ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

TRANSPORT AND COMMUNICATIONS BULLETIN FOR ASIA AND THE PACIFIC

NO. 67

UNITED NATIONS

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

TRANSPORT AND COMMUNICATIONS BULLETIN FOR ASIA AND THE PACIFIC

NO. 67

UNITED NATIONS
New York, 1997

ST/ESCAP/SER.E/67

UNITED NATIONS PUBLICATION

Sales No. E.98.II.F.43

ISBN 92-1-119810-0

ISSN 0252-4392

CONTENTS

TARIFF COMPETITIVENESS OF TRANS-SIBERIAN RAILWAY IN ASIA-EUROPE CONTAINER TRANSPORT

Dr. K.V. Kholopov
Professor
Foreign Trade Academy
Moscow
Russian Federation

Land transport corridors between Asia and Europe are increasingly important in facilitating international and bilateral trade. ESCAP resolution 52/9 on intra-Asia and Asia-Europe land bridges is, therefore, an important document to assist in providing reliable and efficient land transport routes between the two continents.

Among these routes, the Trans-Siberian Railway (TSR) plays a key role in transit traffic via the Russian Federation.

As estimated by the World Association of Export-Import Zones, TSR is capable of servicing up to 30 per cent (about one million containers a year) of container traffic between Europe and the Asia-Pacific region (APR).

However, economic difficulties of the transition period in the Russian Federation, increasing competitiveness of sea transport on routes between North-East Asia and Europe and the development of the alternative land transport routes as part of the Trans-Asian Railway network, caused a decline in transit traffic via the country. Container traffic on TSR reduced from 186,500 containers in 1981 to 44,500 in 1996.

In spite of such a development, the existing transport infrastructure of TSR provides a necessary basis to attract new traffic flows and increase transport volumes. Trends in the development of economic and trade relationships between Europe and the Asia-Pacific region indicate a potential of the increased transit traffic (4-5 times higher as compared to volume in 1996) by TSR.

At present, besides Trans-Siberian Railway, transport support to international trade between Europe and Asia-Pacific region is provided by:

(a) Sea transport, particularly those shipping companies which are member of Far East Shipping Conference.

(b) Trans-Asian Railway network and, first of all, its route from the port of Lianyungang, China to the border station of Druzba, Kazakhstan from which the following routes could be used:

(i) Kazakhstan – Russian Federation – Europe;

(ii) Kazakhstan – Uzbekistan – Turkmenistan – (new line Tedjen – Seraks – Meshad) – Islamic Republic of Iran (from the Islamic Republic of Iran, it could be sea transport from the port of Bandar Abbas or rail route via Turkey, to Europe);

(iii) Kazakhstan – Uzbekistan – Turkmenistan – (ferry Turkmenbashi – Baku across the Caspian Sea) – Azerbaijan – Georgia – (ferry Poti – Iliaychovsk across the Black Sea) – Ukraine – Europe.

There are some other transport routes linking Europe and the Asia-Pacific region such as a rail transit line from China via Mongolia to TSR, or sea-cum-land routes using seaports of the Islamic Republic of Iran and a rail connection to Europe.

The strategic geographical position of the Russian Federation with its well developed transport infrastructure constituted an important factor in the development of Asia-Europe transit traffic via its territory. At the end of the 1980s, for example, volume of international transit traffic via the Russian Federation exceeded 4 million tonnes (table 1), but with a negative trend from 1988 to 1995.

Table 1. International transit traffic via the Russian Federation (former USSR), 1987-1996

(Millions of tonnes)

1987	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
3.0	4.5	4.1	3.7	2.5	1.0	0.8	0.6	0.3	0.3

Among factors causing such a decline in traffic also are:

– Splitting up of the transport system of the former USSR due to emergence of new independent states, economic and political problems in the Russian Federation as well as in some other states along the transit route.

Often change of railway tariffs, mainly to increase rates.

Increase of transit time and cases of goods pilferage.

Composition of transit traffic via the Russian Federation has changed dramatically during the last 10 years. At the end of 1980s transit traffic in containers constituted only a third of the total volume of transit traffic, but it is now exclusively container traffic.

Basic Asia-Europe corridors involving TSR are:

(a) Lujaika (Finland/Russian Federation) – Naushki (Mongolia) or Zabaikalsk (China) or Port of Vostochny;

(b) Tallin – Pechory Pskovskie (Estonia/Russian Federation) – Zabaikalsk or Vostochny;

(c) Riga – Posin (Latvia/Russian Federation) – Vostochny;

(d) Brest – Krasnoe (Belarus/Russian Federation) – Naushki or Zabaikalsk or Vostochny;

(e) Chop – Solovey (Ukraine/Russian Federation) – Naushki or Zabaikalsk or Vostochny;

(f) Ungeny (Moldova/Ukraine) – Solovey (Ukraine/Russian Federation) – Naushki or Zabaikalsk or Vostochny.

71 per cent of total volume of traffic handled at Lujaika goes to TSR as well as 52 per cent from Riga and Tallin; 59 per cent from Brest and 10 per cent from Chop and Ungeny.

Transit traffic on TSR is illustrated by data in table 2 on border-crossing traffic at border stations of Naushki (with Mongolia), Zabaikalsk (with China) and the port of Vostochny. In some years stations of Hasan and Grodekovo as well as ports of Vladivostok and Vanino were also a part of the process, however, their role was not significant.

As tariffs are a main factor in competitiveness of a transit route, the existing tariff policy also contributed to the reduction of transit traffic volume on TSR. Speaking about competitiveness of any route, *cost of transportation* is usually taken first into consideration. This cost depends on pricing and real level of tariff.

Table 2. Transit traffic on Trans-Siberian Railway

(Tonnes)

Border stations	*1988*	*1990*	*1994*	*1995*	*1996*
Naushki-total	*358,400*	*258,300*	*90,400*	*15,000*	*4,000*
In	237,100	205,000	72,000	5,000	1,000
Out	121,300	53,300	18,400	10,000	3,000
Zabaikalsk-total	*163,600*	*80,900*	*3,000*	*900*	*300*
In	92,300	45,000	1,900	500	200
Out	71,300	35,900	1,100	400	100
Vostochny-total	*1,046,700*	*682,600*	*532,100*	*133,000*	*139,000*
In	485,100	346,400	67,500	42,000	68,000
Out	561,600	336,200	464,600	91,000	71,000

Tariffs are economic mechanism of the implementation of the state transport policy. From one side tariffs should objectively reflect interest of clients, and from the other side – the quality of the transport product.

In principle, transport policy of any country in the field of transit transportation should reflect two major dimensions, namely, transport and economy as a whole as well as transport and on-going globalization processes.

It means that for economic and social development of the Russian Federation tariff policy on transit via TSR should facilitate the strengthening of economic links of the far eastern part and Siberia with the European part of the country, and also to contribute to the social development through new jobs creation, infrastructure development, etc.

Of equal importance is its contribution to globalization processes. The increasing volume of transit on TSR will result in a reliable transport corridor between Europe and the Asia-Pacific region, particularly if to take into account that about 90 per cent of total transit volume is ISO type container traffic.

Railway transport system on the territory of the former USSR still exists except for Baltic States (Baltic republics of the former USSR). In spite being managed by the independent states within their national borders, railway system within CIS applies same technology, use common wagon fleet, follow common timetable for interstate transportation and much more.

A main feature, however, is the common tariff policy on transit and foreign trade transport on railways of CIS which has been developed and agreed upon. Such a document under title of "Tariff Policy" is considered and approved by the heads of national railway administrations on an annual basis. Participating countries are Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

Railway transit tariffs of the CIS countries are based on two tariff systems – Common transit tariff (ETT) and International transport tariff (MTT).

Common transit tariff was developed in 1951 by the Committee for Mutual Economic Assistance (CMEA). It was used to establish rates for transit traffic across CMEA member countries. At present, the application of ETT is limited. ETT initially was established at the level of the lowest national railway tariffs in Europe (1951) and in its last edition (1 July 1991) rates were simply converted into hard currency. Basic ETT

rate is $US0.0115 per one tonne kilometre. It does not change with the distance. In other words, is simply multiplied by the factual distance travelled. Initially all the goods were divided into two classes (class I – ready products and similar, and class II – raw materials).

However, ETT was then recognized by countries as a factor limiting their revenue from transit traffic. Consequently the European socialist countries had developed and introduced MTT in 1977. Currently used MTT was introduced in 1 January 1991. Tariff currency of MTT is Swiss Franc.

In MTT, all the goods are divided into two classes depending on their value. Tariff rate for class 1 freight is 30 per cent higher than for class II goods. Basis MTT rate for class I freight is an average rate of similar tariffs of 12 leading European countries. It equals to 13 Swiss centime for one tonne kilometre for up to 100 km of distance. MTT rate is differentiated depending on distance as follows:

Distance (up to) (km)	*100*	*300*	*500*	*700*	*900*	*1,100 and more*
Rate (percentage)	100	94	90	87	83	80

In accordance with the tariff policy of the CIS member countries, transit rates are established as follows:

1. Transit (in/out of) China, Democratic Republic of Korea, Mongolia, Viet Nam:

   1.1 Freight in containers – 0.6 MTT rate.

   1.2 Other freight:

   (a) Class I freight – 0.6 ETT rate.
   (b) Class II freight – 0.8 ETT rate.

