



Priority Investment Needs for the Development of the Asian Highway Network



United Nations
ESCAP

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

ESCAP is the regional development arm of the United Nations and serves as the main economic and social development centre for the United Nations in Asia and the Pacific. Its mandate is to foster cooperation between its 53 members and 9 associate members. ESCAP provides the strategic link between global and country-level programmes and issues. It supports Governments of the region in consolidating regional positions and advocates regional approaches to meeting the region's unique socio-economic challenges in a globalizing world. The ESCAP office is located in Bangkok, Thailand. Please visit our website at www.unescap.org for further information.



The shaded areas of the map indicate ESCAP members and associate members.

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

Priority Investment Needs for the Development of the Asian Highway Network



United Nations
New York, 2006

ST/ESCAP/2424

This publication was prepared under the direction of the Transport and Tourism Division of the Economic and Social Commission for Asia and the Pacific. Inputs related to priority investment needs and projects were provided by national experts and representatives of member countries at three subregional expert group meetings.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or the delineation of its frontiers or boundaries.

This publication has been issued without formal editing.

CONTENTS

	<i>Page</i>
INTRODUCTION	1
I. STATUS OF THE ASIAN HIGHWAY NETWORK	5
A. Introduction	5
B. Overall status of the Asian Highway Network	5
C. Status of the Asian Highway Network by subregion	10
II. PRIORITY INVESTMENT NEEDS	25
A. Introduction	25
B. Assessment of ongoing investment	25
C. Regional cooperation programmes	27
D. Priority investment needs	28
E. Prioritization of investment needs	34
III. INTERMODAL CONNECTIVITY AND THE ASIAN HIGHWAY NETWORK	35
A. Introduction	35
B. Initiatives for improving connectivity and intermodal facilities	37
IV. CONCLUSIONS	39

ANNEX

PROFILES OF PRIORITY PROJECTS ALONG THE ASIAN HIGHWAY

A. Afghanistan	41
B. Armenia	43
C. Azerbaijan	47
D. Bangladesh	49
E. Bhutan	55
F. Cambodia	57
G. China	70
H. Georgia	74
I. India	76
J. Indonesia	80
K. Islamic Republic of Iran	81
L. Kazakhstan	86
M. Kyrgyzstan	89
N. Lao People's Democratic Republic	96
O. Mongolia	99
P. Myanmar	106
Q. Nepal	109
R. Philippines	111
S. Sri Lanka	121
T. Tajikistan	122
U. Turkey	125
V. Viet Nam	126

LIST OF TABLES

Page

1. Asian Highway classification and design standards	6
2. Status of the Asian Highway in member States	7
3. Status of the Asian Highway network by subregion	8
4. Status of the Asian Highway routes in South Asia	11
5. Sections of the Asian Highway carrying the heaviest traffic	13
6. Status of the Asian Highway routes in Central and South-West Asia	14
7. Traffic along the Asian Highway in Central and South-West Asia	17
8. Classification of the Asian Highway in South-East Asia	18
9. Asian Highway links carrying the highest traffic volumes	20
10. Status of the Asian Highway routes in North-East Asia	21
11. Asian Highway sections carrying the highest traffic volumes	24
12. Current investment in the Asian Highway network	25
13. Selected large ongoing or committed projects along the Asian Highway	26
14. Identified priority projects for developing the Asian Highway in the South Asian, Central and South-West Asian, South-East Asian and North-East Asian subregions	29
15. Asian Highway intermodal connections to the major ports	36

