

REPORT ON PRELIMINARY SURVEY  
OF  
ASIAN HIGHWAY  
INTERNATIONAL BUS SERVICE SYSTEM

OVERSEAS TECHNICAL COOPERATION AGENCY  
GOVERNMENT OF JAPAN

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## F O R E W O R D

The Japanese Government, in compliance with the request of the Asian Highway Technical Transport Bureau of the Economic Committee for Asia and the Far East (ECAFE), despatched a survey team consisting of six specialists recommended by the Overseas Technical Cooperation Agency (OTCA) for the purpose of conducting a reconnaissance survey to sound a possibility of instituting an international bus service system which will cover the distance of about 3,000 kilometers along a part of the Asian Highway route connecting Vientian and Singapore.

The report just come out deals with a comprehensive study of the result of the survey and the views advanced by the Governments of Asian countries with whom the survey team conferred.

We hope that the report may be instrumental to help institute the international bus service system, encourage the road program pursued by various Asian countries and promote the efficiency of the transport facilities, and thus the development of the route cities and the strengthening of the economic and cultural relationships between these countries may be expected.

We extend our sincere thanks to the related Governments for their thoughtful arrangements in providing all conceivable facilities to the survey team and also to the ECAFE and the various governmental organizations in Laos, Thailand, Malaysia and Singapore whose unstinted assistance made the survey task successful.

In addition, we thank the Ministry of Foreign Affairs of Japan, the Ministry of Transport of Japan, Japanese Embassies at spot, governmental agencies and others for their kind cooperation.



Keiichi Tatsuke  
Director, General  
Overseas Technical Cooperation Agency  
of Japan

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## CHAPTER I ASIAN HIGHWAY INTERNATIONAL BUS SERVICE SYSTEM AND ITS MERITS

ECAFE has taken up the Asian Highway Project for the purpose of developing the road facilities of Asian countries, with setting up the final goal of making a contribution to the progress of the regional economy, industry, society and culture all over Asia.

ECAFE hopes the promotion of peace and prosperity for Asia by executing its project under cooperation of the regional peoples.

The Asian Highway Project, originated in the noble conception to provide opportunities for prosperity, has now progressed to such extent that the whole routes included in the Project are nearing completion in the immediate future.

One important problem in this conjunction remains unsolved. It is that there appears no consideration has yet been paid as to how to organically integrate the Asian Highway networks when completed.

To utilize the highway networks, which are to be integrated is one of the essential factors in achieving the regional development in relation with the progress of economy, industry, society and culture of Asia.

In order to make the highway transportation functioning to a full extent, two factors must be considered. One is to strengthen the traffic efficiency and the other to encourage the personal interchange and the freight traffic.

A number of means in terms of transportation may be considered to satisfy such requirements, and one which is regarded as most effective will be the effective use of Asian Highway International Bus Service whose characteristics may be summed up as follows:

1. AHIBS will play an active role in deepening the knowledge of the Asian peoples with regard to "the utilization of Asian Highway" and bring about an invaluable amount of benefits to the maintenance and operation of the AHIBS itself.
2. AHIBS will provide an opportunity to unify the traffic regulations and signals, and also it will become instrumental in accelerating the simplification of the border passage and the quarantine and customs procedures.

3. AHIBS will help increase the traffic volume on the Asian Highway routes by promoting the diversification of regional industries and encouraging the people's will of labor. Also, it will be helpful to bring about an increase in the people's earnings by providing employment opportunities.
4. In strengthening the regional transportation facilities, AHIBS will require not much investment as experienced in the construction of railways, harbors, and airports.
5. By establishing AHIBS, it would be possible to promote the tourist industry.
6. More tourist earnings can be expected by attracting travelers.
7. The regional cooperation can be promoted by disseminating the knowledge of the importance of personal interchange.
8. The interchange of regional inhabitants and tourist travelers will stimulate the people's desire for a higher living in terms of economy and culture.
9. The regional development can be attained by activating the passenger traffic between the main cities and towns through AHIBS.



## CHAPTER II - ACTIVITIES OF THE SURVEY TEAM

### II-1 Primary Preparations

The Asian Highway Plan proposed by ECAFE in 1958 has made steady progress thanks to united efforts rendered by the ECAFE Coordinating Committee and related Governments.

A plan of instituting an International Bus Service system on Asian Highway route was submitted to the 23rd. general session of ECAFE in April 1967, its purpose was to promote the sufficient use of the route in order that the regional economy may be developed.

With a view to extending support to the ECAFE plan, the International Engineering Consultants Association of Japan put up an Asian Highway International Bus Service Committee in December 1967 and made a technical study of the International Bus Service Plan between Vientian and Singapore covering the distance of about 3,000 kilometers. As the result, the report was drafted in May 1968 and presented to the Asian Highway Transport Technical Bureau of ECAFE.

Later, the report was brought to the 17th meeting of the Transport and Communication Committee of ECAFE held in February 1969, and adopted for an official agenda for discussion.

And the Japanese Government despatched a survey team composed of six specialists selected by the Overseas Technical Cooperation Agency to Laos, Thailand, Malaysia and Singapore for a period of 27 days from March 30, 1969.

### II-2 Purpose of the Survey

The survey team conducted a reconnaissance survey of the Asian Highway route for the purpose of sounding a possibility of instituting an international bus service system along the route from Vientian to Singapore.

The survey team had three important tasks to do. Firstly, it was to explain the International Bus Service system to the related Governments and to sound their views toward the plan. Secondly, it intended to study a possibility of making a contribution to the development of the regional economy by putting the plan into practice and also to collect materials relating to the road condition, transport facilities and other matters which are essential to formulate an executive program for operating the bus service. Thirdly, it aimed at making

a comprehensive study of the general road condition in order that a basic policy may be produced.

### II-3 The Survey Team and Its Itinerary:

#### (a) Organization of the Survey Team

Leader:	Tomonori Shirahata (Advisor to the International Engineering Consultants Association of Japan)
Deputy Leader:	Yasuhei Emori (Director of the International Engineering Consultants Association of Japan)
Member:	Kaoru Sugakawa (Chief of the Passenger Section, Motorcar Bureau, Ministry of Transport)
"	Kiyoshi Machida (Director of the International Motorcar Company, Ltd.)
"	Keizaburo Tsuchiya (Chief of the Planning Division of Isuzu Motors, Ltd.)
"	Koji Tanaka (Chief of the Planning Department, International Engineering Consultants Association of Japan)

The survey team, for the convenience of carrying out its task, was divided into two groups, A and B. A group was engaged in negotiation with the related Governments and the representatives of the regional transport business. B group undertook the investigation of the Asian Highway route and the traffic condition. Through generous arrangement made by the ECAFE and the related Governments, the survey team was kindly joined by the following persons during the study trip.