2. Transit (to/from) the Islamic Republic of Iran:

   2.1 Via Caucasus and Russian Federation ports on the Caspian Sea:

   (a) To/from Finland – 0.7 MTT rate.
   (b) To/from other countries – 0.5 MTT rate.

   2.2 Via Turkmenistan and port of Volgograd, Russian Federation – 0.4 MTT rate.

3. Transit to/from Afghanistan – 0.4 MTT rate.

4. Transit to/from Turkey – full MTT rate.

5. Transit to/from Finland – 0.5 MTT rate.

6. Transit to/from Baltic States – 0.5 MTT rate.

7. Transit via Russian Federation seaports in far east:

   (a) Freight in a container – 0.5 MTT rate.
   (b) Other freight – 0.7 MTT rate.

In general, there is a number of factors influencing through transit rates. In order of their importance, they are: mode of transport (transportation costs); distance; traffic volume; type of freight (mass to volume ratio, packaging); certain qualities of freight such as its value, probability to be a subject of pilferage or to be

damaged en route; actual availability of freight (readiness to be transported); possibility of freight transportation from other sources; number of transhipment points (costs of loading/unloading and storage); special conditions such as just-in-time delivery; insurance; port, road and railway tax; customs tax, etc; possibility of getting freight for transportation back; fees of freight forwarders, etc.

For TSR as a major route between Europe and the Asia-Pacific region speak the following: rail-cum-sea route with low cost of transportation; route distance; traffic flow and its trend to increase. However, in comparison with sea routes, there are two transhipment points (in the far east seaports and at western border of the former USSR owing to different railway gauges).

Container traffic, in general, constitutes the main part of transit traffic. For such a traffic, the following container tariffs are used:

1. FAK (freight all kinds) rate – when all goods in a container are taxed by a single common rate. Attractive to transport companies, it is not so attractive to clients sending inexpensive goods.

2. CBR (commodity box rate) rate – these rates are calculated/transformed from the rates for weight and volume of goods to the rate for a container.

3. TVC (time volume contracts) rate. First, TVC rate is established as FAK rate. Then for considerable volume of freight a discount system is applied. For example, the FAK rate is established for up to 50 containers. Next 50 containers are taxed with a discount, next 50 containers – with a bigger discount and so on.

On the Trans-Siberian Railway, FAK and TVC rates are used. First a rate for one container is established independent of value and quantity of goods in it. When a number of containers is enough for a block-train (60 and more containers) transit tariff for all containers is reduced by 10 per cent. A block-train is a train which goes as one unit from ports at far east of the Russian Federation to western borders of the former USSR.

The establishment of a through tariff is a main activity of a multimodal transport operator (MMTO). It is applied for the whole route taking into account various modes of transport involved, storage, customs formalities, documentation, etc. According to terms of agreement, MMTO charge for services either sender or receiver of the freight. Then MMTO pays all the parties involved in transportation.

Tariff on multimodal transportation takes into account all the particularities of a given route. Each multimodal transport operator works in its market of transport services covering concrete transport corridors. "Trans-Rail", "Apparel", "Souztranzit", "Souzvneshtrans", "Trans-sib express" are the major operators on TSR.

It should be also noted that a through tariff is not possible to establish for "door-to-door" services in spite of a client's desire to have such a rate. It is because of number of routes from all origin points in APR to destination points in all Europe is tremendous. In addition, it is not sufficient to have a rate for a given section of a route. For example, "a deep sea free in and out" rate for a route Yokohama-Rotterdam does not reflect a real cost of a container transportation for a section Kyoto-Berlin.

Usually, a responsible operator not only announces a rate for the whole route, but also explains its composition. For example, in case of a route between Kyoto and Berlin along with a rate of say $US2,300 per container such additional information includes costs of: land transport to the port; storage and handling in the port; customs duty; freight forwarder's and agent's charges in the port; transportation by sea to the port of Vostochny; handling in this port; transportation by rail to the station of Brest; transhipment in Brest into the rolling stock of standard (European) gauge; rail transport in Poland and Germany; unloading in Berlin, etc.

With such information in hand, a client makes its analysis and decides whether to use services of the given transport system or not.

National railway lines or sections of international importance are usually parts of a transcontinental transit corridor. Transit tariff, however, may differ from national tariffs. For example, transit tariff on TSR in Belarus and the Russian Federation are remarkably lower.

Tariffs could be also published or not in accordance with related rules in a country. In the Russian Federation and other CIS members tariffs are open and published by mass media, and show not only rates but their changes. During 1996-1997, transit container tariffs in CIS countries became lower.

A through tariff of MMTO should not be a sum of tariffs of all the parties involved in transportation process plus a charge for services of the operator. With such an approach, an operator could not be in a position to compete with other operators.

Tariff rate should be established by consensus of the operator and his agents and it should be attractive to increase container flow on a route.

Another cost factor is transit time. Sometimes it is important that transit time should be less than on other alternative routes. There are many methods of costing relating to transit time. For example, through: value of freight mass "on wheels", speed of circulation of financial resources allocated to the transportation, an additional revenue which could be reached due to shorter time of freight delivery.

In principle, it appears that the northern route of Transport-Asian Railway (using TSR) could be very efficient, as only 10 years ago 150,000 TEU were transported along the route. At present, there is a need, however, to confirm that TSR is still attractive to clients as well as to transport operators.

In general, tariff competitiveness of transit container traffic should be established for every major land bridge between Asia and Europe. Such an exercise should be apparently carried out on a priority basis on all the routes of the northern corridor of Trans-Asian Railway as an important follow up to the successfully complete ESCAP study on rail network connecting China, Kazakhstan, Mongolia, the Russian Federation and the Korean peninsula.

Editorial note:

As far as the northern corridor of Trans-Asian Railway is concerned, ESCAP in close cooperation with the Organization for Railways Cooperation (OSShD) launched in 1996 "The Container Transport Demonstration Project in the Northern Corridor of Trans-Asian Railway" with objectives to: (I) determine the required package of transit times, tariffs and services to be competitive with sea routes; (ii) demonstrate the efficiency and competitiveness of the TAR routes as compared with the related sea routes. The tariff competitiveness of the routes constitutes an important part of the study.

STRATEGIES ON DEVELOPING VIET NAM RAILWAYS UP TO THE YEAR 2000 AND BEYOND

Mr. Nguyen Trong Bach
Deputy General Director
Viet Nam Railways

I. BRIEFING ON CURRENT CONDITION OF VIET NAM RAILWAYS

Viet Nam Railways is a state-owned enterprise authorized to manage and operate the railway network throughout the country as well as market and provide freight and passenger services and ancillary services in Viet Nam.

1.1 VR's route network:

Viet Nam Railways network (Figure 1) total 2,600 km linking all Vietnamese main population, cultural, agricultural and industrial centres. It connects with the Chinese railway network of standard gauge at Lang Son and with the metre-gauge network in the land-locked province of Yunnan at Lao Cai. There is also potential to link up with railway networks of Cambodia, Thailand and Malaysia to reach Singapore and potential rail routes in the Lao People's Democratic Republic.

The main trunk line of 1,726 km runs north to south linking Hanoi, Thanh Hoa, Vinh, Hue, Danang, Nha Trang and Ho Chi Minh cities. Four railway routes and two branches in the northern part of the network connect Hanoi with Hai Phong and Hai Phong port, Lang Son, Lao Cai, Quan Trieu, Pom Han and Mai Pha while other route links Kep, Uong Bi and the developing deep seaport of Cai Lan. The length of main rail routes of VR's network with its track gauge is shown in Table 1.

Table 1. Length of major routes of Viet Nam Railways

Main Routes	*Route Length (km)*	*Track Gauge*
Hanoi – Ho Chi Minh City	1,726	1,000 mm
Hanoi – Hai Phong	102	1,000 mm
Hanoi – Lao Cai	296	1,000 mm
Hanoi – Dong Dang	162	1,435/1,000 mm
Hanoi – Quan Trieu	75	1,435/1,000 mm
Kep – Uong Bi – Ha Long	106	1,435 mm
Luu Xa – Kep	57	1,435 mm

1.2 Viet Nam railways organization

Before 1989, a governmental department, then called the General Department of Railways of Viet Nam in Hanoi, owned and operated the whole railway system throughout the country. In 1989, it was reorganized into Viet Nam Railways, a state-owned enterprise, operating in pursuit of free market principles.

VR's organization consists of 5 functional groups: Transport, Construction, Industrial, Infrastructure Management and Rail-related Services Groups. Figure 2 is VR's organization chart.

