

# Trans-Asian Railway

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## Introduction

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) is the main general organization for UN activities in the Asia-Pacific region. It was established in 1947 as the Economic Commission for Asia and the Far East to assist in post-war reconstruction, and was given its present name in 1974 to reflect the much broader developmental goals and geographical reach that it had acquired by then.

Its mandate was broadened further in 1997 by the UN General Assembly which recognized ESCAP and other regional commissions as the main general economic and social development centers within the UN for their respective regions, and as executive agencies for inter-country development projects in their own right.

In the railways field, ESCAP has been promoting the Trans-Asian Railway (TAR) project in order to facilitate regional trade and tourism.

This article summarizes the TAR progress.

## History

The objective of the TAR project, initiated by ESCAP in the 1960s, is to assist in providing a basic rail link between Singapore (Indonesia was included at a later stage) and Istanbul which would also provide a connection between Asia and Europe/Africa. The main direct route connecting Singapore with Istanbul is 14,000-km long. Currently, the total length of missing links is around 1950 km, comprised of 1400 km between Bangladesh and Thailand and 450 km in the Islamic Republic of Iran between Kerman and Zahedan. Consequently, the total new construction work is approximately 14% of the direct route.

It was also planned to connect land-



ESCAP 51st session in Bangkok

(ESCAP)

locked countries with main ports in neighbouring territories by extending branch lines into Afghanistan, the Lao People's Democratic Republic, and Nepal.

An important aspect of the projected network was the provision of train ferry services between Sri Lanka and India, across the Brahmaputra River in Bangladesh, across Lake Van in Turkey and between Penang in Malaysia and Belawan in Sumatra, Indonesia.

The network intended to use existing tracks and facilities, construct missing sections, secure operational compatibility, and adopt common technical standards for rolling stock and fixed installations. A preliminary appraisal of the traffic potential and financial viability established that the network would be essentially freight oriented. Pre-feasibility studies have been completed on all the network railways, but detailed economic feasibility studies are still required for a number of sections to be linked.

With the completion of the lines through the Gotur Valley in 1971, an additional international connection between Turkey and Iran provides a direct rail link between the Middle East, Europe and the

western part of the region. The route from Iran to Europe via the Russian Federation has also been improved.

TAR has been demarcated into three distinct regions based on the existing rail gauges, namely the standard gauge of 1435 mm in Iran, the broad gauge of 1676 mm in Bangladesh, India, Pakistan and Sri Lanka, and the narrow gauge in Bangladesh, Cambodia, Malaysia, Myanmar, Singapore, Thailand and Viet Nam. For through traffic, the trans-shipment requirements at the break-of-gauge points must be considered.

Apart from its other advantages, the railway would greatly shorten the distances between some international trade and passenger traffic centres.

Until 1976, all the project-related activities were coordinated by ESCAP funded by the United Nations Development Programme (UNDP). The project's activities, with UNDP technical support, included studies and surveys for railways of the network countries. In addition, meetings of the Working Party of Experts on TAR, and the Asian Railway Master Plan were convened to oversee the progress of the project, and to formulate new programmes of work and priorities. UNDP financial

support terminated in 1976.

Two expert group meetings were held in 1982 and 1988.

In general, the TAR project has the following major development problems:

- Several missing links
- Different railway gauges
- No definite line standards/requirements
- No measures for facilitating traffic

TAR routes were envisaged from ASEAN countries to Europe via South Asia and Iran, but have been held over since 1970 because Myanmar did not become a party to the project until 1996 making it impossible to connect the rail networks between Bangladesh and Thailand via Myanmar.

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### New Developments

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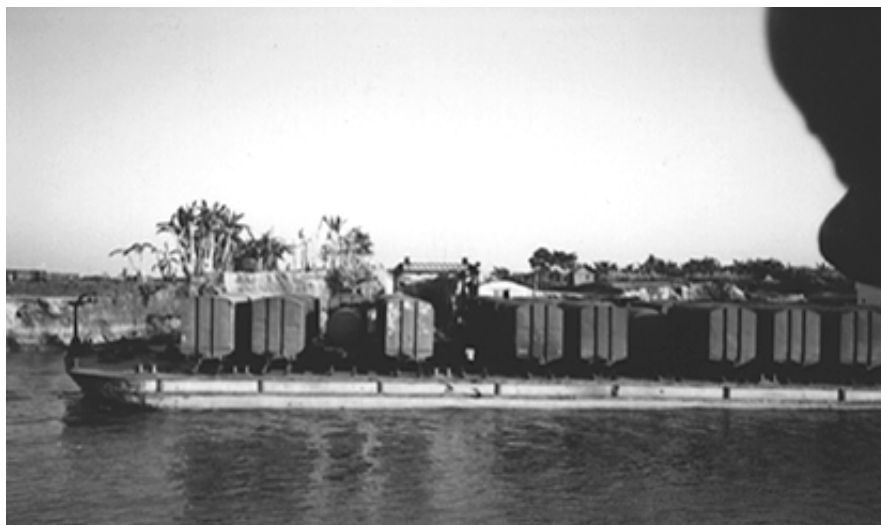
The dramatic political, economic and technological changes that have occurred in the region since the early 1980s have resulted in a new and keen interest in improving and strengthening intra- and inter-regional land links in Asia.