Mr. K.H. Oberhuber
Asian Highway Transport Technical Bureau, ECAFE
Mr. Porpit Tipyamongkol
Maintenance Division, Department of Highway, Ministry of Communications, Government of Thailand
Mr. Somphavan Inthavong
Director of Roads and Bridges, Ministry of Public Works and Transport, Government of Laos

#### (b) Itinerary

Itinerary of Group-A

March 30(Sun.), 1969

Tokyo to Brngkok by air

March 31 (Mon.), 1969

April 1 (Tue.)

2 (Wed.)

3 (Thu.)

4 (Fri.)

5 (Sat.)

6 (Sun.)

7 (Mon.)

8 (Tue.)

9 (Wed.)

10 (Thu.)

11 (Fri.)

12 (Sat.)

13 (Sun.)

14 (Mon.)

Together with

B Group

Bangkok to Vientian by air

Vientian to Bangkok by air

Bangkok to Kuala Lumpur by air

Kuala Lumpur to Singapore by air

Singapore to Penang by air

Joinning with Group-B

Itinerary of Group-B

April 5 (Sat.)

6 (Sun.)

7 (Mon.)

8 (Tue.)

9 (Wed.)

10 (Thu.)

11 (Fri.)

12 (Sat.)

13 (Sun.)

14 (Mon.)

15 (Tue.)

16 (Wed.)

17 (Thu.)

18 (Fri.)

19 (Sat.)

20 (Sun.)

21 (Mon.)

22 (Thu.)

23 (Wed.)

24 (Thu.)

25 (Fri.)

Vientian to Khonkaen by car

Khonkaen to Bangkok by car

Bangkok to Huahin by car

Huahin to Ranong by car

Ranong to Phuket by car

Phuket to Haadyai by car

Haadyai to Penang by car

Penang to Ipoh by car

Ipoh to Kuala Lumpur by car

Kuala Lumpur to Singapore by car Together with

A Group

Singapore to Bangkok by air

Bangkok to Tokyo by air

We thank the governmental officials and civilians who were willing to extend gracious help to the survey team, their names follow:

- (A) ECAFE      Mr. M. S. Ahmad  
                    Director of Asian Highway Transport  
                    Technical Bureau
- Mr. H. P. Sinha  
                    Asian Highway Transport Technical Bureau
- Mr. K. H. Oberhuber  
                    Asian Highway Transport Technical Bureau
- (B) Thai Government:
- Dr. Sirilak Chandrangsu  
                    Under Secretary of State, Ministry of  
                    Communications
- Dr. Gun Nagamati  
                    Deputy-Director General of Road Transport  
                    Department, Ministry of Communications
- Mr. Porpit Tipyamongkol  
                    Maintenance Division, Department of Highway,  
                    Ministry of Communications
- Mr. Sanga Navijaredrn  
                    Deputy-Manager of Traffic Department,  
                    State Railway
- Mr. Pojana Nagavajara  
                    Chief of Passenger Division, State Railway
- (C) Malaysia Government:
- Mr. Raja Azam  
                    Secretary to Minister of Transport
- Mr. Jalani Bin Kupah  
                    Commissioner of Road Transport Department,  
                    Ministry of Transport
- Mr. Ibrahim Bin Mohamed  
                    Road Transport Department, Ministry of  
                    Transport

Mr. Zaidun Joind  
Deputy Director of Transport Division, Mara

(D) Singapore Government:

Mr. Wong Keng Sam  
Permanent Secretary, Ministry of  
Communication

Mr. Yap Soon Hoe

Mr. Lim Kuan Ming  
Register of Vehicles, Ministry of  
Communication

(E) Laos Government:

Mr. Phak Savan  
Director General, Ministere des Travaux  
Publics

Mr. Shmphavan Inthavogn  
Direceur des Ponts et Chause, Ministere  
des Travaux Publics

Mr. Chanala Chounramany  
Chief Bure au d'etudes, Ministere des  
Travaux Publics

(F) Private Enterprises:

Thailand Col. Kupan Kramontong  
General Manager of Transport Co., Ltd.

Malaysia Mr. Law San Choon  
Hon. Secretary of Pan-Malayan Road  
Transport Operators Association

Singapore Mr. H. M. J. Jensen  
Managing Director of Singapore Traction Co.

Mr. G. H. L. Poulier  
General Manager of Singapore Traction Co.

Mr. Tay Soo Yong  
Singapore Chinese Bus Owners Association

Laos

Mr. Bounnak Souvannavong

President of dela Societe des Transporters  
Laotiens

Mr. Lapploune Khamvongsa

President of de l'Association des Taxis Laos

Mr. Seng Tsiang

President of Auto Bus Urbain

CHAPTER III OPINIONS OF CONCERNING GOVERNMENT  
AUTHORITIES ON ASIAN HIGHWAY  
INTERNATIONAL BUS SERVICE

III-1 ECAFE

On March 31, the team visited the Asian Highway Technical Transport Bureau of ECAFE and conferred with Mr. M. S. Ahmad and Mr. H. P. Sinha on the Asian Highway International Bus Service Plan and the instructions in carrying out the survey. The ECAFE had kindly made pre-arrangement in regard to our survey and sent its official letters to the related Governments soliciting for their cooperation.

The participation in the spot survey by Mr. R. H. Oberhuber of ECAFE was very inspiring to us. Mr. M. S. Ahmad, Director of the Technical Transport Bureau was pleased to give the team various advices, and he also hoped that political and economic merits which are expected to accrue from the survey be dealt with in the report.

Later, we met Mr. M. S. Ahmad again on April 21 at Singapore and Mr. H. P. Sinha on April 22 at Bangkok and handed notes respectively and reported them about the general situation.

III-2 Thailand

To pay our respects to Dr. Sirilak Chandrangsu, Under Secretary of State, the team visited him at the Ministry of Communications on April 2, and then, through his kind introduction, called on Dr. Gun Nagamati, Deputy Director General of Road Transport Department. He showed keen interests in the plan, emphasizing the international significance attached to the road transport and promised to extend unreserved cooperation to us in executing the plan. Later, we met him again on April 23 at Bangkok and handed him a note explaining the progress of the survey.