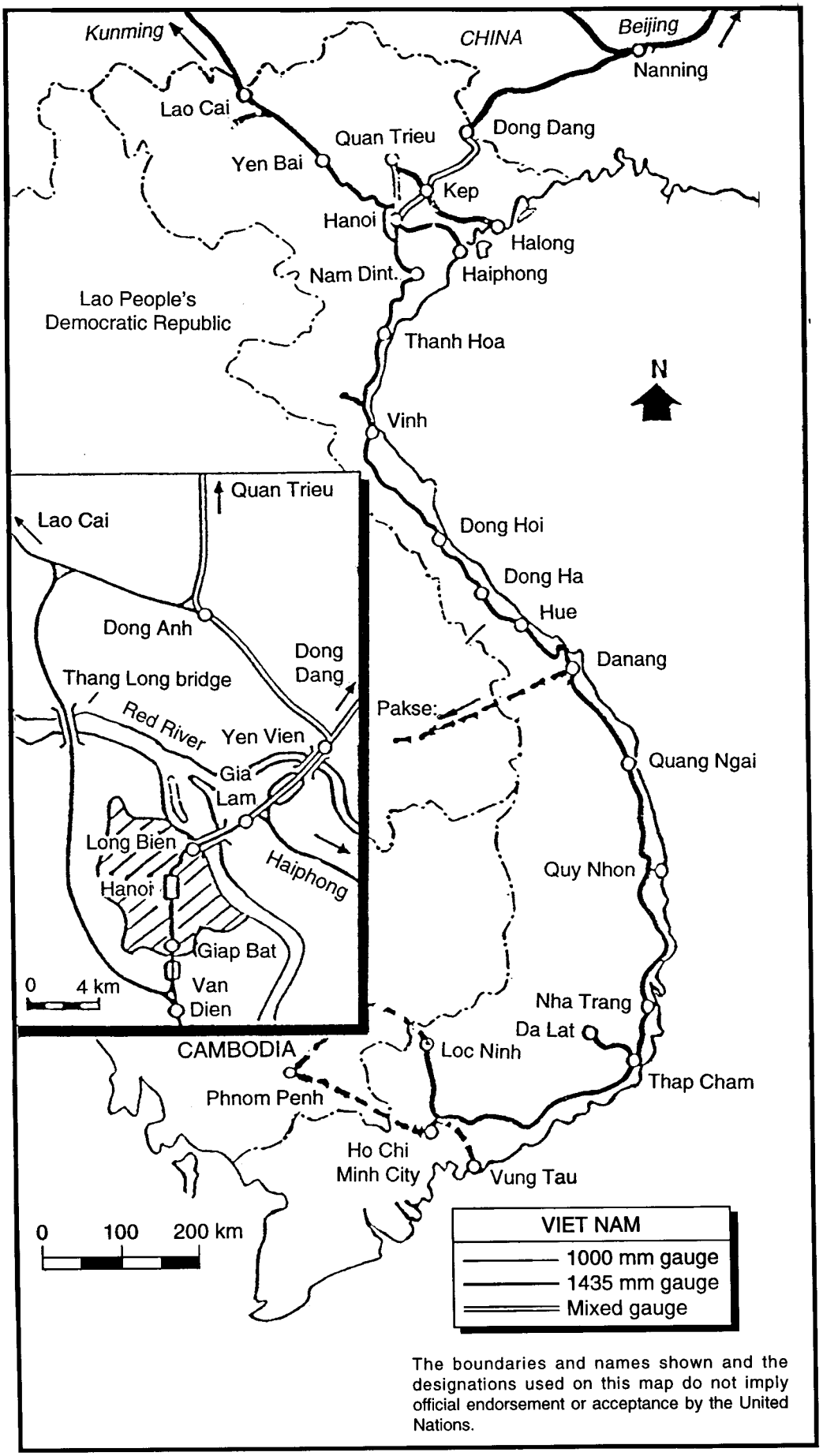

Figure 1. Viet Nam railway network

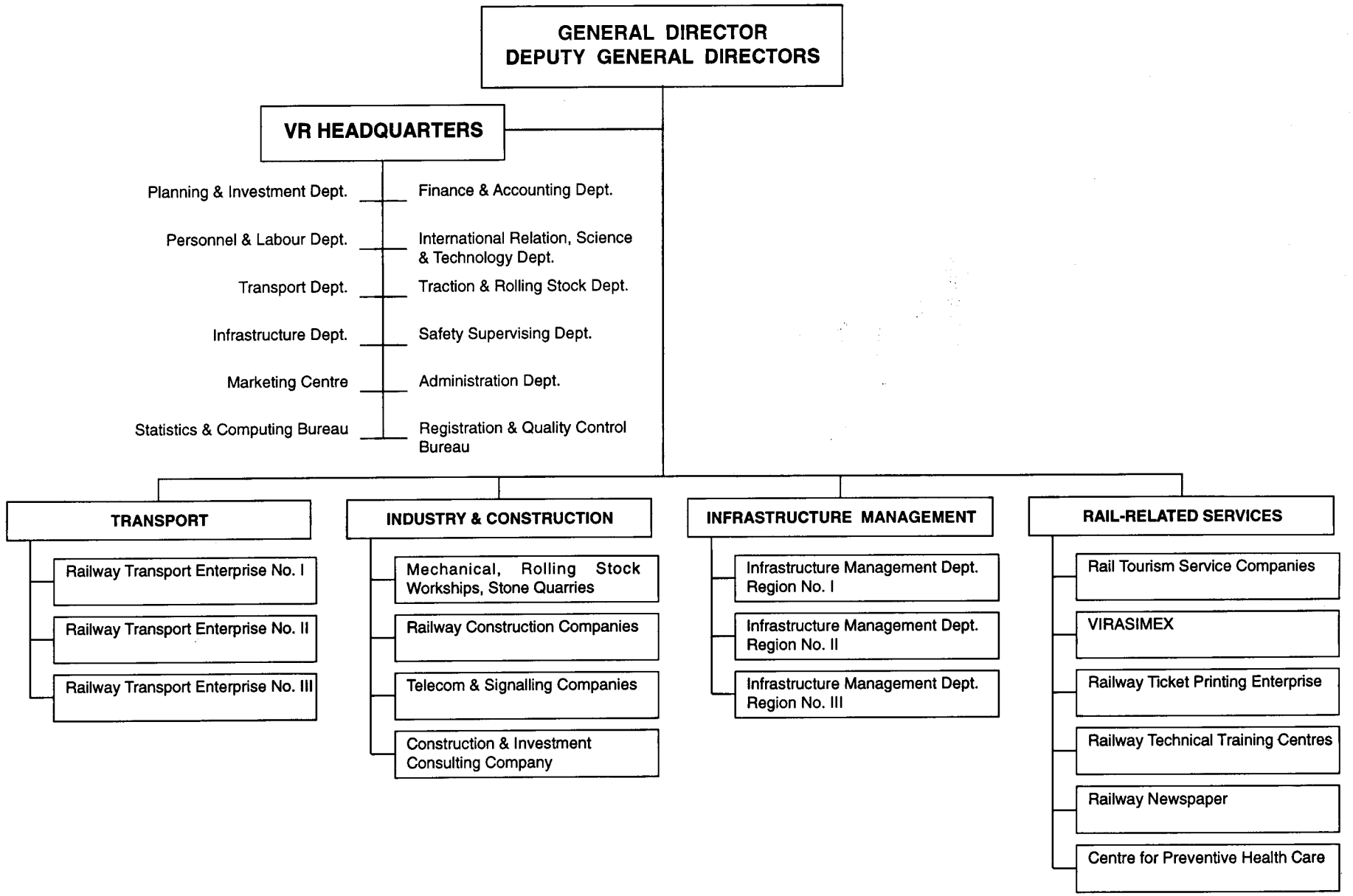

Figure 2. Organization chart of Viet Nam Railways

Viet Nam Railways divided its network into three regions and put each region under the management of each of its three rail transport enterprises (belonging to the Transport Group). They are Railway Transport Enterprise No. 1 (Union 1), managing and operating on the northern part of the network from the border with China to Dong Hoi; Railway Transport Enterprise No. 2 (Union 2), on the middle part of the network from Dong Hoi to Dieu Tri and Railway Transport Enterprise No. 3 (Union 3) on the southern part of the network from Dieu Tri to Ho Chi Minh City. VR's Headquarters in Hanoi are responsible for supervising and coordinating rail operations and the business activities of its three railway transport enterprises as well as supervising and directing its affiliated enterprises, companies. It is also responsible for railway development strategy and investment plans as well as modernization.

1.3 Railway infrastructure

1.3.1 Track:

The track gauges of the network are of 1,000 mm gauge, 1,435 mm gauge (standard gauge) and dual gauge (1,000 mm and 1,435 mm).

Main and Branch lines:		2,600 km
out of which:	1,000 mm track gauge:	2,169 km
	1,435 mm track gauge:	178 km
	Dual gauge:	253 km
Loops and sidings:		506 km
Total:		3,106 km

Major technical characteristics of main lines are:

Maximum speed: 70 km/hour

Track gauge: 1,000 mm

Minimum radius of curve: 97 metres

Maximum gradient: 17 per cent

Sleeper spacing:

For rail of 43 kg/m section – 18 sleepers/12.5 m

For rail of 30 and 27 kg/m section – 17 sleepers/12 m

Sleepers: Bio-block concrete sleepers, wooden sleepers and steel sleepers are used.

Rail: Rail of 43 kg/m section is used on most of the network. Rails with less than 38 km/m section are still used on 260 km of main line. Rails have not been welded.

Rail fastening: Rigid fastenings are predominantly used on the network. Recently elastic fastenings (Pandrols, Nabla type) have been used for trial on selected sections.

Ballast: The standard ballast thickness is 30 cm,

The standard ballast slope is 1:1.25

1.3.2 Bridges and culverts:

On the whole network, there are 1,767 bridges of 52,162.2 m long, of which aggregated length of bridges on the Hanoi-Ho Chi Minh City line accounts for 69.12 per cent of total bridge length.

They were mainly constructed during the period of French rule and some were destroyed and severely damaged during the wars which lasted for 30 years. Since the re-unification of Viet Nam in 1975 they have been repaired considerably. Many damaged spans have been replaced with temporary girders, such as VN64-71, YUKM which are joined with ordinary bolts.