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### ALTID Project

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At its forty-eighth session in Beijing in April 1992, ESCAP noted that trade to and from the Asia-Pacific region was growing at double the world rate. It also noted that tourism and business travel in the region had increased, which in turn placed increased demands on the region's transport and communications infrastructure. While trade with the rest of the world retained its importance, a salient feature of the region's trade growth in recent years has been the steadily growing significance of intra-regional trade (nearly 50% of overall trade), indicating a need to improve and expand transport and communications links, particularly land links, within the region as well as with other regions. The develop-



Missing link—train ferry crossing River Jamuna in Bangladesh

(K. Yoshikawa)

ment and strengthening of intra- and inter-regional transport and communications links was a major objective of Phase II (1992–1996) of the Transport and Communications Decade for Asia and the Pacific.

To achieve the Decade objectives for land transport in Asia, in 1992, ESCAP endorsed both the integrated project on Asian Land Transport Infrastructure Development (ALTID), comprising projects on the Asian Highway, TAR, and facilitation of land transport, as proposed by the Intergovernmental Meeting of Highway and Railway Officials on Asian Land Transport Infrastructure Development in Bangkok in December 1991. The project was accorded priority as a regional project for Phase II of the Decade. However, it became evident that due to the scope of ALTID, the different status of land transport development in the relevant countries and subregions, and the limited availability of resources, implementation of the project would require a special approach and strategy.

The ALTID implementation strategy focuses on the most promising areas, with the aim of maximizing use of existing land transport infrastructure, establishing efficient cooperative arrangements at the subregional level, and optimizing utilization of limited available resources. The strategy comprises the following components:

- Facilitation of land transport at border crossings by promotion of relevant in-

ternational conventions and agreements in the region, particularly in Asia, as an important basis for the development of international trade and tourism.

- Major emphasis on project implementation at the subregional level.
- A step-by-step approach, through studies of corridors and other aspects of land transport development, to assist in formulation of the rail and road network and to establish minimum route (road and rail) standards and requirements.
- Cooperation with other international organizations, particularly with the Economic Commission for Europe (ECE), to avoid duplication of work and to ensure eventual compatibility of road and rail standards and requirements in Asia and Europe.

The project enjoys support from 25 ESCAP members in Asia; Armenia, Azerbaijan, Bhutan, the Democratic People's Republic of Korea and Viet Nam are still considering joining the project. After the completion of the Transport and Communications Decade programme in 1996, and the adoption by ESCAP of the New Delhi Action Plan (NDAP) on Infrastructure Development (1997–2006), the ALTID project now forms an integral high-priority part of Phase I (1997–2001) of the NDAP Regional Action Programme.

