projects in their programme.

43. As far as the railways within Turkey are concerned, the network extends to all major ports and frontiers. The total length of railways is 8,373 kms. Their infrastructure is old and of a low standard. Almost 20 per cent of the network is composed of short radiused curves. Twenty six per cent of the network has a slope above 1.5 per cent owing to the general mountainous topography of the country. Electrification, telecommunication and signalization are in use only on a limited part of this network.

44. However, on the basis of a fixed programme, work has already been started to improve the infrastructure and railway standards. Within this framework, the signalization of 2,200 kms, electrification of 2,500 kms and setting up of telecommunication for 430 kms of railway will be accomplished.

(bb) Through seaports

45. With new transport technologies such as Ro/Ro and Lo/Lo it became easy to link the well developed road network in Europe with the North African and West Asian countries. The Mediterranean coastline of Syria, Lebanon and Egypt constitute the front line of the ESCWA region with Europe. The ports of Lattakia, Tartous, Tripoli, Beirut, Port Said and Alexandria are the entry points for both freight and passenger traffic. These ports are connected to the hinterland through road and rail networks of the region. The lebanese ports have been affected by the hostilities prevailing since 1975.

46. The geographical position of the Greek peninsula has made that country a jumping board to other continents. Since antiquity the trade routes between Europe the Middle East and north-east Africa were crossing Greece. The first road crossing Greece was a Roman-built road from Europe to the Middle East. Another example is the Axis supply route to Africa in the Second World war. As Greece is in the east-south-east of Europe, it has also the shortest sea distance to the Eastern Mediterranean and is therefore an obvious transit country.

(b) Links with Asian countries

(aa) Road links

47. The following road links could be considered:

(i) The Middle East regional Asia route (M8) is the most crucial highway link between the Mediterranean coast and the Asian countries, directly connecting Beirut, Damascus and Baghdad with the Iranian border near Khanaqin. The Baghdad - Iranian border section of this highway provides at present the only direct interconnection between the Middle East and the Asian

Highway networks, namely to Asian Highway A₂, via Khosrani, and to Asian Highway A₁, via Teheran in Iran, and further on to Pakistan, India and other Asian countries.

(ii) Another possible road link is the connection of Aleppo in Syria to European Highway E₂₄ in Osmaniye; then E₉₉ could be followed via Malatyak and Elazig till its intersection with E₂₃, which connects Erzurum to Bazargan (Iranian - Turkish border). Bazargan is the starting point of Asian Highway A₁ which connects Iran, Afghanistan, Pakistan, India and the Far East countries.

(iii) Zakho in Iraq (M₂) is connected with Cizre in Turkey. This connection provides another possibility of links between Western Asian Highways and Asian Highway A₂ and A₁ via Serow, Divandareh and Bijar in Iran. But Bijar - Zanjan (about 140 km) section of this highway is still a missing link.

(bb) Railway links

48. There is not a direct railway connection to the Asian railway network in Iran. With the completion of Baghdad - Khanaqin with the standard gauge system which is under consideration, the Western Asian railway network will be connected only to the Iranian border. From Iranian border there is no railway connection to Teheran.

49. In the south of Iraq, Baghdad is connected with Basrah, as was mentioned, by a standard gauge system. On the Iranian side, Teheran is connected to Khoramshahr via Qum by a standard gauge railway which is a part of the Trans-Asian railway network. With the connection of Basrah and Khoramshahr in Iran, the Western Asian railway will be directly connected with the Asian countries.

50. In the north of the ESCWA region the north-south main line, which connects Aleppo to Damascus in Syria, connects Meidan Ekbeze to the Turkish standard-gauge network and through it to the Trans-Asian railway network and to the European standard-gauge network. The Meidan Ekbeze at the Syrian - Turkish border - Malatya line crosses Elazig and joins lake Van. Then a ferry boat crosses the lake and joins the city of Van and the Iranian border.

51. The old East-West main line connecting Aleppo to Baghdad near the Syrian border in Yaroubie through a branch line via Gaziantep joins the Meidan Ekbeze - Malatya line near Maras.

(c) Links with Egypt and other African countries

(aa) Road links

52. The only feasible way to connect Western Asia with Africa around the Mediterranean, is through the Red Sea. In the north, the connection would be through ferry boats from Aqaba to Suez and from there the Egyptian road

network would provide the required connection with the North African countries. The Egyptian road network which joins Suez to the Charm el-Sheikh south of the Sinai peninsula could be connected to M₁ in Tabuk in Saudi Arabia by ferry boat crossings of the Gulf of Aqaba. Other connections with Africa could be through ferry links from Jeddah (Saudi Arabia) to Port Sudan (Sudan) or from Aden in Democratic Yemen to Djibouti and Somalia.