At present there are 180 temporary steel girder bridges 18,084 m long, account for 35 per cent of total bridge length and of which the Hanoi Ho Chi Minh City line account for 59 per cent of total steel bridge length.

Many bridges on the network are under speed restrictions due to condition and trains have to reduce speed down to 30-15 km/hour or even 5 km/hour. On the network there are 300 bridges of 20,052 m long having speed limited to between 15 and 40 km/hour.

4,860 culverts – 71,439 m long.

1.3.3 Tunnels:

39 tunnels – 11,468 m long, of which 27 tunnels of 8,335 m long are on Hanoi-Ho Chi Minh City line. The same tunnel cross section is adopted for straight tunnels and curved tunnels.

Some of the problems encountered in the tunnels are:

Inflow of water due to malfunction of the original planned drainage system;

Unstable lining. In some cases there are cracks and or caving in the tunnel lining.

As a consequence, passing trains have a speed limit of 30 km/hour with some at 15 km/hour.

1.3.4 Signalling and telecommunication system:

Electric token block system with semaphore or colour light signals is installed on most of lines in the northern part of the network and on the section between Danang-Thap Cham on the Hanoi-Ho Chi Minh City line. The equipment is manufactured in Viet Nam based on a Chinese model.

Semi-automatic blocks have been installed on the sections between Hanoi-Danang and Thap Cham-Ho Chi Minh City and as scheduled the installation of the whole line will be completed by the end of 1997. It is a single line, semi-automatic, 64D-relay blocking system with China-built equipment, installed by the Vietnamese.

There are two types of interlocking system adopted at stations:

Interlocking system to interlock mechanically locked points and semaphore signals. The mechanical locking device are Russian Melechiep typed, made by Vietnamese.

Interlocking system of electrical locked points are used. There are two models:

Interlocking system to interlock electrically locked switches and mechanical semaphore signals with lever control panel;

Interlocking system with electrically locked switches and multiple colour light signals with button-operated control panel.

Most equipment is built by China. Since 1985 Viet Nam has started manufacturing electric locked-switches and control panels.

There are two types of signalling system using on the network: Semaphore and multiple colour light systems. In semi-automatic block sections, there are home signals, starter signals and distant signals. But in token block sections, starter signals are not installed.

For multiple colour light signals, the home signal has 5 colour aspects, 1 red, 1 green, 1 white and 2 yellow (yellow 1 and yellow 2). Starter signal consists of two aspects, 1 red and 1 green. Distance signal consists of two aspects, 1 green and 1 yellow.

For semaphore signals, on the sections using the semi-automatic block system, home signals used are 3-flag, manual wire regulating typed semaphore. Starter signals are single flag, manual wire regulating typed. Home signals of 2-flag manual wire regulating semaphore is used in token block sections. At certain stations due to viewing obstacles (due to curves, etc.) distance signals, motor driven, fish-tail type semaphore, are installed. For night operation of semaphore signals, petroleum lamps are used.

For telecommunication systems, single channel, 3 channel and 12 channel frequency division multiplex carriers are in use. Most systems were manufactured in Hungary between 1972 and 1979 with the designs date from 1960's. Carrier systems are used for voice and facsimile only.

HF radio is used as emergency back-up system to the carrier systems in some parts of the network.

Open wire systems are mainly used for long distance carrier transmission. Paired copper cables are used for local communication and signalling. Quad copper cables for carrier and voice frequency transmission are used in some sections.

For telecommunication services, facsimile, telegraph and telephone are used. There are 35 exchanges in the country which are manual except for SPC digital PABX's installed during 1993 at Hanoi and Danang (ITT SR1000) and Ho Chi Minh City (Goldstar Starex).

Most of telecommunication and signalling equipment was manufactured by China during the period of 1950-1960.

Stations: 250 stations

II. RESULTS OF RAIL TRANSPORT DURING THE PERIOD OF 1993 TO 1996

2.1 Performance results of rail transport

(The data for 1996 is not audited)

Table 2. Traffic volume of passengers and freight

(Millions)

	1993	*1994*	*1995*	*1996**
Number of passenger	7,816	7,915	8,829	8,445
Passenger-km	1,725,163	1,795,959	2,133,269	2,259,519
Net freight tonnes	3,187	4,003	4,516	4,396
Freight tonnes-km	978,132	1,370,137	1,370,137	1,678,894

2.2 Revenues and expenditures

Table 3. Revenues and expenditures

(VND billions)

Year	*1993*	*1994*	*1995*	*1996**
Revenue	469,835	607,100	808,679	897,869
Expenditure	530,407	758,290	808,679	897,869
Balance (loss/profit)	- 60,572	- 151,010	0	0

2.3 Railway transport growth rate

Table 4. Growth rate of rail transport

(VND billions)

Year	*1993*	*1994*	*1995*	*1996**
Passenger-km (%)	-1.5	4.1	8.7	5.9
Tonnes-km (%)	-9.1	40.1	27.8	-4.1

2.4 Forecast of growth rate for the period to the year 2000

Gross domestic products: 10 per cent per annum

Transport sector: 10 per cent per annum

Railway freight transport: 15 per cent per annum

Rail passenger: 5.9 per cent per annum

III. VIET NAM GOVERNMENT POLICY ON RAILWAY TRANSPORT

In the Dispatch No. 46/VPCP dated 26 March 1994, the Prime Minister decided to separate financial responsibility of rail infrastructure from rail operations. According to the Dispatch, from now on, the Government is responsible for financing rail infrastructure maintenance and renewals as well as development investments. Viet Nam Railways carries out its businesses on its managed infrastructure in the competitive market, meeting its operation costs, and pays an annual infrastructure charge to the Government. Investments in maintenance facilities for Traction and Rolling Stock as well as acquisition and maintenance of its rolling stock fleet are also VR's responsibility. This change came into force from 1 January 1995.

In the Dispatch No. 42/TB dated 20 May 1996, the Prime Minister has given guidelines for the development strategy of Viet Nam Railways up to 2000, 2010 and 2020.

The Dispatch reconfirms the modernization of Vietnamese railway with the standardized track gauge of 1,000 mm network and the connections with South-East Asia Railway network and Asia-European Railway network to be the urgent and focused missions for the period up to 2000 and beyond. New rail links connecting ports and serving economic development of potential areas will be developed.

For funding development investments into railway infrastructure, the Government confirmed that the investments in railway infrastructure will be funded from state budgets and the investments will be returned through railway infrastructure user charges. It is also approved to finance railway infrastructure investments including investments in diesel locomotive overhauling facilities from ODA sources available.

The Viet Nam Railways' development strategy up to the year 2000, 2010 and 2020 is as follows:

- To upgrade the North-South trunk line improving sections and structures that restrict line capacity including Hai Van pass section and tunnels,

  Maximum permissible speed for this line to be projected:

  - Passenger train: 100-120 km/hour
  - Freight train: 80-100 km/hour

- To upgrade West-East lines to reach the maximum permissible speed of:

  - Passenger train: 80-100 km/hour
  - Freight train: 60-80 km/hour

- To upgrade Yen Vien-Cailan line including construction of shortcut route linking Yen Vien and Pha Lai and track gauge converting to 1,000 mm;
- To study the development of a railway link to exploit the economic potential of the Highland;
- To conduct a feasibility study for new branch lines between Ho Chi Minh City-Vung Tau, Ho Chi Minh City-Can Tho, Thap Cham-Da Lat, Yen Bai-Tuyen Quang-Bac Thai, and rail links to seaports of Lien Chieu, Dung Quat, etc;
- To survey and prepare conditions for connections with the Trans-Asian Railway network focusing on missing links of TAR in Viet Nam such as Ho Chi Minh City – Phnom Penh, Cambodia; Lao People's Democratic Republic – Viet Nam;
- To upgrade the Hanoi – Hai Phong line;
- To study and develop rail urban transport system (mass transit systems) in big cities, initially in Hanoi and Ho Chi Minh City;
- To study and implement a Modernization Programme of Railway Signalling and Telecommunications network with the priority on the lines between Hanoi – Ho Chi Minh City, Hanoi – Lao Cai and Hanoi – Hai Phong.

IV. PROGRAMME TO EXPAND VR'S NETWORK TO THE YEAR 2000 AND BEYOND

4.1 Construction of Yen Vien – Cai Lan line

This rail link will play a vital role in freight transportation to and from Cai Lan deep-sea port that has partly operated. It is also important alternative link connecting the Chinese land-locked province of Yunnan and south China, a high potential route for freight and passenger transport. At present, a pre-feasibility study of the project is under preparation in Viet Nam.