According to him, the Government of Thailand, aware of the international importance of the road transport, is now considering to put up a conference with the Government of Malaysia for establishing a special organization which will undertake the operation of a bus line connecting the two countries.

In Thailand, "the Transport Company" capitalized 100% by Government funds is controlling the country-wide long distance bus service networks. There are several Government licensed bus companies which are operating long dis-

tance bus routes regionally by 4,000 motor vehicles controlled by "the Transport Company".

### III-3 Malaysia

On April 8, we paid a courtesy visit to Mr. Raja Aza, Secretary of the Ministry, and then, met Mr. Jelani Bin Kupan, Commissioner of the Transport Department, Mr. Ibrahim Bin Mohamed and Mr. Nordin Kidan of P. W. D. Mr. Kupan expressed much interests in our plan, stressing the international significance of the road transport and wished that the plan be brought into a reality at an earliest possible date. Through his courtesy, we had an opportunity of meeting Mr. Razudo Bin Bindin, Director of the Transport Division of the Government Agency 'MARA' which has been established to develop the country's industries. At present it controls 94 bus routes extending to 3,722 kilometers on which 455 buses are in operation. 'MARA' seems to be rather indifferent to obtaining business profits, since it, for political reason, would give a first priority to the reinforcement of the transport facilities for the particular benefit of regional development, no matter profit.

On the road facilities and especially on the bus business in Malaysia, we were accorded the opportunity to hear the opinion of Mr. Law Sam Choo, Chief Director of the Pan-Malayan Road Transport Operators Association, which is composed of 140 bus companies operating a total number of 2,389 buses in the country. Later we called again Mr. Ibrahim Bin Mohamed on April 16 and were supplied with various materials regarding the local transport facilities.

In Malaysia, the problem of the international long distance bus service is becoming a matter of nationwide concern, and the Government has put up a joint conference with the Government of Thailand to discuss a possibility of organizing bus networks linking accross Malaysia-Thailand borders. Equally enthusiastic is the manner in which the private bus companies are considering to establish international long distance bus lines, and already they have submitted a petition asking for a licence for opening a bus route between Bangkok and Kuala Lumpur, and the Government seems moving toward holding of a conference to deliberate the petition formally. In the meantime, the Government of Malaysia has requested us that the 175-kilometer road between Kuala Lumpur and Kuantan and the 235-kilometer road between Kuala Lumpur and Kota Bharu be included in the proposed Asian Highway Bus System, for these roads may be used to connect the west coast region already developed with the east coast region which still remains undeveloped.



#### III-4 Singapore

On April 10 we paid a courtesy visit to Mr. Wong Keng Sam, Vice Minister of the Ministry of Communications, and then, met Mr. Lim Kuan Ming, Register of Vehicles, who gave us very valuable advices. Having emerged from the position of a free port city, Singapore now faces the necessity to seek a new way to develop itself as an industrialized tourist city. It is, therefore, necessitated to attract more travelers from Thailand and Malaysia. The tourist business of Singapore is getting busy with the increasing influx of foreign tourists from Bangkok and other parts of the peninsula. In such circumstances, the Asian Highway International Bus Service, when put into practice, will be greatly helpful to promote the tourist industry, for which the Government of Singapore is going to ask for help of the Road Transport Committee of ECAFE for the purpose of reinforcing the transport facilities. When we visited again Mr. Lim Kuan Min on April 21, he expressed the desire that the plan be put into effect as soon as possible. In Singapore, there are several bus companies controlled by the Chinese interest, and beside these, the most influential is the British controlled bus company "Singapore Traction Company", which owns 500 Japan-made buses. In our interview with Mr. M. J. Jensen and Mr. G. H. S. Pulier, representative and manager of the company respectively on April 21, they were pleased to explain of the company's business condition and revealed their intention to participate in the proposed international bus service system.

#### III-5 Laos

On April 4, we had the opportunity of exchanging opinions with Mr. Phak Savon, Director General and Mr. Semphaban Inthavong, Director de Chause.

This country lacks in railway availability, and the Mekong River cannot be used for navigation, because there are 3 kilometers wide falls with the heads measuring about 20 meters each in the downstream near Pakse. As the geographical situation stands like this, Laos has to depend on the route A-12 from Nonkai to Vientian which will be included in the proposed Asian Highway International Bus Service System. Since there is no bridge available to cross the 600 meters wide Mekong, the ferry service is being operated to carry motorcars. A plan is now in progress to build a bridge for both railway and road traffic at Nongkai, at a cost of \$20 million donated by the advanced countries. The United Nations Mekong Committee took the lead in soliciting aid money for this purpose. The Government of Laos hopes that the proposed international bus service system

be extended to the country's second largest city Luan Prabang (397 kilometers from the 20 kilometers Vientian-Mekong route) and to Pakse on the Mekong River, 685 kilometers farther. These routes must be extensively improved before they can be used for the international bus operation. Generally speaking, the Government of Laos is quite earnest with the improvement and reinforcement of the transportation facilities centering the road traffic and hoped that the international bus service plan be realized at an earlier date.

## CHAPTER IV PRESENT ROAD CONDITIONS

### IV-1 Outline

The International Highway Bus Service System will cover the distance of about 3,000 kilometers along the Asian Highway that passed through the route A-12 from Vientian to Saraburi and the route A-2 from Saraburi to Bangkok, Kuala Lumpur and Singapore. In the northern part of Thailand, the Friendship Road which has been constructed by American aids runs to Saraburi. It is well paved in 7.5 meters width. In the southern part of the country, there are roads with acute slopes and steep curves, and some bridges are still under construction.

In Malaysia, most of the roads, though narrow in width, are well asphalted, but in the hills there are many roads with steep slopes and curves. The traffic volume in Southern Thailand is not much, but in Malaysia it tends to increase. To sum up, the proposed 3,000 kilometers route of the Asian Highway, which is equipped with 2 lanes, is sufficient enough to the operation of international high speed buses.