53. Owing to its location in the north of the continent, at the intersection of both the African and Asian continents and opposite Europe across the Mediterranean Sea, Egypt, one of the African countries and a member of ESCWA, focuses particular attention on the international road network linking it with neighbouring countries. In this connection it must be emphasized that the new commuter line between Cairo and Amman using ferry boats between Nuweiba and Aqaba and the "Ahmed Hamdi Tunnel" under the Suez Canal is the most important and recent interregional and intraregional transport link. This new route opened in April 1985 tremendously reduces the travel time between Jordan and Egypt, thus contributing to the rapid development of passengers and goods in the southern part of the ESCWA region.

(bb) Railway links

54. The only possible future railway link between the Western Asia and the North African countries is through the Sinai peninsula. At present there is a limited railway infrastructure in the area. However, other parts of Egypt owing to the topographical and geographical conditions in combination with a very high population density in the arable areas, present a highly favourable environment for rail transport of passengers. It is therefore not surprising that an extensive rail network has been developed in Egypt.

D. Europe - African links

55. At the 1976 International Road Federation (IRF) Conference in Abidjan and later within the framework of the Transport decade for Africa (1978-1988) it was decided to investigate the potential for permanent connecting links between Europe and Africa which is also important for the ESCWA region's connections. The purpose of such links would be to facilitate intercontinental trade and enhance the development of Africa. The working party that was established for this purpose identified the following potential permanent links:

(i) The link through Gibraltar using a western coastal road in Africa (Trans-West African Highway);

(ii) The link through Marseille using the Western Trans-Saharan Road between Algiers and Tamanrasset or the Trans-Central African Highway;

(iii) The link through France, Italy or Greece using an eastern trans-Saharan road through the Libyan Arab Jamahiriya (Eastern Libyan);

(iv) The link through Greece using the East African Highway along the Nile (Trans-East African Highway);

(v) The link through Turkey and Saudi Arabia which, via Port Sudan, enters the African continent.

56. The road network in Europe is well developed and there are over 70 Roll on Roll off ferries linking North Africa with Europe. The main problem is to find suitable routes in order to link the countries of North Africa with Europe.

III. FINDINGS AND RECOMMENDATIONS

A. Findings

57. The findings of the study pertaining to land transport links can be summarized as follows:

(a) Most of the ESCWA countries made a lot of progress in the expansion of their road networks but the differences among them are great,

(b) As regards road length in relation to population and land area of the country, compared with some developed countries of the world the countries of the region, like other developing countries of other regions, still have a long way to go to achieve a similar position.

(c) The density of the paved road network in the region is still low compared with some European countries.

(d) The development of vehicle fleets in the ESCWA countries shows that the average growth rate per annum of vehicle fleets during 1972-1982 was 18.2 per cent, which is much higher than other countries of the world.

(e) As far as the railways are concerned, freight and passenger traffic has grown in general in countries of the region. Nevertheless the density ton-km per person and per square km of the area is still very low in comparison with the developed countries. However, in general the annual growth rate for the freight and passengers in some countries of the region is quite satisfactory as can be seen from the following: 23.75 per cent in Jordan; 23.1 per cent in Syria, and 16.40 per cent per annum in Saudi Arabia.

B. Recommendations

58. Despite the most significant build-up and improvements in the transport infrastructure of ESCWA member countries in the last decade, there still exist important gaps on the international links which need to be bridged for effecting convenient connections. Some highways and railway alignments are still inconsistent with the present flow of traffic. Transport services as well as transport vehicles and fleets in many instances are inappropriate or are far out of line with the capabilities of modern facilities and terminals already at hand. Introduction of transport technologies in the region at an accelerated pace is in some cases making the infrastructure facilities redundant and obsolete.

59. To cope with the growing national and international traffic of both passengers and goods and other matters pertaining thereto, a considerable amount of work still remains to be done. The following is a summary of some suggestions and recommendations that could be followed and taken into serious consideration by the ESCWA member States.