The planned development of this route including the construction of a shortcut route from Yen Vien to Pha Lai as indicated in Figure 3 with the following specifications:

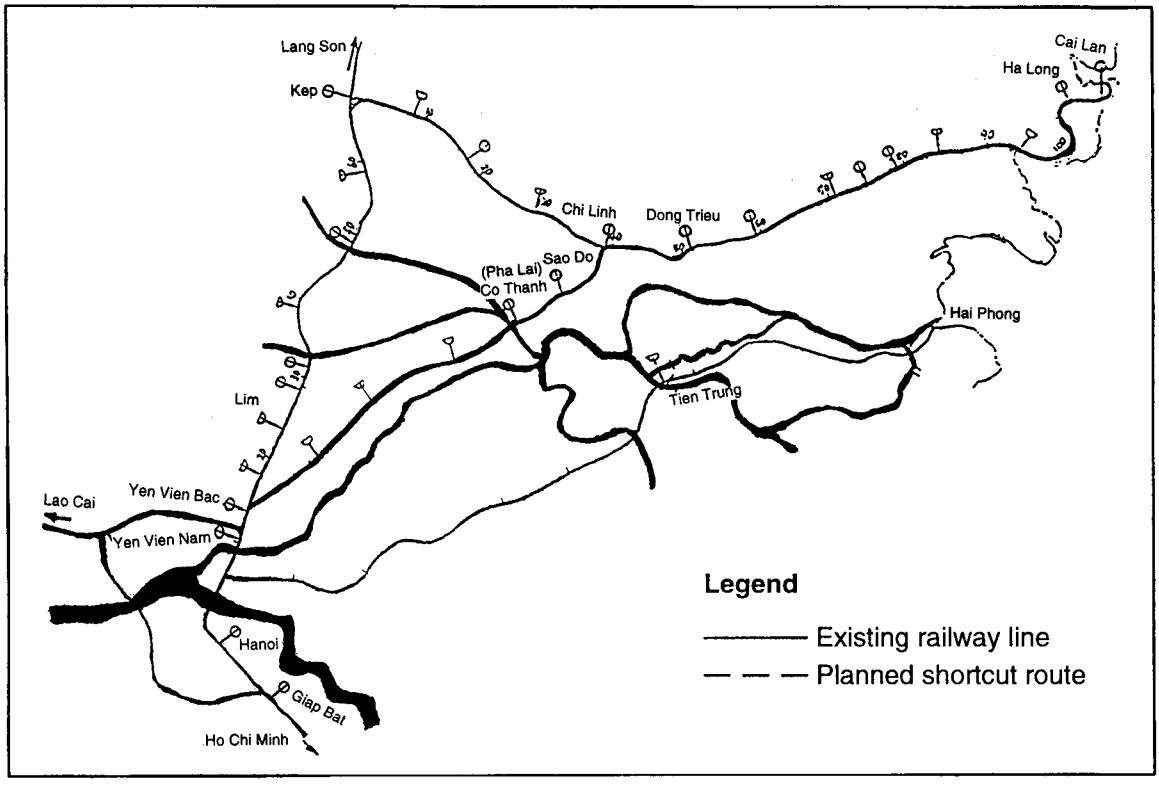

Figure 3. Rerouted Yen Vien – Cai Lan Rail Link

Construction length of shortcut route:	42 km
Operation length from Yen Vien to Ha Long:	128 km
Track and track gauge:	1,000 mm/single
Intended axle load:	14-16 tonnes/axle

4.2 Ho Chi Minh City – Vung Tau line

The planned line will connect Ho Chi Minh City with a very important sea port in the south of Vung Tau. This is an economic booming location where industrial zones are planned. The line is designed to meet the requirements of urban transport (commuting services) as well as freight transport needs for Ho Chi Minh City, Bien Hoa and Vung Tau.

A pre-feasibility study was conducted and preliminary alignment of the route in development stages were outlined (Figure 4). The specification of this line is designed as follow:

Construction length:	110 km
Track and track gauge:	1,000 mm/double
Intended axle load:	14-16 tonnes/axle

4.3 Trans-Asian Railway links in Viet Nam

The proposed TAR network in Viet Nam consisting of 4 rail routes (V1-1726; V2-162; V3-102 and V4-285 km) and one missing link from Ho Chi Minh City to the Cambodian border has been endorsed in the Policy-level Expert Meeting on the Trans-Asian Railway in the Indo-China and ASEAN subregion, held in Bangkok, February 1996 (Figure 5).

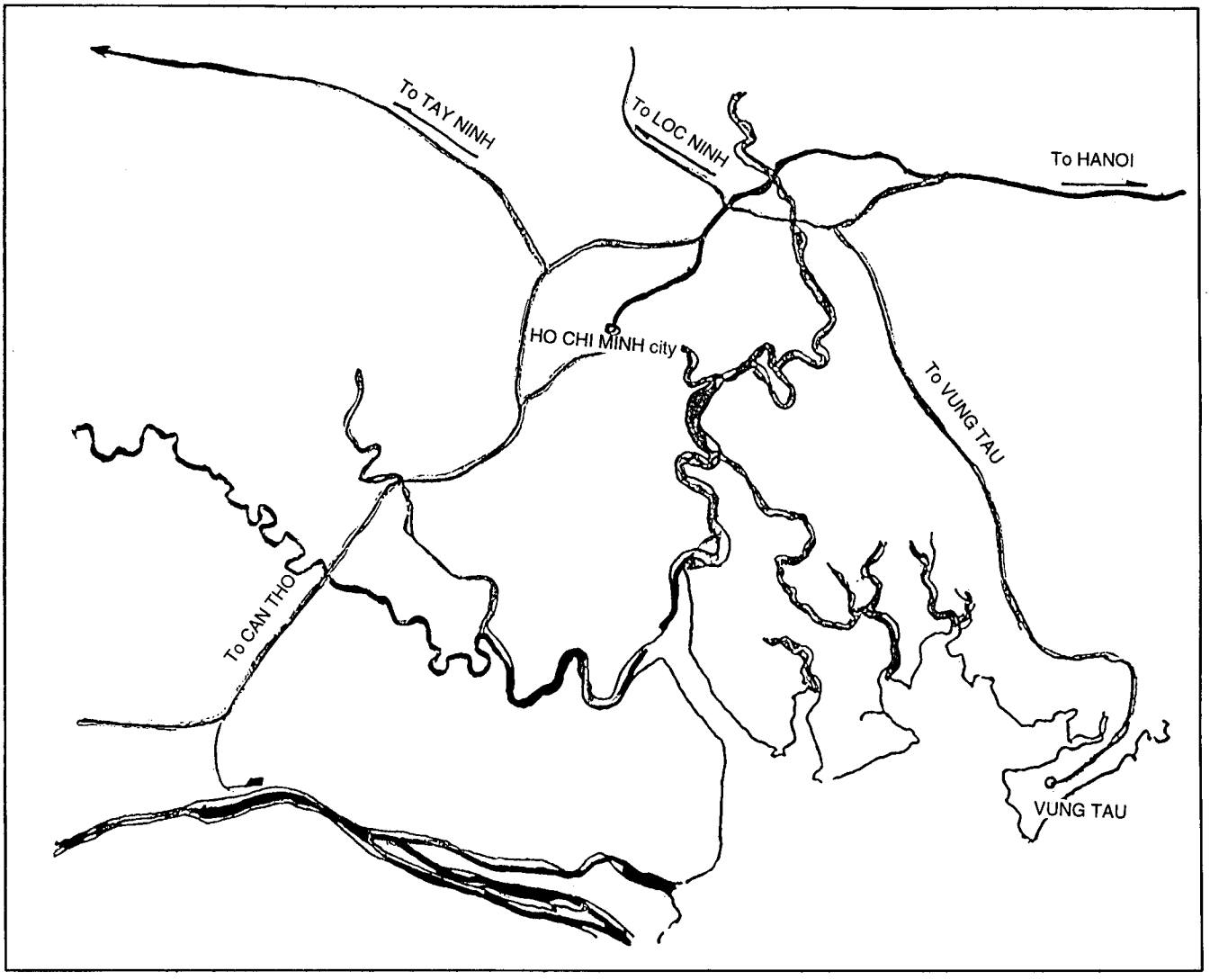

Figure 4. The planned routes/extensions of HCMC-Vung Tau, Loc Ninh and Can Tho

The Action Plan for Development of the Trans-Asian Railway in Indo-China and ASEAN subregion endorsed in that meeting is now under consideration for integration into the strategy development plan of Viet Nam Railways.

Being considered as a greatly potential efficient and competitive means of transporting containers and facilitating international trade and tourism between and among the countries of the subregion, the endorsed TAR network in Viet Nam is now enjoying the interest and priority of the Vietnamese Government.

Discussions with ASEAN Railways on cooperation to develop the TAR in the Indo-China and ASEAN subregion have been initiated. Viet Nam also have some discussions with the Lao People's Democratic Republic on potential rail links between Viet Nam and Lao People's Democratic Republic.

The outlined requirements for Trans-Asian railways have been considered and a programme for upgrading main lines including bridges, tunnels track signalling and telecommunication as well as rolling stock has been prepared.

At present, a preliminary survey and pre-feasibility study on the possible links between Ho Chi Minh City and Phnom Penh was initiated in Viet Nam. Now, the preferred option is a link connecting Ho Chi Minh City and Phnom Penh via Loc Ninh in Viet Nam.

