Arab Railways Past & Present

Mourhaf Sabouni

Introduction

The 'Arab Homeland' covers 13.3 million km^2 and has a population of approximately 270 million. It is comprised of Syria, Iraq, Lebanon, Jordan, Palestine, Saudi Arabia, Kuwait, Qatar, Bahrain, United Arab Emirates (UAE), Oman, Yemen, Mauritania, Morocco, Algeria, Tunisia, Libya, Egypt, Sudan, Djibouti, Somalia and the Comore Islands. Despite this large number of nations, it shares a broadly common culture, society, and written language.

Birth of Arab Railways

The first railway in the Arab Homeland (and in the Middle East and Africa) was opened in 1854 between Alexandria and Kafar Zayat in Egypt. Railways were subsequently built in Morocco, Algeria, Tunisia, Sudan, Syria, Lebanon and Iraq. The most important railway axis called the Hidjaz Railway, linking Medina in Saudi Arabia with Damascus in Syria, via Amman in Jordan, was built in the early 1900s. It was financed by Islamic institutions in Arab countries and elsewhere. The Arab railways were constructed during the colonial period for military and strategic purposes, as well as to provide distribution routes for products from the industries of the colonizing nations. Consequently, the lines have different technical specifications depending on which country constructed them.

Present Situation

There are railway lines in only 11 Arab countries: Syria, Iraq, Lebanon, Jordan, Saudi Arabia, Sudan, Egypt, Tunisia, Algeria, Morocco and Mauritania. They total approximately 25,000 km (Table 1). Most of the Arab railways are standard gauge and the others have four different gauges: 1000 mm in Tunisia, Algeria and Iraq, 1050 mm in Syria, Jordan and Lebanon, 1055 mm in Algeria, and 1067 mm in Sudan.

The Arab countries are now modernizing their lines to the standard gauge, except in Sudan and Tunisia. Most lines are single track with only 2399 km of double track and 694 km of electrified track. The density is very low compared to advanced countries.

The diversity of track gauges makes through traffic difficult, and even traffic between two Arab countries difficult. In addition, the design speed varies from 60 km/h in Sudan to 250 km/h in Iraq and the maximum axle load varies from 12 to 25 tonnes. There are also different loading gauges.

Table 2 shows the number of rolling stock and passenger and freight volumes.

Foundation of Arab Union of Railways

Road transportation has grown rapidly in Arab countries due to development of the road network as well as stagnation of the railway sector.

However, Arab governments have been motivated to upgrade and extend their existing networks by the importance that advanced countries attach to railways and by rail's merits in economic development. The Arab countries are also aiming to integrate their economies and have realized the importance of unified transportation, especially railways, in international trade. These factors are causing railway traffic to boom.

In 1979, representatives of some Arab railways met in Amman and decided to establish the Arab Union of Railways to assist in development of relations between neighbouring networks, to establish international cooperation between railway organizations, and to obtain an increased share of the transport market.

Table 1 Arab Railways

Country	Gauge	Total Length km	Single Track km	Double Track km	Electrified Track km
Jordan	N	3,209	788	—	—
Tunisia	S	457	422	35	—
	N	1,484	1,411	73	68
Algeria	S	3,209	2,864	345	313
	N	1,081	1,081	—	—
Saudi	S	1,392	1,078	314	—
Sudan	N	4,526	4,526	—	—
Syria	S	1,754	1,754	—	—
	N	327	327	—	—
Iraq	S	2,045	1,941	104	—
	N	450	450	—	—
Lebanon	S	316	316	—	—
	N	82	82	—	—
Egypt	S	4,903	4,903	1,257	42
Morocco	S	1,907	1,907	271	271
Mauritania	S	690	690	—	—

S: Standard gauge (1435 mm)
N: Narrow gauges (1000, 1050, 1055, 1067 mm)

Morocco's express train linking Meknès and Rabat competes with the national road running parallel to it.
(K. Urakawa)

The Union membership is comprised of most Arab railways and is based in Aleppo, Syria.

The Union:

- Organizes scientific conferences on important subjects by holding bi-annual international symposia. The eighth one will be held in Beirut, Lebanon, in autumn this year. Special seminars on subjects of interest to Arab railways have been held in Aleppo in 1994 and in Cairo in 1996.
- Organizes training courses to raise the professional level of railways staff
- Conducts studies and presents proposals on unified regulations and technical specifications.
- Unifies railway terms in Arab countries by issuing six dictionaries of 25,000 railway terms in Arabic, French and English
- Publishes *Arab Railways,* a railway quarterly in three languages, Arabic, French and English. The Union also publishes annual statistics on the Arab railways.