(a) Completion of missing links, upgrading of substandard sections and improving of some sections

(i) Highways

60. Missing links and substandard sections are listed in the table.

(ii) Railways

61. The high priority and major concentration centred on road construction and on road transport has left another mode of inland transport, the railways, far behind in their development; this obviously has caused imbalances in the transport sector. Transport, as a service industry, will be at its most efficient level when different modes of transport both complement and compete with each other. Consequently in the period of development which has followed the oil boom, attention should now be given to one of the important transport sectors: the railways.

The railways provide in general the following advantages: lower cost per ton kilometre of transport; Lower energy consumption per ton kilometre; lower maintenance costs; lower foreign currency component for maintenance; and greater volume of bulk transport.

Table 1. Substandard sections and missing links on international highways

Route No.	Country	Sub-standard section From	To	Length Km	Missing links From	To	Length Km	Total length Km
M1	YAR/PDRY	Taiz	Aden	162				162
M2	Iraq	Zakho	Mosul	104				104
	Saudi/ Bahrain Causeway				Zahran	Manama	25	251 ^{1/}
M3	Syria	Kassab	El Arida	169				169
	Lebanon	El Arida	Nakoura	210				210
M6	Syria				Al Bab	Yaroubia	463	463 ^{2/}
	Iraq	Yaroubia	Mosul	100				110
M7	Syria	Lattakia	Fariga	87				87
		Raqqa	Iraqi border	262				262
Iraq	Syrian	Ramadi border						280
M8	Lebanon	Sofar	Masna'a	36				36
	Syria	Saba' Biar	Tanf	108				108
	Iraq	Syrian border	Al Rutbah	112				112
		Baquba	Khanaqin	120				120
M9	Jordan	Ma'an	El Jafr	50	El Jafr	Azraq	202	252
		H5	Iraqi border	103				103
	Iraq	Jordanian border	Al Rutbah	107				107
M15	PDRY	Zinjibar	Al Ayn	109				
		Al Mukkah	Ashihr	34	Ashihr	Oman border	540 ^{3/}	683 ^{1/}
					PDRY border	Raysut	120	120
M36	YAR	Hodeidah	Sana'a	226				226
M37	YAR	Al Mukha	Al Mafraq	46				46
M40	Oman	Bahla	Al Burami	253				253
Total				2,688			1,350	4,038

Source: ESCWA: "Development of land transport links in Western Asia" (E/ESCWA/TCT/85/8) of 2 July 1985, p. 102.

1/ Under construction.

2/ Under construction.

3/ Partly under construction and partly under design.

62. Since rail transport has the above-mentioned advantages when compared with road transport in certain areas of the ESCWA region, it will provide the appropriate transport alternative for various cargo commodities as well as for passengers.

63. Unfortunately, rail transport has lagged behind; it needs upgrading and improvements in order to provide a transport alternative with real economic benefits for the region. Special attention also has to be given to the construction or rehabilitation of important missing links, and the integration of the existing railways into a regional network, providing direct access to the European railway network. The problem of standardization of railway gauges and of rolling stock has to be solved in this relation.

(b) Improvement of road and railway maintenance management

64. The lack of adequate maintenance on the various types of transport infrastructures is rather a common phenomenon in most developing countries. Maintenance is often under rated or completely disregarded in the development of road and railway networks. This fact is clearly demonstrated in the financial allocations specified for this purpose in countries' budgets. This tendency to give low priority to road maintenance is unfortunately causing tremendous damage to the serviceability of the road and railway networks in countries of the region. A moderately intensive maintenance programme, begun immediately and observed faithfully, would not only improve the general serviceability of the existing land transport network but would also greatly decrease the cost of maintenance and improvement.

(c) Manpower and training

65. The scarcity of qualified manpower, professionals and skilled labour, is a major handicap in road and railway construction and maintenance in most countries of the region. During the last few years the gap between demand and supply of trained manpower for roads has considerably increased in the region and the input of foreign labour is a common practice in most ESCWA member countries. Effective plans have to be considered for meeting these needs efficiently and for securing a continuous flow of trained personnel and skilled labour to cope with planned development. A regional and subregional approach to the problem of manpower shortage and development would be the most suitable.

(d) Establishment and facilitation of international traffic

66. The prerequisites for establishing and expanding efficient international road and railway traffic are multiple and complex. They include a good railway and road network, with necessary ancillary services, uniform traffic regulations, rules, signs and signals, licensing of motor vehicles for road traffic, third party insurance for motor vehicles, foreign exchange regulations and harmonization of procedures and formalities between countries.