### IV-2 Road Conditions

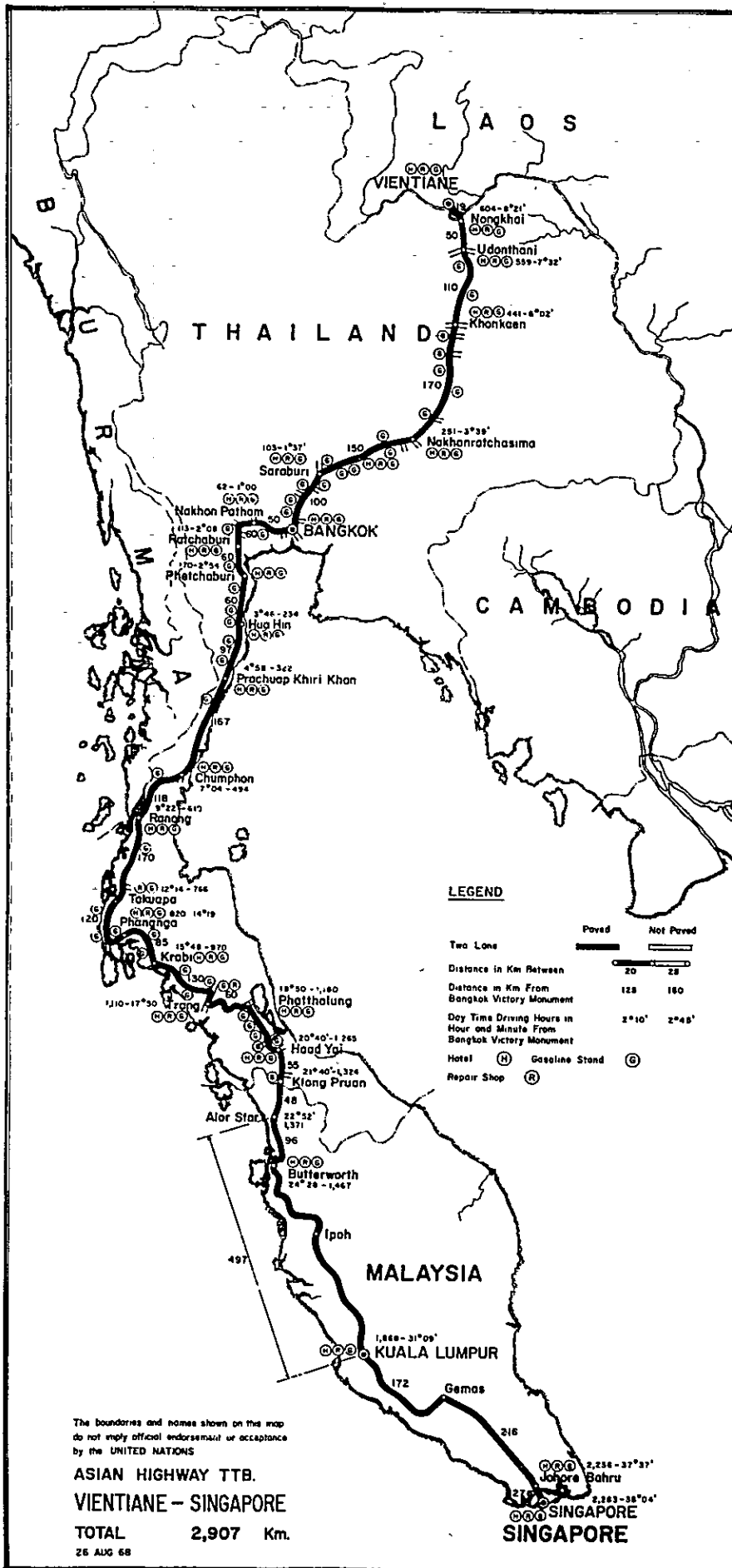
#### (1) Laos

Vientian to Tha Deua: The road extending 19 kilometers southeastward to Tha Deua on the Mekong River which is situated within the Laosian territory is asphalted in 7 meters wide with the 2.5 meters road shoulder on both sides being surface treated. Along the road are stretching through paddy fields and farms, and motorcars can be driven at a speed of 100 kilometers per hour.

Ferry Service on the Mekong: At present, three ferry boats, each of which is capable of carrying 76 trucks weighing 10 tons are operating between Tha Deua and Nongkai, a distance of 800 meters crossing the Mekong. To ferry the Mekong would take about 20 minutes.

#### (2) Thailand

(a) Northern Thailand: The route A-12 which was constructed Nongkai and Saraburi in 1966 is asphalted in 7.2 meters wide with the 2.5 meters shoulder on both sides.



Nongkai to Saraburi: The road from Nongkai to Udon is generally flat and aligned with no steep curves. The road from Udon to Khonkaem, Korat and Saraburi is flat, and in the hills it has been designed to interweave flat parts and slopes at several places. The forestry along the road has been partly cut on the curves for the convenience of keeping a proper sight distance. Excepting the districts neighboring the city area, the traffic volume is not conspicuous, and therefore large size cars can be driven at a speed of 80 to 100 kilometers per hour. There are several bridges, each of which measures about 50 meters in length, and in addition about 5 to 10 meters long bridges are dotted at intervals of 5 to 10 kilometers. The road width is kept wider than any of other paved roads. The crossing of large size cars is not considered dangerous, because there are sidewalks on both sides for each road, or equipped with the wider shoulder. There are central separation zones at some places, and at the curves luminous signals are placed by the road shoulders indicating the inductive lines. The warning signals are also in stalled 100 meters ahead in accordance with the traffic regulations.

Saraburi to Don Muang: In the city area where the traffic movement is getting busy as the result of the rapid increase in large size cars, but still motorcars can be driven at a speed of 60 to 80 kilometers per hour. The road is concrete treated and flat throughout the course, and the road shoulder is surface treated. Here at Muang is situated the International Airport.

Don Muang to Bangkok: The concrete treated road from Don Muang to Bangkok is equipped with 4 lanes, and at the center is built the separation zone. The motorcars are forced to speed down to 60 kilometers per hour because of traffic congestion. Within the city of Bangkok, reclaimed creeks have been converted into roads with the progress of the city planning, and there are many rotary crossings on the roads and the traffic used to get busy during rush hours in morning and evening.