Future Developments

Recent modernization and construction of new railways in some Arab countries have produced positive economic results and social progress in the region. The Union has played an important role in highlighting the importance of the railway mode in Arab society and economy; it has convinced the Arab governments to develop railways and to improve relationships between themselves and with neighbouring countries. One Union study on linking various Arab railways was adopted by the Council of Arab Transportation Ministers, giving new emphasis to the importance of new railway projects in Arab countries (Figure 1).

The nine new main axes of the proposed network will be as follows:

Table 2 Rolling Stock and Passenger and Freight Volumes

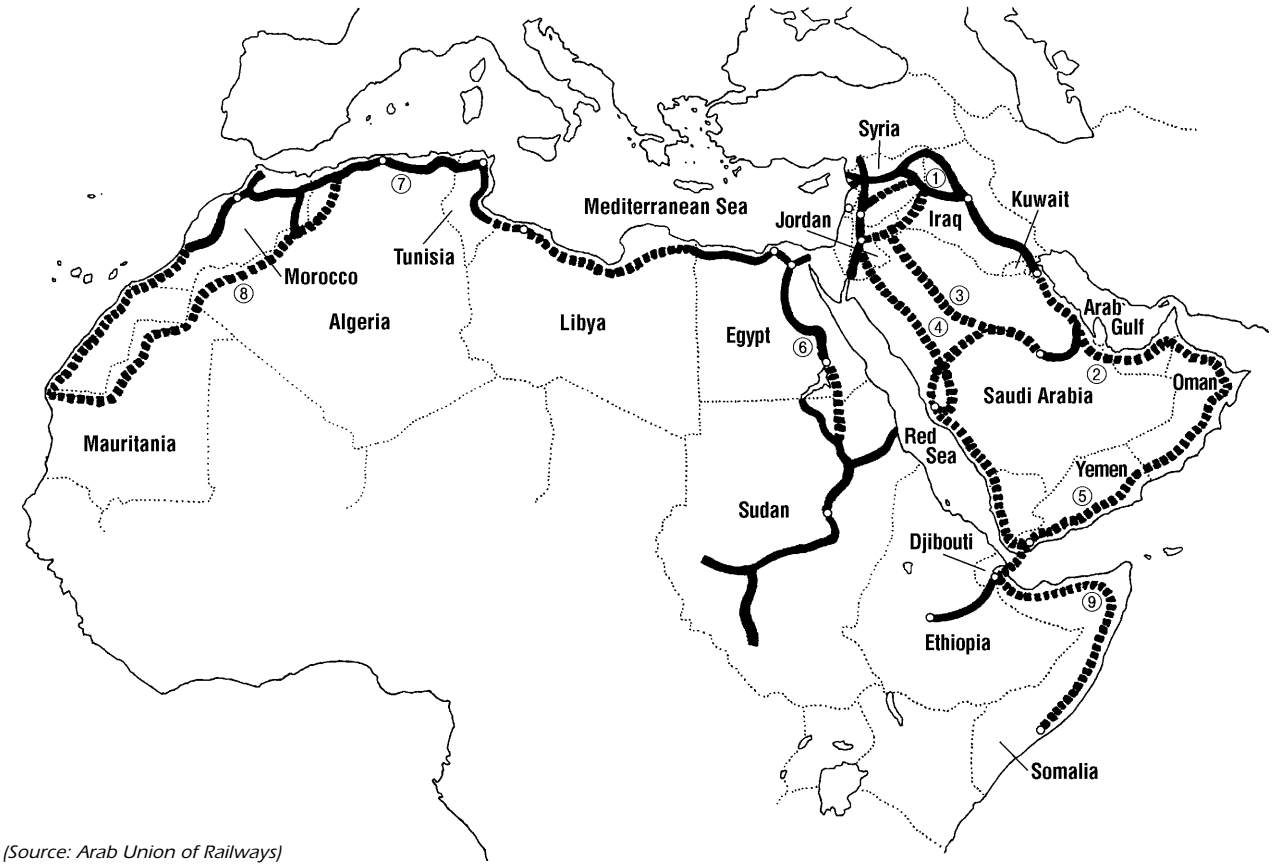
Railways	Tractive Stock				Passenger Traffic			Freight Traffic		
	Steam	Diesel and Railcars	Electric and Railcars	Total Power (kW)	Coaches	Passengers	Passenger-km (Millions)	Wagons	Tonnes	Tonne-km (Millions)
Aqaba Railway of Jordan	—	25	—	40,500	—	—	—	446	2,560,542	695
Hidjaz Jordan Railway	7	5	—	9,300	—	22,622	1.015	443	2,587	0.267
Tunisian Railways	—	225	6	274,884	315	28,268,000	1,038	5,604	11,789,000	2,225
Algerian Railways	—	229	15	420,590	585	50,241,000	2,234	10,322	9,488,542	2,279
Saudi Arabia Railways	—	59	—	95,188	54	442,327	131.35	2,280	1,975,539	875
Sudan Railways	—	138	—	221,500	688	533,173	70,381	3,421	1,765,000	1,677
Syrian Railways	—	184	—	222,722	483	1,954,410	567.4	4,319	4,037,524	1,190
Hidjaz Syrian Railway	3	3	—	3,645	47	7,934	0.716	323	—	—
Iraq Railways	—	408	—	811,500	433	7,722,530	3,228	11,065	5,411,465	1,928
Lebanon Railways	—	8	—	7,200	—	—	—	—	13,200	—
Egyptian Railways	—	839	35	1,366,490	3,280	668,201,000	463,380	11,468	14,166,000	4,017
Morocco Railways	—	144	101	4,73,590	586	28,268,000	1,881	9,335	28,141,688	4,679
Mauritania Railway	—	44	—	68,147	—	—	—	1,305	10,016,687	6,511