LIST OF FIGURES

1. Part of the Asian Highway network	1
2. Asian Highway network	2
3. Examples of Asian Highway sections requiring investment	3
4. Overall status of the Asian Highway	8
5. Asian Highway classes by subregion	9
6. Asian Highway routes not conforming to the minimum standards, by subregion	9
7. Asian Highway route signs	10
8. Existing classes of the Asian Highway in South Asia	11
9. A section of the Asian Highway route in South Asia (Pakistan)	12
10. Pavement conditions of the Asian Highway in South Asia	12
11. Traffic along the Asian Highway routes	13
12. A section of the Asian Highway route in Central Asia (Kyrgyzstan)	15
13. Classification of the Asian Highway in Central and South-West Asia	15
14. Sections of Asian Highway routes in Central Asia (Kazakhstan and Tajikistan)	16
15. Surface conditions of the Asian Highway in Central and South-West Asia.	16
16a. Status of the Asian Highway in South-East Asia	18
16b. Status of the Asian Highway in South-East Asia	19
16c. Status of the Asian Highway in South-East Asia	19
17. Sections of Asian Highway routes in South-East Asia (Cambodia and Viet Nam)	20
18. Asian Highway routes and classification in North-East Asia	22
19. Upgrading a section of AH4 to Class III in North-East Asia (Mongolia)	22
20. Pavement conditions of the Asian Highway in North-East Asia	23
21. Gravelled section of AH4 in North-East Asia (Mongolia)	23

INTRODUCTION

The Asian Highway is a significant regional transport cooperation initiative aimed at enhancing the efficiency and development of the road transport infrastructure in Asia. The key objectives are to promote international and bilateral trade and tourism in order to encourage regional economic and social development. The initiative is one component of the Asian land transport infrastructure development (ALTID) project, first launched by the Economic and Social Commission for Asia and the Pacific (ESCAP) at its forty-eighth session in 1992.

The Asian Highway network (figure 2) now comprises more than 141,000 kilometres of roads, passing through 32 member States.

A new phase of the Asian Highway began with the entry into force of the Intergovernmental Agreement on the Asian Highway Network¹ on 4 July 2005. Currently, 20 member States are Parties to the Agreement:² Afghanistan, Armenia, Azerbaijan, Bhutan, Cambodia, China, Georgia, India, Japan, Kyrgyzstan, Mongolia, Myanmar, Pakistan, the Republic of Korea, the Russian Federation, Sri Lanka, Tajikistan, Thailand, Uzbekistan, and Viet Nam.

The Agreement was adopted in November 2003 by the Intergovernmental Meeting to Develop an Intergovernmental Agreement on the Asian Highway Network. The Agreement was opened for signature at the sixtieth session of the Commission, held at Shanghai, China, in April 2004. It has so far been signed by 28 member States, a clear indication of the importance of developing the regional transport network in Asia. Member countries can join the Agreement through accession.

The main obligations of the Contracting Parties within the Agreement are to: (a) adopt the Asian Highway network as a coordinated plan for the development of highway routes of international importance; (b) bring the network into conformity with the Asian Highway classification and design standards; and (c) place Asian Highway route signs along the network.



Figure 1. Part of the Asian Highway network

¹ See <http://www.unescap.org/ttdw/common/tis/AH/AH-Agreement-E.pdf> for the full text of the Agreement.

² See <http://untreaty.un.org/ENGLISH/bible/englishinternetbible/partI/chapterXI/subchapB/treaty171.asp> for updated status.