(b) Southern Thailand

Thonburi to Nakopathom: In the city of Thonburi on the Menam River passing through Bangkok runs the road of the first level which has been constructed according to the city plan. It is equipped with 6 lanes and the central separation zone within the city limits, but the number of lanes has been reduced to 4 outside the city. Most of the roads in this district are concrete

treated and the road shoulder is surface-treated. In the neighborhood, there are many paddy fields and farms, and the ground rehabilitation is in progress at some points in pursuance of the city expansion plan. In this section motorcars are driven at a speed of 60 to 80 kilometers per hour.

Nakompathom to Hua Hin: Connecting with this road, a bypass extending about 100 kilometers long has recently been completed. It is equipped with 4 lanes, and at the center is built the 100 meters long separation zone, and motorcars can be driven at a speed of 80 to 100 kilometers per hour on this route. From the end of this bypass, a highway in 7.0 meters wide runs as far as 50 kilometers passing through farms. With nearing Hua Hin, the road shoulder comes so close to the forest that the traveler feels it getting narrower:

Hua Hin to Chumpon: The carriageway is in 7 meters wide and the shoulder is not worthy to mention. Along the route, the woodland spreads extensively penetrating through rugged hills where small bridges are found at many places. The traffic movement is not active.

Chumpon to Ranong: The forest occupies a greater part of the hills located along the Cumpon-Ranong road which is narrow in width. In the vicinity of Ranong, a 370 meters long bridge is under construction and expected to complete in the summer of 1970. At present there is a temporary bridge for limited transport.

Ranong to Koke Gloi: Here is a mountain path which has steep slopes and curves at many points on this route. On the route there are many beautiful sceneries, and especially the neighborhood of Ranong is noted for the hot spring spa. Particular care is needed to pass on the cliff path facing the Andaman Sea. Recently a 400-meter long bridge has been built on the road from Koke Gloi to the rubber market on Panket Island.

Koke Gloi to Trang: The road which extends to a point of about 70 kilometers from Koke Gloi has many steep slopes and curves in the forest in mountains, and the road shoulder is narrow. At present the improvement work is in progress at several points. Motorcars can be driven at a speed of about 50 kilometers per hour. From this section, there extends hills forming gentle slopes. The roads cross the railways at some places and there are many small bridges. Motorcars can be driven at a speed of 80 kilometers per hour.

Trang to Haad Yai: In the neighborhood of Trang, flat farms extend to about 20 kilometers toward the mountain region, where there are many steep slopes and curves. In the flat district, a belt of paddy fields and forests extends to about 100 kilometers. Motorcars can be driven at a comparatively high speed on the road, despite the increase in the number of pedestrians and bicycles. Haad Yai being the largest city in this district, the traffic movement is very active. The coast of the Gulf of Thailand is famous for a sea resort, and the road from here to Sangkhla which extends to about 30 kilometers is good.

Haad Yai to Malaysian Border: The road leading to the Malaysian border passes through the rubber woods and is 7 meters wide. The traffic movement is inactive.

### (3) Malaysia

The Border to Butterworth: The road from the border to Butterworth passes through mostly the rubber woods, and both the carriage way and shoulder are narrow. But the car drive is very comfortable, because the road is well paved, and along the road are seen many dwellings. The traffic movement is brisk, and especially the increase of passenger cars becomes conspicuous. From the city area of Butterworth to Penang Island crossing the strait of Malacca, the ferry service may be available for the car transport.

Butterworth to Ipoh: The road passes through the rubber woods that extend to a point of 50 kilometers from Butterworth on the flat ground, and then the hilly land with many steep slopes and sharp curves continues on. The road width, therefore, is narrow and the vista is not clear. The traffic volume averages 2,000 to 3,000 cars daily, and consequently the vehicle speed is compelled to limit.

Ipoh to Kuala Lumpur: The road from Ipoh to Kuala Lumpur extends in parallel with the west side of the mountain range that runs through the Malaysian peninsula, and therefore it has a commanding view of the mountains standing about 2,000 feet above the sea level. In this section there is the only toll road. To pass through the newly constructed bypass extending to about 10 kilometers near the Slim River, the transit fee is charged for 50 cents for a car. From here to Kuala Lumpur, the traffic is getting busy, with 5,000 to 6,000 motorcars passing daily.

Kuala Lumpur to Singapore: There are two roads, one running along the coast via Malacca and the others through the mountain region via Segamat. On the latter road, runs the Asian Highway route in parallel with the railway line. The road passes through the densely populated area from Kuala Lumpur to Seremban, and the number of motorcars passing through this area was counted more than 1,000 cars a day. As large size lumbers including teak are produced in the forest that occupies the central mountain range, many large size trucks were seen operating in this area. On the road from Kuala Lumpur to Singapore, which may be said to be the main route of this country, long distance buses are in operation. At Auer Hitam, the road joins the coast line coming from Malacca, and the traffic volume is so large that more than 10,000 motorcars are running daily. The car speed, however, can be accelerated, because the road is flat in this section. Motor drivers in this country are very cautious of operating their cars. Then the road comes to Johore Bahru on the Johore Strait, bordering Malaysia and Singapore.



## CHAPTER V PRESENT MOTOR TRANSPORTATION

### V-1 Present Traffic Condition

#### (a) Thailand

We made a survey of the traffic movement by using eye-measurement, and found no particular difference between the outcome of our measurement and the 1969 report of the traffic investigation issued by the Government of Thailand. The traffic volume on the bus route from Bangkok to the Donmaung airport was counted 17,700 cars a day when measured with the eye, 3,000 to 4,000 cars near Saraburi and 2,000 cars between Khon Koen and Nongkai. The traffic movement in other places follows: about 10,000 cars as far as Nakhon Pathom, and 1,000 to 3,000 cars at Pechaburi and Hua Hin. The number of motorcars in operation was counted only several hundreds in Chunphon, Ranong and Trang, and about 1,000 cars near Haad Yai. The characteristic feature of the road transport in Thailand is that trucks outnumber any of other cars occupying 60 - 70 per cent, but in Malaysia the percentage comes down to 30 per cent.

#### (b) Malaysia

The motorcar traffic is very active in Malaysia, reflecting the progress of industry and the development of roads as well. The traffic situation on the route A-2, which is equipped with 2 lanes in the vicinity of Butterworth, Ipoh and Kuala Lumpur is on the brink of saturation as the result of a rapid increase in motorcars, the number being counted 8,000 to 9,000 cars daily, and especially it runs up over 10,000 cars in the city area. Of the whole of motorcars, buses and trucks occupy 30 per cent respectively.