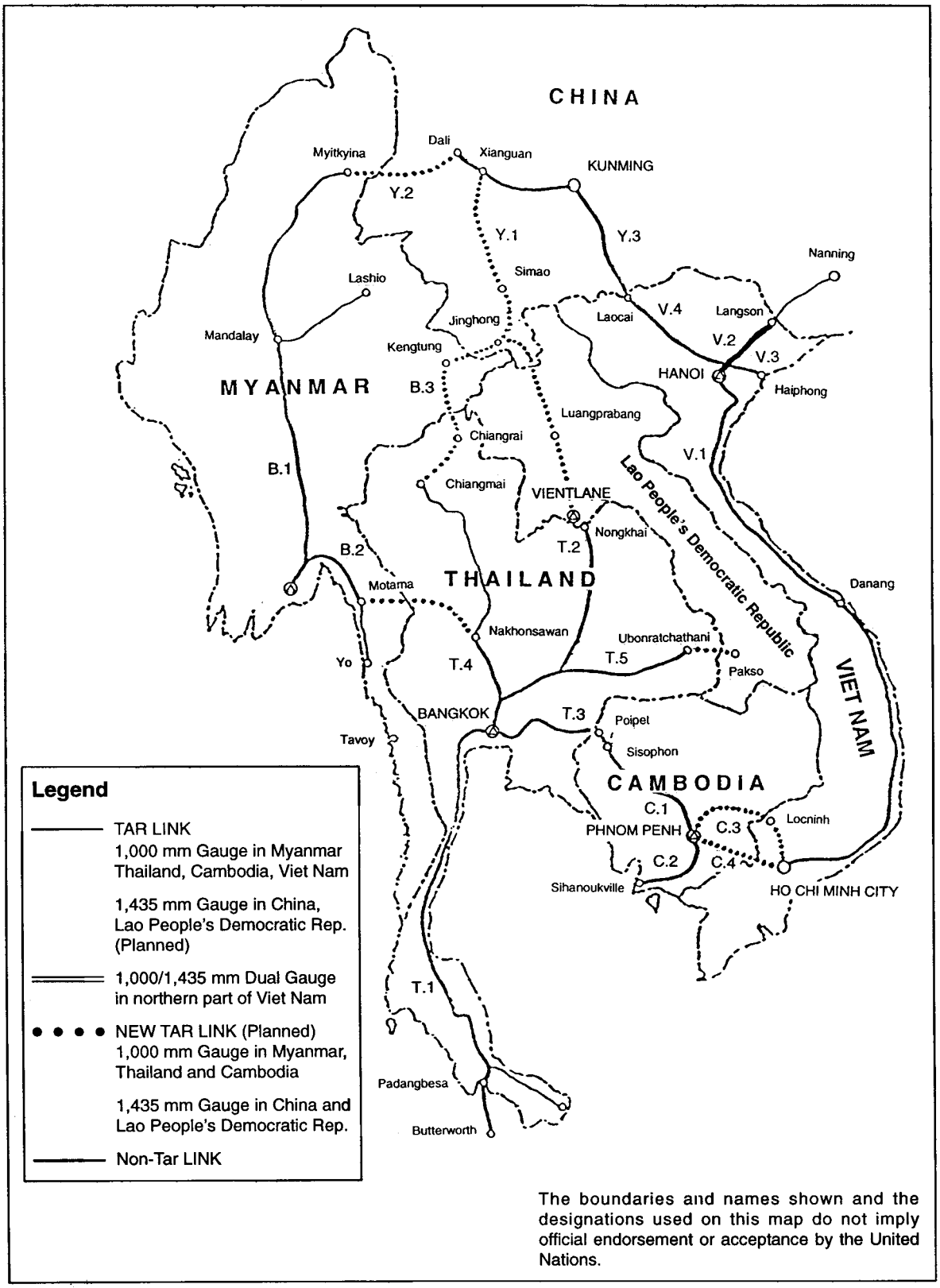

Figure 5. Trans-Asian Railways in Myanmar, Thailand, Cambodia, Lao People's Democratic Republic, Viet Nam and southern China (Kunming Province)

According to the pre-feasibility study, this missing line will be reconstructed on the existing right of way of rail line between Ho Chi Minh City and Loc Ninh. The line may be initially developed as a single line with the reserved corridor adequate for double track to meet increasing transport demands on this line in the future.

The preliminary specifications of the line are as follows:

Length:	146 km
Gauge:	1,000 mm
Intended axle load:	14-16 tonnes/axle

4.4 Highland railway line Thap Cham – Dalat

The Highland is a highly economic potential area of industrial, agricultural products and mineral resources such as bauxite ore, silk, wood, fruit, vegetable, coffee, tea, etc. There is also the area with lots of beautiful landscape of highly attractive tourism potentials. But the potential have not been exploited in full due to the weak inadequate transport system.

There was a rail line from Dalat to Thap Cham including two parts: rack railway section and plain railway section (Figure 6). But this line was destroyed in the wars and the rack rail section has been removed. At present, a section of 7 km plain track of the line between Dalat and Trai Mat has been reconstructed and operated for tourism.

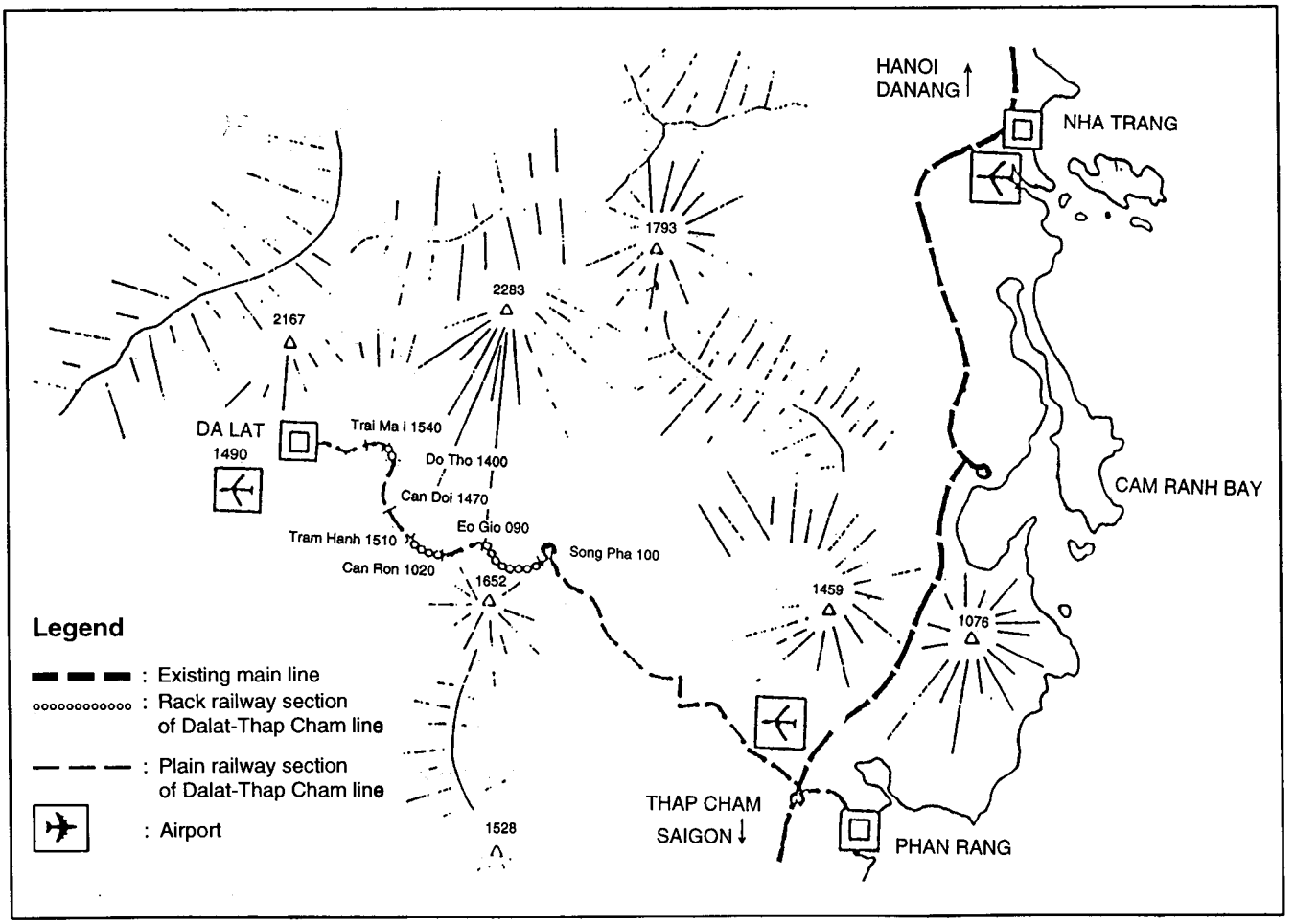

Figure 6. Dalat – Thap Cham Line

The rehabilitation of the whole line from Da Lat to Thap Cham, then connecting to the main line from Hanoi to Ho Chi Minh has been studied. The line will be 1,000 mm gauge, single track and 14-16 tonnes/axle (Figure 7).

4.5 Upgrading projects for the Hanoi-Ho Chi Minh City line to be planned to 2000

- 8 upgrading projects consist of 3 bridge rehabilitation projects with span length less than 50 m and 3 track upgrading projects each for each Railway Union and 2 telecommunications and signalling upgrading projects;
- 18 bridge rehabilitation projects with span length more than 50 m;
- 8 railway bridge rehabilitation project with OECF funding;
- Construction of new railway tunnel at Hai Van pass. A feasibility study is under preparation;
- Repairing of railway tunnels on Hanoi-Ho Chi Minh City line;
- Modernization of VR's telecommunications systems. At present, a feasibility study is carried out by Consultel, New Zealand.