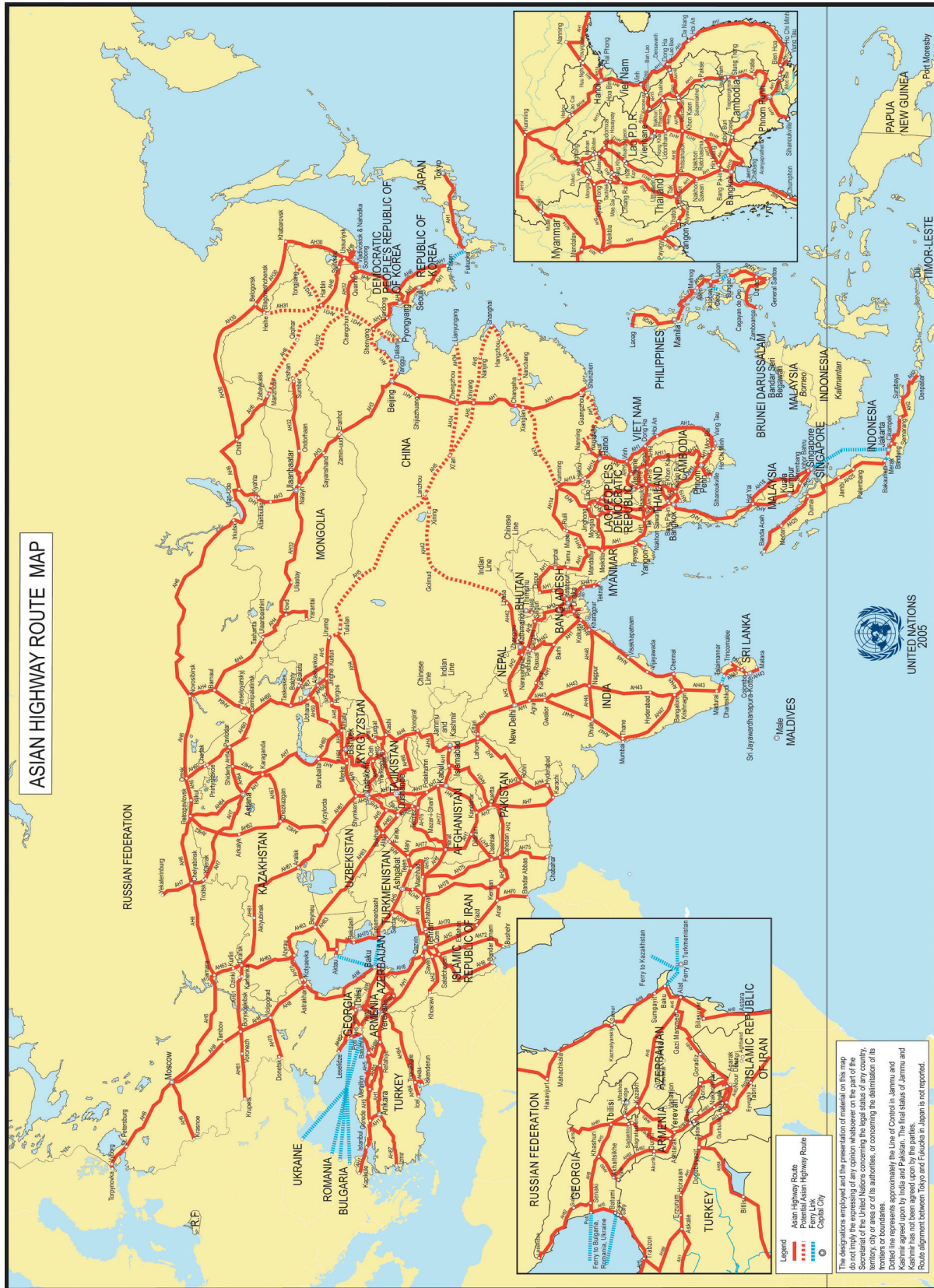


Figure 2. Asian Highway network

The Agreement also provides for the establishment of a Working Group on the Asian Highway to consider its implementation and any proposed amendments. The first meeting of the Working Group, which also provides a regional forum for the exchange of information and experiences in the development of a regional highway, was held in Bangkok on 14 and 15 December 2005.

Resolution 60/4 of 28 April 2004 on the Intergovernmental Agreement on the Asian Highway Network, concerning financial and technical support, was adopted at the sixtieth session of the Commission held in Shanghai, China. In the resolution, the Commission invites international and regional financing institutions, as well as multilateral and bilateral donors, to provide financial and technical support for the development of the Asian Highway network and related infrastructure, particularly taking into account the special needs of landlocked developing countries.

Currently, 15.8 per cent of the 141,000 km of the Asian Highway network is below the agreed minimum standards. Upgrading and improving the network to the requirements of international transport is one of the important obligations of a Party within the Intergovernmental Agreement on the Asian Highway Network. While some States are capable of mobilizing the resources to fulfil the obligations of the Agreement, other States will need development assistance from multilateral and bilateral donors as well as international financial institutions in order to meet those obligations.