### V-2 Principal Long Distance Bus Lines

(a) The principal long distance bus routes in Thailand are under operation by the "Transport Company", which has been capitalized at government fund to 100 per cent. The bus routes, distance, trips, timetable and passenger fare on the principal routes follow:

Sections	km	trips	hours	fare
Bangkok - Chiangmai	819	2/day		80 bahts
Bangkok - Nongkai	668	6 "		70 "
Bangkok - Nakorn Phanom	775	2 "		80 "
Bangkok - Ubol	737	2 "		80 "
Bangkok - Arangapradet	299	2 "		22 "
Bangkok - Trad	400	4 "	8.0	37 "
Bangkok - Hua Him	232	10 "	4.4	20 "
Bangkok - Ranong	614	3 "	13.0	45 "
Bangkok - Phuket	874	3 "	23.0	12.5 "
Bangkok - Haad Yai	-	-	-	-

(b) In Malaysia, generally speaking, there are 2 groups of long distance bus enterprises. The one is the "MARA" operating several long distance bus lines mostly in country sides, the other is the "Pan Malaysian Road Transport operators Association", of which 10 member bus companies operate many long distance bus routes in the whole districts very successfully. Some examples of bus routes of latter are as follows.

Sections	km	trips	hours	fare
Kuala Lumpur - Singapore	392	2/day	8.30	M\$10.00
Kuala Lumpur - Butterworth	381	2 "	8.10	M\$11.50
Kuala Lumpur - Malacca		8 "	3.30	M\$ 3.00
Malacca - Singapore	247	8 "	5.30	M\$ 6.50

(c) In Singapore, there are several bus companies operating in the city. The biggest one of them is the S.T.C. (Singapore Transport Co.) of British capitals, and the others are of Chinese capitals.

(d) In Laos, there are few long distance bus companies operating in the district, all of them being on a small scale.

(e) Bus Operating Business for Unassigned Roads

In Bangkok, there are some non-route long distance bus companies, mostly for engaging in the chartered passenger transport services. The K. M. Kanko, is one of them and this company engages in the sightseeing service between Bangkok and Singapore on a specific contract.

V-3 Traffic Facilities on the Roads

(a) The study so far made on the fuel supply stations and motor repair shops along the route suggests the need of adjusting these facilities for the Asian Highway International Service Project under the supervision of the proposed organizations.

(b) All traffic regulating signs and signals along the route must be rearranged in order to conform the standard forms recognized by the ECAFE to facilitate the operation of the international highspeed motor bus service.

(c) The standardization of motor vehicle restrictions, at least within this district should be taken up by the Federation of Road Transport Authorities for the Asian Highway International Bus Service route.

## CHAPTER VI MANAGING ORGANIZATIONS OF ASIAN HIGHWAY INTERNATIONAL BUS SERVICE

### VI-1 General Outline of Proposed Organizations

It is to be hoped that the related countries, such as Thailand, Malaysia, Singapore and Laos organize their own long distance bus operating companies, respectively called "Asian Highway International Bus Service Co. of Thailand or " of Malaysia" or " of Singapore" or " of Laos".

These bus operation companies are to be assigned to operate the passenger transport on commercial basis within their countries. If necessary, they will be able to extend their bus service beyond the state boundaries. In executing this plan, an international central control agency which is to be called "The Asian Highway International Bus Service Co." will be established for the purpose of financing these individual companies.

### VI-2 Parent Organization

The "Asian Highway International Bus Service Co." shall be of an international holding company, with its head office at Bangkok tentatively. The capital of this holding company will be fixed at \$5,000,000 for the time being. Its fund will be solicited from the World Bank, Asian Development Bank or the Government of advanced countries. The Board of Directors of the "Asian Highway International Bus Service Co." will be responsible for supervising the subsidiary companies and make a study of the transportation business. In addition the training of office clerks, drivers, mechanics and communication operators will be essential. It will also engage in a study of possibilities of developing the summer resorts and lodging facilities.

The negotiation with each of the local Governments on the simplification of the prodedures of the border passage quarantine and customs must be carried out by the parent company.

### VI-3 Subsidiary Organizations

The Asian Highway International Bus Service Co., and its subsidiary companies will be placed under the control of each of the local Governments.

The long distance bus service on special trunk routes should be carried out not to interfere with the existing various local bus service lines. Therefore, the existing bus companies may be assigned to undertake this special service as part business. The "Transport Co." (Thai), "MARA" (Malaysia), "Pan Malaysian

Road Transport Operators Association" (Malaysia), and "S.T.C." (Singapore) may be considered eligible to participate in such service. The "K. M. Kanko" is also to be included in them.

The negotiation with each of the local Governments on the proper maintenances of the roads and bridges should be made carefully all the time.

CHAPTER VII OPERATION OF INTERNATIONAL BUS SERVICE

VII-1 Bus Operation

On the route between Vientian and Singapore stretching 3,000 km, 4 subsidiary bus companies are to operate the passenger transportation business under the control of the parent organization. The route of 3,000 km will be divided to 6 sections as shown follows:

1.	Vientian	-	Bangkok	629 km
2.	Bangkok	-	Ranong	645 "
3.	Ranong	-	Haad Yai	703 "
4.	Haad Yai	-	Penang	212 "
5.	Penang	-	Kuala Lumpur	379 "
6.	Kuala Lumpur	-	Singapore	410 "
				2,978 km

Bus terminals shall be built in 7 principal cities of Vientian, Bangkok, Ranong, Haad Yai, Penang, Kuala Lumpur and Singapore. And, if necessary, temporary depots shall be built between the terminals. The temporary depots shall be put up at Korat in section 1, Parachuap in section 2, Trang in section 3, Ipoh in section 4 and Gemas in section 5.

The bus operation business in each section will be undertaken by 4 subsidiary companies as shown follows:

1 - Section	Laos Co. & Thai Co.
2 - Section	Thai Co.
3 - Section	Thai Co.
4 - Section	Thai Co. & Malaysia Co.
5 - Section	Malaysia Co.
6 - Section	Malaysia Co. & Singapore Co.

As shown above, in 1, 4 and 6 sections, two international bus companies will operate bus lines passing across the boundary lines.

Generally, these international long distance bus service will be put into operation only for the distance without making any stop for the short distance. In this way the service will not interfere with the existing local bus services.