(i) Frontier formalities

67. Customs and other border crossing formalities for international traffic

differ from State to State, which leads to considerable expenses, delay and interference with the smooth flow of traffic.

68. Therefore, simplification of procedures and harmonization of formalities applied to traffic flow, particularly at border crossings, is a major factor in effective development. European truckers and transport operators, who naturally compare the situation in the Middle East with that in Europe, complain about time-consuming bureaucratic red tape, sudden delays and hidden costs. Formalities are not standardized, are liable to changes and are different for the various countries. Some operators even station trained company employees at the more difficult border crossings to do the paper-work.

69. In this respect the TIR (Customs Convention on the International Transport of Goods Under Cover of TIR Carnets) and Kyoto Conventions have tremendously helped international transport in many countries of the world. The adoption and implementation of these Conventions by the member States are strongly recommended.

70. The States of the Arab League, including all ESCWA countries, signed an agreement in 1977 similar to the TIR Convention known as "The Convention on the Regulation of Transit Traffic among the Arab League States".

(ii) Motor vehicle insurance at frontiers

71. At present duties performed by customs authorities at frontiers include the control of motor vehicle insurance. Such control of insurance certificates leads to considerable delays at border crossings, overloads the customs authorities and could be easily replaced by another system. Agreement between national authorities in the countries of the ESCWA region would make the national insurance certificate of any car valid and acceptable in other countries.

(iii) Unification of road design standard

72. With the increasing volume of traffic in practically all modes of transport in the Arab world, the problem of facilitation of international traffic has assumed greater importance. The disparity in road design standards throughout the Arab countries' highways imposes certain difficulties in the integration of national road networks. It is a real hindrance for the smooth flow of international traffic, which is increasing considerably in the countries concerned.

(iv) Unification of road and railway signs and signals

73. Many provisions of the Convention on Road Signs and Signals contain permissible and possible alternatives and the Convention on Road Traffic contains many recommended practices. A number of European countries have made arrangements to provide uniform measures for international transport within the general framework of the two Conventions.

(e) Technical co-operation and joint activities

74. A new, independent dimension to economic co-operation among the countries of the ESCWA region could be the exercise of technical co-operation in the field of land transport. This would involve the transmittal of technical skills and expertise, including the provision and utilization by the countries of the region of their consultancy services, training facilities, equipment and supplies to increase the efficiency and productivity of their work. It also includes the pooling of resources and efforts by developing countries to find solutions to their common problems and the establishment and strengthening of organizational infrastructure and substantive capacities of the member States for promoting mutual co-operation.

75. In the railway field, the co-ordination of programmes for the establishment of the principal rail links in the ESCWA countries should be the basic objective behind the search for a master plan for railway transportation.

(f) Some other relevant factors

(i) Axle load and vehicle dimensions

76. A particularly serious problem in many cases in developing countries in general and Western Asia in particular seems to be truck overloading. Many transport companies and individual owners are inclined to overload trucks. Most countries of the region have laws to regulate the size and weight of vehicles but very few actually enforce them. Because of the overloading of trucks some road sections in the region have greatly deteriorated and continue to deteriorate at a faster than normal pace. Axle control is a basic issue in the proper design, and construction of roads in the ESCWA region. It is suggested that standard dimensions be adopted.

(ii) Ancillary facilities

77. Although a highway is improved by good design standards, it cannot be fully used by the traffic if ancillary facilities are inadequate. The following remarks should be taken into consideration.

- Intersections in both rural and suburban areas may well be serious bottle-necks and also cause accidents owing to defective layouts.
- Signs and signals should be understood by international traffic and should be placed at appropriate locations in order not to disturb the traffic flow.
- Guard-rails and guide-posts should be carefully designed to protect vehicles from accidents.
- Petrol stations should be located at appropriate intervals (each 50 km) along the highways and if they are located at great distances from each other guidesigns should be placed giving information on distances between them. On road sections with few stations, service should be provided continuously day and night and new stations should be developed with the assistance of the Government.

- Other facilities such as small workshops for repairing vehicles and first-aid for medical treatment must be available at appropriate distances along the highways.

(iii) Uniform statistics for land transport

78. The highway and railway statistics compiled in individual countries differ one from other, both in format and content. For them to be useful for international highway planning, a uniform system of compilation and presentation is essential.

UNITED NATIONS ECONOMIC COMMISSION FOR WESTERN ASIA	
Development of Land Transport Links in Western Asia	
Major Highways and Railways (Schematic)	
Baghdad, May 1985	Map No.1