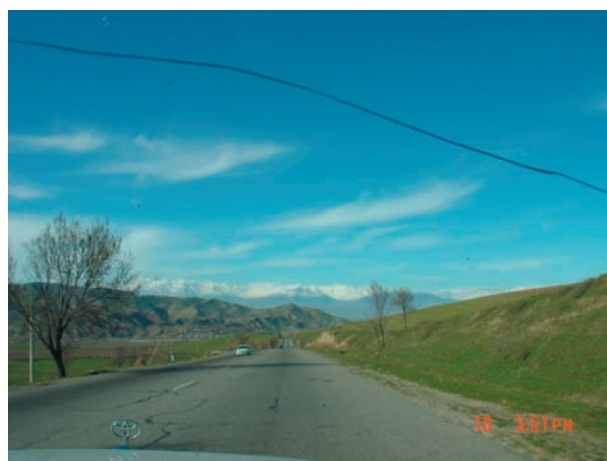


Figure 3. Examples of Asian Highway sections requiring investment

In the context of these funding constraints, ESCAP implemented a project with funding provided by the Government of Japan to review the status of development as well as identify investment needs and priorities for the development of the Asian Highway network.

The project employed a simple methodology to assess the status of the Asian Highway network and the investment requirement, and to identify priority projects. Information related to the status of national highway networks, ongoing and planned investment along the Asian Highway, national policies and priorities, and a list of priority projects were collected from each member State. Designated government representatives acting as focal points for the Asian Highway in member States provided information in the form of country reports.

Taking a subregional approach, inputs received from member States were used to prepare subregional overviews of the status of development, investment needs and development priorities for the: (a) South-Asia, (b) North, Central and South-West Asia, and (c) South-East Asia subregions. Three subregional expert group meetings were organized for: (a) South Asia (including Afghanistan and the Islamic Republic of Iran), (b) North, Central and South-West Asia, and (c) South-East Asia (including Mongolia). Representatives of member countries and donors discussed the subregional overviews, national policies and plans for the development of the Asian Highway as well as priority investment projects of common national and subregional importance.

For the first time, the project facilitated interaction and dialogue among member countries and international financing institutions, bilateral donors and subregional organizations on financing the development of the Asian Highway.

Following the identification of priority projects at the subregional meetings, member countries provided a project profile template containing further detailed information on the priority projects with the objectives of promoting investment and highlighting these identified projects for interested bilateral and multilateral donors or private sector investors.

This publication consolidates the outcomes of three subregional expert group meetings, and provides subregional overviews of the status of the Asian Highway in the four subregions: (a) South Asia; (b) Central and South West Asia; (c) South-East Asia; and (d) North-East Asia. Chapter I outlines the current status of the Asian Highway with respect to its conformity with Asian Highway classification and design standards. Chapter II presents an assessment of ongoing and committed investment along the Asian Highway in member States and the investment needs for the development of the Asian Highway. It also presents a consolidated list of identified priority investment projects emanating from the three subregional expert group meetings and consultations with member States. Chapter III explains the importance of intermodal connectivity. The conclusions are presented in chapter IV. Project profiles of selected priority projects are included in the annex.

I. STATUS OF THE ASIAN HIGHWAY NETWORK

A. Introduction

The physical status of the Asian Highway network varies considerably, both across and within the subregions of Asia. The Asian Highway network is currently a mix that extends from expressways or access controlled roads, through dual carriageway highways, to single carriageway two-lane roads and, in rare cases, single lane roads.

The type of pavement also varies in quality from asphalt concrete, cement concrete or double base surface treatment (DBST) to gravel and improved earthen roads in some cases. In addition, the condition of the pavement may be good, fair or poor, based on the visual or actual pavement condition surveys.

The commitments shown by participating member countries hold significant promise for the development of the Asian Highway network to the level of quality and standards that have always been envisaged. However, considerable efforts will be required in finding and allocating sufficient financial resources as well as appropriate road construction and maintenance technology.