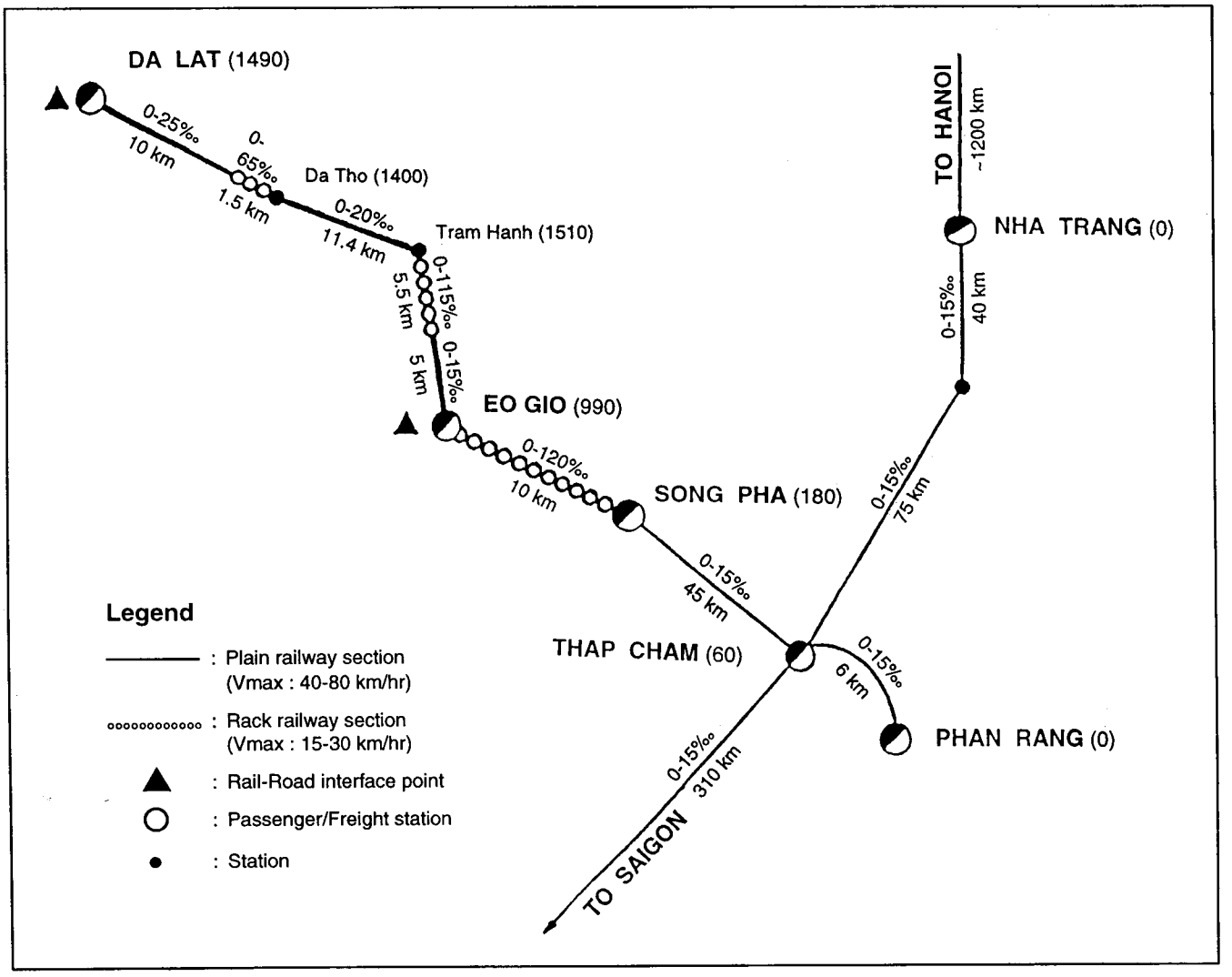

Figure 7. Planned Rehabilitation of Dalat – Thap Cham Line

4.6 Upgrading of telecom & signalling system for Hanoi-Laocai line:

A feasibility study has been conducted and submitted to relevant authorities for consideration and approval. Because the project funding was no longer available from Australian ODA sources, Vietnamese government is seeking for other possible sources to fund the project.

The priority investment projects of Viet Nam Railway up to the year 2000 and beyond are shown in Table 6.

Table 6. Priority investment projects of Viet Nam railways up to the year 2000 and beyond

TT	*Project*	*Estimated Costs*	*Implementation to be planned*
1	Mechanization of track work	US$ 20 million	1996 - 2000
2	Upgrading telecom and signalling system on HN-Lao Cai Line	Au$ 18 million	1996 - 2000
3	Upgrading HN-Hai Phong Line	US$ 160 million	1996 - 2005
4	Upgrading HN-Dong Dang Line	US$ 200 million	1996 - 2005
5	Rehabilitation of 9 railway bridges on Hanoi-HCM City Line	US$ 160 million	1996 - 2005
6	Improving line capacity of Hue-Da Nang section	US$ 100 million	1996 - 2000
7	Repairing of railway tunnels on Hanoi-HCM City Line	US$ 15 million	1996 - 2005
8	Upgrading section of HN-Thanh Hoa focusing on permanent way and telecom and signalling system	US$ 30 million	1996 - 2000
9	Upgrading Hanoi-Laocai Line		1996 - 2005
10	Development of Urban transport systems for Hanoi and HCM city	US$ 1.5 billion	1998 - 2005
11	Construction of new route and branches • Yen Vien – Pha Lai • HCM City – Vung Tau • HCM City – Phnom Penh		
12	Establishment of Diesel locomotive overhaul facility	US$ 20 million	1996 - 1998

BACKWATER CRUISING
A NOVEL MODE OF TOURISM TRANSPORT IN KERALA (INDIA)

Dr. K Muraleedharan Menon

One of the most striking hydrographic features of Kerala – the southernmost tip of India – is the continuous chain of lagoons or backwaters running parallel to the sea. They are long narrow lagoons, lying parallel to the coast separated from it by an equally narrow stretch of land. Rivers flowing down from the mountains – the Western Ghats – discharge into the backwaters. So there is an interaction between salt water and fresh water. The backwaters interspersed with a number of small islands give an exquisite panoramic view. There is absolutely no wave formation in the backwaters. The objective of this article is to highlight the potentiality of backwater cruising in Kerala. A cruise through the backwaters of Kerala, during all seasons of the year at a leisurely pace on a slow moving boat brings the traveller into communion with nature's blue-green-gold canvas of vivid enchantment and the rich intensity of colours. The traveller can spend an entire holiday discovering the secrets of this little palmy land.

History of maritime culture

Inland water transport is the oldest transportation system in the world. Notwithstanding the fact that other modes of transportation systems like rail, road and air are highly developed, it continues to play a pivotal role in many advanced countries of the world such as France, Germany and the United States of America. Kerala, too had succeeded in developing a navigation system in the olden days. Kerala was a blooming jewel even in the ancient days with regard to relations with other countries. Kerala was known as the land of spices which brought foreigners to her shores. The earliest traders were the Phoenicians, the Assyrians, the Babylonians and the Egyptians. They were followed by the Arabs, the Jews and the Chinese. From accounts given by Magasthenes (306-289 BC) in the Periplus Maris Erythroci (1st Century AD) and in Pliny (AD 23-79), it can be established definitely that Greece and Rome carried on extensive commerce with the west coast people. Though extensive trade existed from very early times, between the ports of Kerala and the west, none of the traders took an open route. It was found in 50 A.D. that Malabar (Kerala) could be reached in 40 days by combining a knowledge of the winds as discovered by Hippalus for voyages from Africa and Arabia to the Malabar coast, by steering a vessel.

Backwaters of Kerala

Kerala has a system of backwaters known as the west coast canal. At present the inland waterways (navigable streams and coastal as well as cross canals) have a total length of 1,895 kilometres. The navigable rivers account for 54 per cent and the canal system 46 per cent of the total waterways. The natural network of lagoons and 44 rivers in the State provide an excellent navigation system which can be developed to form a vital link of the integrated transport pattern.

The waterways of Kerala can be broadly classified into three: (a) the west coast canal from Trivandrum, the capital city to Hosdurg (northern end); (b) the river navigation system; and (c) the inland cross canal system consisting of a number of link canals. The first known excavation of an artificial canal is the Sultan's Canal, 3.8 kilometres long which was completed in 1766. This was constructed by Ali Raja of Canannore, to connect the Peruvamba and Kuppam (Thaliparamba) rivers. Eathur – Kallai Canal, Ponnani – Chetwai canal and the Badagara canal were completed by 1848. The Karanchira – Trissur canal was constructed between 1840-1850. The Channankara canal, the Paravoor canal, the Anantha Victoria Marthanda (AVM) canal were constructed between 1850 and 1860. The Varkala barrier canals consisting of open cuttings and two tunnels were opened to traffic in 1880. Thus the traffic between Trivandrum and Hosdurg at a distance of

558 kilometres was made possible within the span of 114 years, i.e. from 1766 to 1880. This route came to be known as the west coast canal covering the following reaches:

Hosdurg to Azhikkal	54.5
Azhikkal to Badagara	47.5
Badagara to Kadelundy	72.4
Kadalundy to Ponnani	61.2
Ponnani to Ala	79.7
Ala to Cochin	35.4
Cochin to Alleppey	70.8
Alleppey to Quilon (Kollam)	74.8
Quilon to Trivandrum	62.0
Total	**558.3 kilometres**

This west coast canal can be connected with the AVM canal of Tamil Nadu which goes up to Colachal by linking up the gap of 8 kilometres between Trivandrum and Poovar. Similarly the Karnataka State can be connected from Hosdurg. Thus there will be a thorough traffic along the west coast connecting the waterways of Karnataka, Kerala and Tamil Nadu which will open up new vistas in the history of inland navigation system in India.