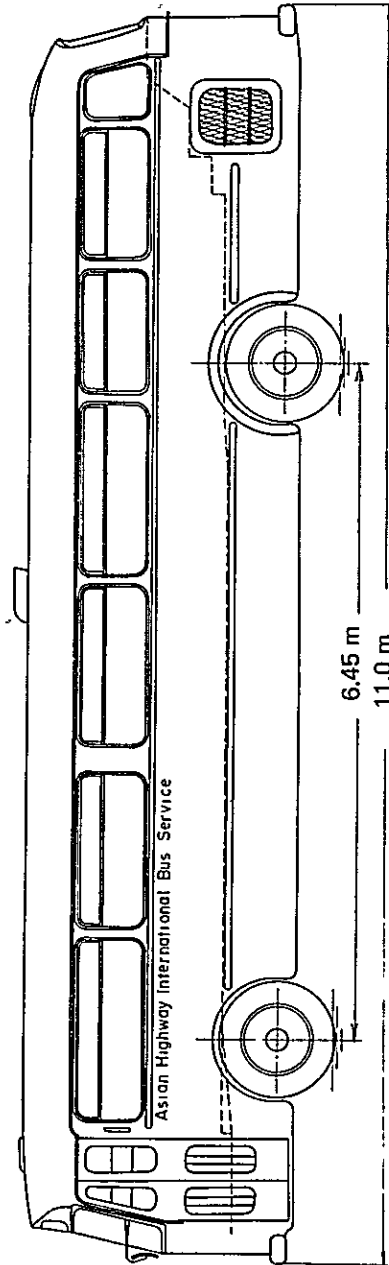
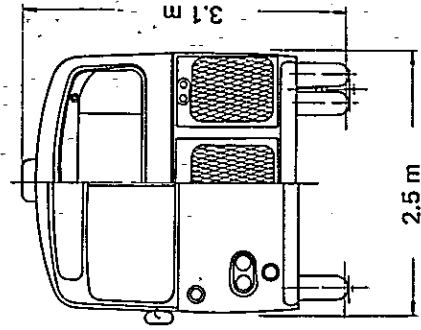
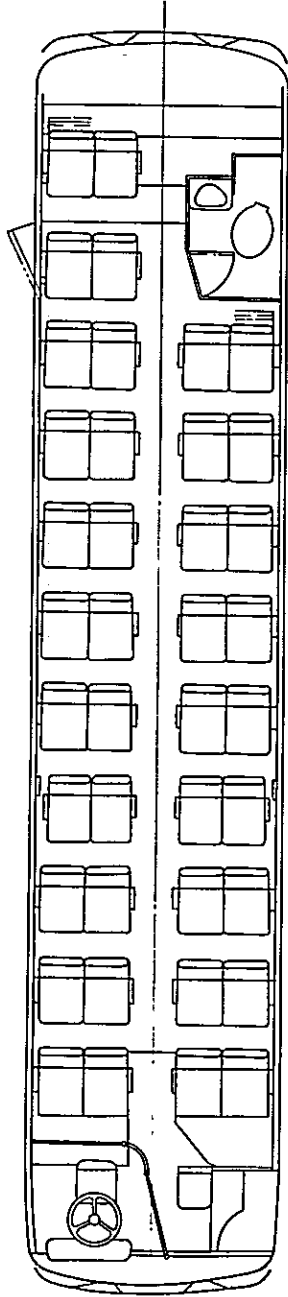
The schedule for International Bus Service is suggested as below.

## Asian Highway International Bus Service

40 Passengers.

Diesel Engine 300 P.S.

Air conditioned, Toilet arranged, Cruising Speed 80 —100 k.m.p.h. (Max. 115 k.m.p.h.)



Suggested Schedule for International Bus Operation

Terminals (Bus depots)	Distance (km)	Number of return trips per day	Necessary Number of cars	Time needed	Timetable
Vientian (Korat)	379	2	4	10:30	6:00 9:00 16:30 19:30
Bangkok	629				16:30 19:30 6:00 9:00
Bangkok (para- chuap)	347	2	4	11:00	6:00 9:00 17:00 20:00
Ranong	645				17:00 20:00 6:00 9:00
Ranong (Trang)	531	2	4	12:30	6:00 9:00 18:30 20:30
Haad Yai	703				18:30 21:30 6:00 9:00
Haad Yai	212	2	4	4:30	8:00 13:00 12:30 17:30
Penang					12:30 17:30 8:00 13:00
Penang (Ipon)	174	4	8	6:30	6:00 8:00 10:00 13:00 12:30 14:30 16:30 18:30
Kuala Lumpur	379				12:30 14:30 16:30 19:30 6:00 8:00 10:00 12:00
Kuala Lumpur (Gemas)	190	4	8	7:00	6:00 8:00 10:00 12:00 13:00 15:00 17:00 19:00
Singapore	410				13:00 15:00 17:00 19:00 6:00 8:00 10:00 12:00
	2,978 km				

## VII-2 Necessary Facilities

## (1) Bus Vehicles - 60

Bus vehicles which are to be put into service on the Asian Highway International Bus Service System routes must be such one built with materials endurable to high heat and capable of generating high speed for a long distance in the subtropical region. And the bus bodies must be airconditioned and equipped with reclining seats, telecommunication installations and toilets.

The particulars follow:

Whole length of the body	- - - - -	11.0 m
Whole width	- - - - -	2.5 m
Height	- - - - -	3.1 m
Wheelbase	- - - - -	6.45 m
Weight	- - - - -	13,000 kg
Wheel weight	- - - - -	10,000 kg
Passenger accommodation	- - - - -	40 persons
Engine output	- - - - -	300 p. s.
Cruising speed	- - - - -	80 - 100 km/h
Maximum speed	- - - - -	115 km/h
Incidental facilities	- - - - -	airconditioning equipment, toilet and telecommunication installations.



The number of motorbuses that may be required by the bus operation companies will total 32, and in addition, a certain number of auxiliary cars must be prepared for emergency need, the grand total being 60.

(2) Service cars and others

Motorcars and light-vans totalling 60 must be prepared for various uses, and repair parts must be kept in stock.

(3) Telecommunication

In order to keep constant contact between moving motorbuses and terminals, telewireless communication installations will be equipped in all motorbuses and terminals, and for this purpose short wave "VHF" will be used with the permission of the Governments concerned.