The following discussion of the status of the Asian Highway is divided by subregion into: (a) South Asia; (b) Central and South-West Asia; (c) South-East Asia; and (d) North-East Asia. The overviews are based on the Asian Highway database and information received from member countries during the subregional meetings held in 2004 and 2005.

B. Overall status of the Asian Highway network

The Asian Highway classification and design standards³ provide the minimum standards and guidelines for construction, improvement and maintenance of the Asian Highway routes. The Asian Highway routes are classified into four types: (a) Primary (four or more lanes, access controlled); (b) Class I (four or more lanes); (c) Class II (two lanes); and (d) Class III (two lanes). Various technical parameters for type of Asian Highway depend on the classification, terrain and design speed. Table 1 provides a summary of Asian Highway classification and design standards. The Asian Highway classification and design standards specify Class III as the minimum desirable standards. The type of pavement recommended is asphalt concrete; double bituminous surface treatment can be used if only limited funds are available, but this is to be upgraded to an asphalt concrete pavement once resources become available.

The current status of the Asian Highway network is outlined in table 2. As table 2 indicates, China has the greatest length of the Asian Highway at 25,929 km, followed by the Russian Federation (16,869 km), Kazakhstan (13,200 km), India (11,458 km) and the Islamic Republic of Iran (11,153 km). Singapore and Bhutan have only 19 km and 167 km respectively of the Asian Highway.

Some 117,000 km (83 per cent) of the Asian Highway network meets the minimum Class III standard specified in the Agreement. Approximately 67,000 km (48 per cent) of the network exceed Class III.

³ For details see <http://www.unescap.org/ttdw/common/tis/ah/AnnexII-E.pdf>.

Table 1. Asian Highway classification and design standards

Highway classification		Primary (four or more lanes)					Class I (four or more lanes)					Class II (two lanes)					Class III (two lanes)				
Terrain classification		L	R	M	S		L	R	M	S		L	R	M	S		L	R	M	S	
Design speed (km/h)		120	100	80	60		100	80		50		80	60	50	40		60	50	40	30	
Width (m)		(50)					(40)					(40)					(30)				
Lane		3.50					3.50					3.50					3.00 (3.25)				
Shoulder		3.00		2.50			3.00		2.50			2.50		2.00			1.5 (2.0)		0.75 (1.5)		
Median strip		4.00		3.00			3.00		2.50			N/A		N/A			N/A		N/A		
Minimum radii of horizontal curve (m)		520	350	210	115		350	210	80			210	115	80	50		115	80	50	30	
Pavement slope (%)		2					2					2					2-5				
Shoulder slope (%)		3-6					3-6					3-6					3-6				
Type of pavement		Asphalt/cement concrete					Asphalt/cement concrete					Asphalt/cement concrete					Dbl. bituminous treatment				
Maximum super-elevation (%)		10					10					10					10				
Maximum vertical grade (%)		4	5	6	7		4	5	6	7		4	5	6	7		4	5	6	7	
Structure loading (minimum)		HS20-44					HS20-44					HS20-44					HS20-44				

Notes: Figures in parentheses are desirable values.

Minimum radii of horizontal curve should be determined in conjunction with super-elevation.

The recommended width of the median can be reduced with the proper type of guard fence.

The Parties should apply their national standards when constructing structures such as bridges, culverts and tunnels along the Asian Highway.