The backwaters provide the cheapest means of transport and passenger travel in Kerala. One of the advantage of inland water transport is that most of the waterways are the gift of nature and can be used for navigation with the minimum investment. It is an established fact that it requires less power to move an equivalent tonnage on water and that a barge has the lowest relative dead weight and offers the minimum frictional resistance. One horsepower is known to move a load of 150 kg on road, 500 kg on rail and 4,000 kg on water. That is why the cost per ton-kilometre is the lowest in the case of inland water transport. It is accepted that inland water transport is denied its legitimate role in the overall economy of the country. Modernization of this sector is absolutely vital.

General features of Kerala

Kerala, an ever-green state tucked away in a south-west corner of India, is a palm-fringed paradise for tourists. It is a made-to-order leisure land. It is a land of vibrant colours and breath-taking surprises with azure seas, inviting golden beaches, limitless stretches of greenery, mist-shrouded mountains and dense tropical forests, gorgeous rivers and backwaters, thatched villages and no less colourful and charming people, heirs to rich traditions of folklore, music, dance and crafts.

Kerala is situated between the Arabian sea and the Western Ghats. It is located in the North latitude between 8°12' and 12°48' and east longitude between 74°52' and 77°22'. The coast line is about 580 kilometres in length while the breadth of the State varies from 11 kilometres to 121 kilometres. The total area of the State is 38,864 square kilometres which comes to 1.3 per cent of the total area of the Indian Union. The total area under forest in Kerala comes to 1,122,320 hectares which constitutes 28.8 per cent of the geographical area of the State. The rainfall in the State comes to a little over 3,000 millimetres spread over two monsoon seasons and the temperature ranges from 80°F to 90°F. The climate is semi-tropical, hot and moist.

Backwater cruising

The backwaters of Kerala are an astonishingly different world in many ways. In contrast to the Dahl Lake in Kashmir, the backwaters in Kerala offer the traveller, in addition to magnificent scenery, an enduring sight of the rustic simplicity of the village folk engaged in traditional occupations like coir making, fishing, collecting molluscan shells, transporting cargo etc.

The backwaters are a source of endless delight to the slow traveller who travels in a classical canoe which glides leisurely. The poles with which the canoe is propelled rise and fall making an occasional gurgle and splash. This is entirely a dream world where haste and hurry have no place. Here the air is fresh and still. In between a bewitching breeze stealthily embraces the traveller. The beautiful morning comes slowly but never goes. In the evening the setting sun showers golden rays upon the rippling water. Suddenly this becomes a wonder land and the traveller forgets himself for a while. The canoe moves slowly and softly with the changing vistas. Surely, the traveller forgets that he has a destination to reach. If you are fortunate enough you may hear the sweet song of one of the men who ply the poles. This is the song of boatmen.

There are certain unique spots in the backwaters of Kerala. They are:

1. **Veli-Akkulam Lake,** a beautiful lagoon with a calm and serene atmosphere, which is only five minutes drive from the international airport at Trivandrum. A water park, children's park and boating facilities are available here.

2. **Kumarakom:** Only 10 kilometres from Kottayam town, Kumarakom is the beautiful place on the banks of Vembanattu Lake. In addition to the enchanting landscape and rippling expanse of water, the main attraction here is a bird sanctuary.

3. **Pathiramanal:** The Pathiramanal is an alluring island of about 100 acres on the Vembanattu Lake. The island is a little marshy in certain areas covered by shrubs and small trees and coconut trees. The soft white sands of Pathiramanal give out a silvery glow on bright moonlight nights and this explains the romantic name of the island. From October to January every year, hundreds of birds of different hue and kind migrate to this island.

4. **Kuttanad:** The serenity of Kerala is seen in the villages of Kuttanad, the rice-bowl of Kerala. The area surrounded by water is below sea level by one to three metres. The scarcity of any natural residential area has led to houses being built on the banks of the waterways. A cruise through the vast water expanse of Kuttanad, especially in country craft propelled by one or two persons or a big country craft known as 'Kettuvallom' propelled by mizzen sail and scull, would be the most colourful and delightful trip available anywhere in the country. The luxuriant coconut gardens with small thatched houses on either side of the backwaters offer an enchanting sight of lush green landscape. The vastness of the Vembanattu Lake with broken small land formations, women singing and working in the paddy fields of Kuttanad, moving country boats, fishermen casting their nets and catching fish and soothing winds are all an unforgettable experience for any visitor.

5. **Ashtamudi Lake:** The area is covered in lush tropical evergreen shrubs and small trees, all inter-twined with flowers of varying colours evoking the memory and simplicity of a pastoral world. On the rippled calm of the green shade backwaters, a boat knifes its speedy way, flashing past picturesque little villages. Dutch, Portugese and the British ships anchored here in the past. Their influence can still be seen in palaces, churches and other buildings along the banks of the Asstamudi lake, which is 71 km north of Trivandrum.

6. **Cochi:** Cochi has been known for centuries as the Queen of the Arabian Sea. Cochi is one of the rare places in the world where a visitor can see a Jewish synagogue built in 1568, Portugese churches, Dutch architecture and a number of mosques, Hindu temples and Chinese fishing nets all in the same day.

Other attractions in backwaters

Boat Race: A boat race in the backwaters is one of the attractions of Kerala for international tourists. The great virtue of the race is that it is a part of community life. Long canoes resembling snakes with raised hoods, each oared by a hundred men, participate in the races. The best known boat races are Nehru Trophy in Alappuzha on every second Saturday of August, Arammula, Chambakulam, Payipad etc.

Mud banks: Another spectacular attraction on the coast of Kerala is the mud banks (Chakara in Malayalam language). The formation of the mud banks is a phenomenon peculiar to the Kerala coast. The only recorded parallel is a similar one occurring on the south-west coast of Louisiana on the mouth of the Mississippi River in the United States of America. The formation occurs a week or so after the onset of the south-west monsoon. This exerts such a calming effect on the sea that the area is extremely still without waves or even ripples and small crafts can ply over it safely even when the sea is roaring outside. The mud banks, in ancient times, have helped to establish foreign trade in the areas by offering safe anchorages due to their calming effect even during the roughest weathers. Fishlife concentrates in the area and with the added advantage of the prevailing calmness fishing activity thrives when the mud bank is being formed.

Traditionally, backwaters exercised considerable influence on the political, industrial and commercial development of the State. Just like highway tourism, backwater tourism can be developed in Kerala by providing accommodation and recreation facilities in selected backwater centres along with yachting centres, cruising basins, boat park areas on a minimum requirement basis and with natural ambiance which will be a unique attraction to the tourists. Human intervention here should be in harmony with nature, least disturbing the ecology with perfect symbiosis. The people of Kerala, people from other parts of India and foreign tourists could rediscover a dream land of enduring romance, mysticism and nature's boundless grace and gaiety. Thus the backwaters form an attractive and economically important asset of Kerala. In fact, backwater cruising will be a novel mode of tourism transport in Kerala in the near future. It is perhaps Kerala's offer to the twenty-first century tourism when haste and hurry will be replaced by calm and serene ambiance. It will certainly be a blissful experience.

References

1 T.K. Velu Pillai, Travancore Manual, vol. 2, 1926.

2. Emily Gilchriest Hatch: Travancore – A Guide Book for the Visitor, 1926.

3. Government of Kerala: Water Resources of Kerala, 1974.

4. A souvenir – Published by Central Board of Irrigation and Power Research Section, Trivandrum, 1977.

5. State Planning Board, Kerala: Development of Inland Water Transport in Kerala State, 1978.

كيفية الحصول على منشورات الامم المتحدة

يمكن الحصول على منشورات الامم المتحدة من المكتبات ودور التوزيع في جميع انحاء العالم استعلم عنها تعامل معها
أو اكتب الى : الامم المتحدة ،قسم البيع في نيويورك او في

如何购取联合国出版物

联合国出版物在全世界各地的书店和经售处均有发售。请向书店询问或写信到纽约或日内瓦的联合国销售组。

HOW TO OBTAIN UNITED NATIONS PUBLICATIONS

United Nations publications may be obtained from bookstores and distributors throughout the world. Consult your bookstore or write to: United Nations, Sales Section, New York or Geneva.

COMMENT SE PROCURER LES PUBLICATIONS DES NATIONS UNIES

Les publications des Nations Unies sont en vente dans les librairies et les agences dépositaires du monde entier. Informez-vous auprès de votre libraire ou adressez-vous à : Nations Unies, Section des ventes, New York ou Genève.

КАК ПОЛУЧИТЬ ИЗДАНИЯ ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ

Издания Организации Объединенных Наций можно купить в книжных магазинах и агентствах во всех районах мира. Наводите справки об изданиях в вашем книжном магазине или пишите по адресу: Организация Объединенных Наций, Секция по продаже изданий, Нью-Йорк или Женева.

COMO CONSEGUIR PUBLICACIONES DE LAS NACIONES UNIDAS

Las publicaciones de las Naciones Unidas están en venta en librerías y casas distribuidoras en todas partes del mundo. Consulte a su librero o diríjase a: Naciones Unidas, Sección de Ventas, Nueva York o Ginebra.

Printed in Thailand
February 1998 – 780

United Nations Publication
Sales No. E.98.II.F.43

ISBN 92-1-119810-0
ISSN 0252-4392
ST/ESCAP/SER.E/67