(4) Bus terminals

In the bus terminal building, business offices, filling stations, repair plants, telecommunication installations, passenger quarters, drivers' lodgings, dinning rooms and other necessary facilities should be arranged.

(5) Approximate expenditure for preparing principal facilities,  
(excluding bus terminal arrangements)

60 high speed buses (@US\$60,000 x 60 buses) ---	US\$3,600,000
60 liaison car (@US\$8,000 x 60 cars) . -----	480,000
Motorcar parts -----	408,000
Repair equipments -----	100,000
Wireless telecommunication installations -----	300,000
Miscellaneous -----	112,000
Total:	<u><u>US\$5,000,000</u></u>

## CHAPTER VIII PERSPECTIVE OF ACCOUNTS

Whether this project of the Asian Highway International Bus Service project will pay or not, depends upon the fare revenue and the number of passengers who utilize these motor transport facilities. Probably in the first stage of business of a couple of years, they may not pay, but in few years the public will become to recognize the benefits and passenger will increase yearly.

### VIII-1 Passenger Fare

The principles of fixing the motorbus passenger fare are to be as follows:

(a) The international bus fare will be a little higher than the existing local bus fare, for it will provide the luxurious riding service, quick transportation and good service.

(b) The international bus fare will be nearly same as the 2nd class railway fare.

The passenger fare of the existing bus companies and railways are as follows:

The current bus fare:

In Thailand ----- 0.095 - 9.1 baht per kilometer

In Malaysia ----- MS\$0.024 - 0.0312 per kilometer

The current railway fare:

	3rd class	2nd class	1st class
In Thailand -----	baht 0.1	0.2	0.4 per kilo- meter
In Malaysia -----	MS\$0.03	0.045	0.09

It is to be recommended that the international bus service fare be fixed at US\$0.012 - 0.015 per kilometer. But further examination is needed to reach the final conclusion for producing an adequate fare.

In case of adjusting the passenger fare on the different standards covering two to three countries, the adoption of IATA system is desirable.

### VIII-2 Business Perspective

The International Bus Service proposed here will be placed under a joint partnership of the "Asian Highway International Bus Inc." and the subsidiary companies in the different localities. The incorporation will be organized by the regional countries in cooperation with the advanced countries and inter-

national monetary institutions. The objective of the Asian Highway International Bus Service Inc. is to develop the regional road traffic in Asia in terms of public service by making investments. Since the incorporation has to spend an huge amount of money in making investments in the machinery and equipment for the bus operation, its financial perspective, namely whether it can make profit or not must be analyzed in a serious manner.

Take the financial management for instance. The business assignment in the relationship between the Asian Highway International Bus Service Inc. which will act as a parent company and its subsidiaries, the status of the local bus companies must be carefully studied. In view of the fact that there is a difficulty in ascertaining profit and loss of the incorporation of the present moment, its business perspective must be judged on data as described below:

The working expenses of the subsidiaries shall be covered with the earnings from bus fare and freightage, and in case of the parent incorporation, the expenses shall be paid with rental fee of buses and the income of other properties granted for the use of the subsidiaries and the share fund which is equivalent to 10 per cent of the fare and freightage. The yearly income of fare and freightage of the subsidiaries may be calculated as follows:

Passenger fare ----- \$0.01 per kilometer  
 Average occupancy rate of  
 40-passenger buses ----- 50 per cent  
 Freightage income is equivalent to 50 per cent of the  
 passenger fare

The operation distance of buses as calculated on the basis of the operation plan described in Chapter VII comes to a total of 4,854,500 km. It follows:

$$4,854,500 \times \$0.01 \times \left( \frac{40 \text{ persons}}{2} + \frac{40 \text{ persons}}{2} \times 0.5 \right)$$

On the other hand, the outlay may be calculated as follows:

Personnel expenses (crew, 60; motorcar engineers, 10;  
 telecommunication operators, 5; office clerks, 20;  
 total, 95 persons)  
 \$150/person x 95 (persons) x 12(months) ---- \$171,000  
 Business expenses ----- \$171,000  
 Operation expenses ----- \$396,000  
 Rent fee (equivalent to the parent  
 company's redemption fund) ----- \$430,000

Share for maintaining the parent company (equivalent to 10 per cent of the income of fare and freightage)	-----	\$145,635
Reserve fund (6 per cent)	-----	\$ 78,837
Total:		<u><u>\$1,392,472</u></u>

The expenses of the parent company shall be covered with fund offered by the subsidiaries.

The expenses follow:

Personnel expenses:		
5 Executive officials	-----	\$500/person x 5(persons) x 12(months) = \$ 30,000
Office clerks		
(3 office clerks)	-----	\$500/person x 3(persons) x 12(months) = \$ 5,400
Office expenses		
\$6,000/month x 12(months)	-----	\$ 72,000
Commission for liquidation:		
\$500/month x 12(months)	-----	\$ 6,000
Redemption fund		
(terms: 7 years for motorcars, etc. 20 years for repairing and tele- communication facilities)	-----	\$430,000
Reserve fund (about 6 per cent)	-----	\$ 32,235
Total:		<u><u>\$575,635</u></u>

The parent company shall collect from its subsidiaries rent fee on its properties, which is equivalent to the amount of redemption fund, and the whole expenses from which the redemption fund is deducted in the name of "the share fund for maintaining the parent company".

As clarified in the above-mentioned figures, the subsidiaries can expect to gain a profit which is equivalent to the difference between the income of fare and freightage and the expenses amounting to \$1,456,350 - \$1,392,472 = \$63,878.

At this stage the balance sheet of the parent company remains to be in a state of equilibrium. If the income of fare and freightage should increase, the parent company's revenue expected from the subsidiaries would rise accordingly. Provided that the expenses that the parent company is due to pay for counting convenience remains unchanged, the increase in the revenue would be reflected in the form of profit in the balance sheet of the parent company.

## CHAPTER IX CONCLUSION AND RECOMMENDATIONS

After the precise studies in the spots on the proposed the Asian Highway International Bus Service project, it can be said as follows:

(1) Circumstantially speaking, there is every indication to favor the Asian Highway International Bus Service between Vientian - Singapore of 3,000 km.

(2) The Survey Team would like to make a recommendation as follows:

(a) A special committee named "Asian Highway International Bus Service Realization Committee" would be organized by good offices of ECAFE.

(b) The said committee is composed of the road transport authorities of concerning governments and International Financial Institutions.