Table 2. Status of the Asian Highway in member States*(Kilometres)*

Country	Primary	Class I	Class II	Class III	Below III	Other ^a	Total
Afghanistan	0	0	621	77	3 549	–	4 247
Armenia	0	142	377	479	0	–	998
Azerbaijan	0	82	1 012	348	0	228	1 670
Bangladesh	0	20	441	476	868	–	1 805
Bhutan ^b	0	0	6		161	–	167
Cambodia	0	0	398	743	199	–	1 340
China ^c	4 140	189	2749	2 008	1 443	15 400	25 929
Democratic People's Republic of Korea	0	0	0	0	0	1 320	1 320
Georgia	0	8	788	358	0	–	1 154
India	0	484	0	10 869	105	–	11 458
Indonesia	335	18	1 600	1 965	0	34	3 952
Iran (Islamic Republic of)	752	1 067	9 334	0	0	–	11 153
Japan	1 111	0	0	0	0	–	1 111
Kazakhstan	0	72	767	10 004	2 346	–	13 189
Kyrgyzstan	0	0	464	511	720	–	1 695
Lao People's Democratic Republic	0	0	0	2 375	0	3	2 378
Malaysia	795	67	733	0	0	–	1 595
Mongolia	0	0	440	345	3 501	–	4 286
Myanmar	0	147	144	983	1 729	–	3 003
Nepal	0	0	311	1 003	12	–	1 326
Pakistan	358	1 116	160	2 569	1 174		5 377
Philippines	0	17	27	2 872	451	150	3 517
Republic of Korea	466	197	244	0	0	–	907
Russian Federation	0	1 147	8 334	3 210	4 178	–	16 869
Singapore	11	8	0	0	0	–	19
Sri Lanka	0	0	269	190	191	–	650
Tajikistan	0	0	289	603	1 033	–	1 925
Thailand	182	2 572	1 226	1 128	0	4	5 112
Turkey	1 212	155	1 219	2 685	0	–	5 271
Turkmenistan	0	0	0	2 180	24	–	2 204
Uzbekistan	0	255	765	1 618	328	–	2 966
Viet Nam	0	408	1 915	104	251	–	2 678
Total	9 362	8 171	34 633	49 703	22 263	17 139	141 271
<i>Percentage</i>	<i>6.6</i>	<i>5.8</i>	<i>24.5</i>	<i>35.2</i>	<i>15.8</i>	<i>12.1</i>	<i>100.0</i>

Source: Asian Highway Database, 2004 and updates from member States.

^a Other includes sea and river ferries and unknown classification.

^b In Bhutan, the length has been extended to Thimphu.

^c In China, the network comprises 10,529 km of agreed Asian Highway routes and 15,400 km of potential Asian Highway routes which is composed of about 8,800 km of Primary, 1,530 km of Class I, 4,850 km of Class II and 220 km of Class III roads.

However, some 22,000 km (15.8 per cent) of the network remains below Class III standards. Considerable effort will be required to upgrade these segments within member countries. The responsibility for upgrading these national segments lies with each of the member countries concerned.

The overall status of the Asian Highway is shown in figure 4. The network is predominantly at Class II and Class III standards. By promoting investment in highway upgrading and maintenance, the Asian Highway project ultimately aims to develop all segments of the Asian Highway routes in conformity with the design standards. The efforts of member countries in improving the network are dealt with in chapter II.

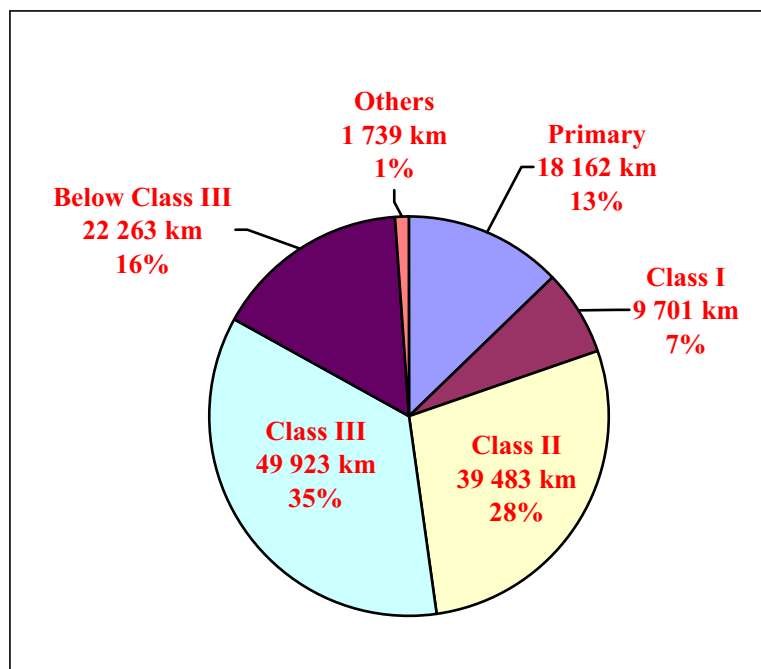


Figure 4. Overall status of the Asian Highway

Table 3 summarizes the status of Asian Highway by four subregions.