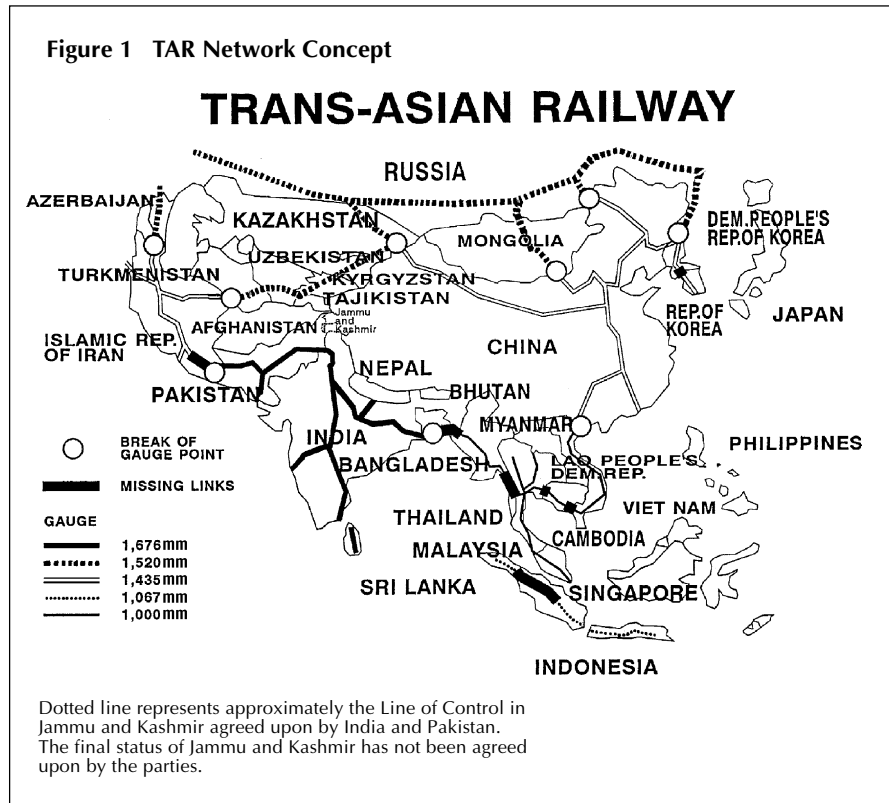
## ESCAP Assistance with TAR

### TAR Network formulation

With regard to formulation of the TAR network, the following were completed during 1994–1996:

- Feasibility study on rail network connecting China, Kazakhstan, Mongolia, Russian Federation and Korean peninsula
- Study on developing land transport links from Kazakhstan, Turkmenistan and Uzbekistan to seaports in Iran, Pakistan and China
- Project on TAR in Indo-China and ASEAN subregion
- Preliminary study on TAR southern route in Iran–South Asia corridor
- Study on land transport corridors between Central Asia and Europe

Figure 1 shows the TAR network concept.



### TAR Route requirements

The route requirements (loading gauge for containers, axle load and average minimum speed) have been established for the TAR northern route based on the feasibility study of a rail network connecting China, Kazakhstan, Mongolia, the Russian Federation and the Korean peninsula, as well as for the narrow-gauge

(1000 and 1067 mm) segment based on the TAR project in Indo-China and the ASEAN subregion. Route requirements for the TAR southern route (Iran–South Asia) were suggested by the Ad Hoc Expert Group Meeting on TAR Route Requirements for the Southern Corridor, held in Bangkok in December 1995.

### Asia-Europe land bridges

TAR routes offer reliable and efficient services to freight traffic between north-east Asia and Europe. The network includes a number of major land bridges between Asia and Europe, as follows:

#### Europe to NE Asia via China or Russian Federation

The feasibility study on connecting the rail networks of China, Kazakhstan, Mongolia, the Russian Federation and the Korean peninsula investigated a number of routes on this corridor, which has onward connections to Western Europe. These routes also give Central Asian countries and Mongolia access to seaports in China, the Korean peninsula and the Russian Federation.

The routes forming the corridor have only two track gauges: the 1435-mm gauge in Europe, the Korean peninsula and China, and the 1520-mm gauge in Mongolia, Kazakhstan and the Russian Federation. Currently, ships ply the Asia-Europe routes in about 30–35 days. To be competitive, the TAR land bridge should of-



Mixed-gauge (1435/1520 mm) track at Druzhba Station near Kazakhstan–Chinese border

(S. Otsuka)

fer transit times at least seven days shorter than current times, because it is unlikely that customers would switch modes and accept the associated costs based on only marginally-improved transit times. Therefore, the target transit time should not exceed 23–28 days. Achieving these transit times, requires an average minimum speed of 39 km/h. However, to allow for future improvements in ship services and the need for freight trains to run at speeds as close as possible to passenger trains for reasons of efficient slot allocation, TAR should aim for an average speed of 45 km/h.

Potential capture of East Asia-Europe container traffic is estimated in the table below. The Expert Group Meeting in Bangkok in October 1995 concluded that the feasibility study on connecting the rail networks of China, Kazakhstan, Mongolia, the Russian Federation and the Korean peninsula was an important step in the development of land transport infrastructure in the region as a part of the ALTID project.

The meeting also noted the study clearly indicated that rail container traffic between North-East Asia and Europe is not only possible but could be highly competitive with the sea routes if a proper package of transit times, tariffs and services is offered. The study suggested ways to develop such a package of practical interest to railways in the participat-



Laying new track across Karakumy Desert (Turkmenistan) to extend northwards

(S.Otsuka)

ing countries.

ESCAP finalized the report on the feasibility study and published it in 1996.

As an important step in putting the identified TAR routes into operation, the meeting recommended ESCAP to explore the possibility of implementing a container-transport demonstration project in the near future in the TAR northern corridor, in close cooperation with related agencies.