Waiting at Alexandria Station *(EJRCF)*

① 1700 km connecting Syria with Iraq and Mediterranean Sea with Arab Gulf
② 1860 km connecting Iraq and Oman via Kuwait and Saudi Arabia
③ 2560 km connecting Saudi Arabia and Jordan
④ 1700 km connecting Syria and Saudi Arabia via Jordan
⑤ 4000 km connecting Oman and Saudi Arabia via Yemen
⑥ 2300 km connecting Egypt and Sudan
⑦ 6200 km connecting Egypt and Mauritania via Libya, Tunisia, Algeria and Morocco.
⑧ 3000 km connecting Algeria and Mauritania.
⑨ 1500 km connecting Somalia and Djibouti and on to Yemen via Red Sea by ferry

It is estimated that 20,000 km of new track is needed to implement the above proposal. The Secretariat General has evaluated the required materials to be 2 million tonnes of rails, 34 million sleepers, 40 million m^3 of ballast, 136 million fastenings, and 7000 switches. These figures do not include requirements for stations, and signalling and telecommunication equipment, etc. The total re-

Figure 1 Existing (solid) and Proposed (dotted) Major Railway Axes Linking Arab Countries
(Numbers correspond with text)



(Source: Arab Union of Railways)

quired locomotive power is 4.125 million kW, pulling 10,000 passenger coaches and 70,000 freight wagons.

Difficulties

The Arab countries all face similar difficulties in developing and improving their railways, focused on the following points.

- Lack of government conviction. Governments of countries with no or limited railway networks have little interest in railway development, which hinders introduction of new lines.
- Increasing government emphasis on road and highway construction
- Necessity for massive capital investment at beginning of construction. The huge interest payments on massive investments constitute a major budget difficulty for governments oriented towards economic growth.
- Difficulty of obtaining private financing for projects with slow rates of return. The World Bank has not financed railway projects in Arab countries but has contributed to highway construction, explaining why Arab governments focus on road development.
- Through-traffic problems due to specification differences. This also weakens the profitability of railways.
- Lack of media emphasis of railway's safety, economic, social and environmental merits, compared to other transport modes

What Should We Do?

Some of the most important measures required to develop the railway sector in Arab countries are described below.

The Union should continue its efforts to complete the links between Arab countries and should ask the Council of Arab Transportation Ministers to include financing for the missing sections in their national budget plans.

The standards and technical specifications prepared by the Union should be adopted. These specifications are in harmony with international railway standards and adoption will facilitate transit traffic between Arab and neighbouring countries.

International, regional and Arab banks, especially the World Bank, should support railway projects in and between Arab countries.

Countries like Japan with advanced railway technology should assist projects in Arab countries by technology tranfers, and dispatch of experts, and their governments should conclude bilateral aid agreements.

International manufacturers of railway equipment, and railway construction companies should focus on the Arab market to supply materials and equipment based on international financing and government agreements. This may also be possible through local or joint-venture companies like in Egypt.

Specialist Japanese companies should participate in Union symposia to broaden their knowledge of Arab railways and to open up new opportunities for cooperation.

The Arab media should focus on the importance of the railway sector. They should promote the economic, social, environmental advantages of the railway mode and especially its safety.

Crossing tracks anywhere in Cairo *(EJRCF)*

Current International Cooperation and Requirements

Recently, transport sectors other than the railway sector have benefited from international cooperation. However, more international cooperation will be required to establish effective links to Arab networks. Since the EU has recently paid more attention to a possible railway link between Spain and Morocco via Gibraltar, completion of the main railway axes between Arab countries will permit through traffic to Europe via Turkey, to Asia through Iran, and to Africa. In this way, the Arab Union of Railways will reach its target of '...constructing an integrated, complete and advanced railway network'. ■

Mourhaf Sabouni

Mr Sabouni is Secretary General of the Arab Union of Railways. He graduated with a degree in mechanical engineering and joined Syrian Railways where he served as Deputy Director General until 1983, before being appointed to his current position.