*TAR Southern corridor*

The same Ad Hoc Expert Group meeting considered the route requirements (loading gauge, axle load, transit times) for the TAR southern corridor linking Iran, Pakistan, India, Bangladesh, Nepal and Sri Lanka, including rail connections to Central Asia.

The meeting noted that the preliminary study on development of a TAR southern corridor was an important step in the de-

velopment of land transport infrastructure in the region as a part of the ALTID project. The study indicated that rail container traffic between South Asia and Europe, as well as between South and Central Asia would be technically possible upon completion of the rail link between Kerman and Zahedan in Iran. The potential of these rail land bridges to be highly competitive with sea and sea-and-land routes was noted. However, the meeting felt strongly that further action will be necessary to help put the TAR southern corridor into operation. ESCAP finalized the report and published it in 1996.

As the next step, a detailed study on the TAR southern corridor is scheduled for 1997 and 1998 with the aim of developing a Draft Operationalization Plan. The study also intends to identify possible routes between India/Bangladesh, and Myanmar/China, as well as between Iran/Pakistan and the Central Asian Republics.

**Possible Asia-Europe Container One-way Traffic (1000 twenty-foot equivalent units)**

Year	China		S. Korea		Japan		Far eastern Russian Federation		Total TAR northern corridor	
	A <sup>(1)</sup>	B <sup>(2)</sup>	A	B	A	B	A	B	A	B
1995	16	16	27	27	82	82	1	1	126	126
2000	24	37	43	65	128	196	1	2	196	301
2005	38	89	66	156	200	469	2	4	306	718

(1) Pessimistic projection  
 (2) Optimistic projection



## TAR in Indo-China and ASEAN

The TAR network in Indo-China and the ASEAN subregion is a special case, because the railways are narrow gauge (1000 or 1067 mm).

Consequently, this part of the TAR network must be evaluated as an independent network. However, it could be connected to the northern corridor via southern China which is linked to the Viet Nam railway system. Ultimately (when the remaining gaps in the network have been closed), traffic originating in Singapore and Indonesia could join the main Chinese north-south trunk line. There are also plans for railway construction in the Lao People's Democratic Republic as well as the interconnection of the railways of southern China, Myanmar and Thailand.

The project is designed to assist the developing countries in Indo-China and the ASEAN subregion in formulating a TAR network and in determining route standards and requirements, as well as promoting rail transport.

A policy-level expert group meeting in Bangkok in February 1996 concluded that the rail network linking Cambodia, Yunnan Province of China, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, Thailand, Singapore and Viet Nam constitutes an important part of the TAR network with promising potential to facilitate international trade and tourism in the subregion.

The meeting noted that rail container traffic in the subregion is not only possible but could be very efficient if proper transit times, tariffs and services are offered; it endorsed an Action Plan for development of TAR in Indo-China and the ASEAN subregion.

### Links to seaports

A study was completed in 1994 to assist land-locked Central Asian republics in identifying routes to seaports in Iran, Pakistan, and China. Identification of land transport problems and improvement



Start of TAR southern corridor at Singapore Station. Main line stations and tracks in Singapore are owned by Malay Railways (KTM). (EJRCE)

measures were another important part of the study, which was carried out in close cooperation with the Economic Cooperation Organization (ECO) secretariat. The major findings and recommendations were presented to the Fourth Meeting of the ECO Committee for Cooperation on Transport and Communications in Ankara in December 1994.

### 1996–1997 TAR Activities

In view of the importance of reliable and efficient regional and inter-regional land transport links and measures to facilitate international trade and tourism, the Ad Hoc Intergovernmental Meeting on Phase II (1992–1996) of the Transport and Communications Decade for Asia and the Pacific stressed the need to continue the ALTID project beyond the Decade.

At its 51st and 52nd sessions in 1995 and 1996, ESCAP reiterated its strong support for the ALTID project.

The ALTID Plan of Action for 1996–1997

includes the following TAR-related projects and activities:

- Study on land transport corridors between Central Asia and Europe (on-going)
- Container transport demonstration project in TAR northern corridor
- Study on development of TAR southern corridor for Asia-Europe routes
- Study on connecting land-locked Central Asian countries to Bandar Abbas port in Iran, and seaports in China
- Publishing reports on TAR route requirements and land transport corridors between Central Asia and Europe (1996)

ESCAP activities relating to TAR are expected to include the following aspects:

- Putting existing TAR routes into operation
- Facilitating rail traffic
- Completing missing links
- Developing TAR database
- Concluding ESCAP regional agreements on TAR routes through step-by-step (subregional) approach. ■



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