Table 3. Status of the Asian Highway network by subregion ^a

(Kilometres)

Subregion	Primary	Class I	Class II	Class III	Below III	Other	Total
South-East Asia	1 323	3 237	6 043	10 170	2 630	191	23 594
South Asia	358	1 620	1 187	15 107	2 511	–	20 783
Central and South-West Asia	1 964	1 781	15 636	18 863	8 000	228	46 472
North-East Asia ^b	5 717	1 533	11 767	5 563	9 122	16 720	50 422
Total	9 362	8 171	34 633	49 703	22 263	17 139	141 271

^a South-East Asia – Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam; South Asia – India, Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka; Central and South-West Asia – Afghanistan, Armenia, Azerbaijan, Georgia, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey, Uzbekistan; North-East Asia – China, Democratic People's Republic of Korea, Japan, Mongolia, Republic of Korea, Russian Federation.

^b Includes the Russian Federation.

In absolute terms, the North-East Asian subregion has the greatest lengths of Asian Highway, totalling 50,422 km, as two large countries (the Russian Federation and China) are grouped in this subregion. The South Asian subregion has the shortest length, totalling 20,783 km.

Figure 5 shows the different classes of highways by subregion. North-East Asia is unique in having a much greater length of Primary standard roads than Class I, and a higher number of Class II roads than Class III roads. The majority of South Asia's road network is at Class III standard, while South-East Asia has the highest percentage of its network at Class I or Primary (around 20 per cent).

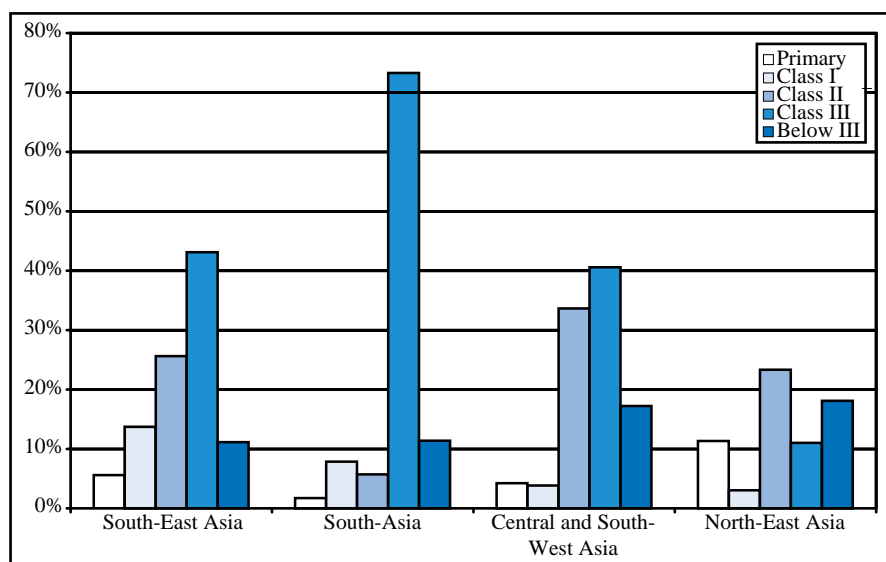


Figure 5. Asian Highway classes by subregion

Figure 6 shows the percentage of highways not conforming to the minimum design standards (below Class III standards) by subregion. The figure clearly indicates that the South-East Asian and South Asian subregions have a below-average percentage of Asian Highway routes that do not conform to the minimum standards. In contrast, the North-East Asian, Central Asian and South-West Asian subregions have above-average percentages of Asian Highway routes that do not conform to the minimum standards.

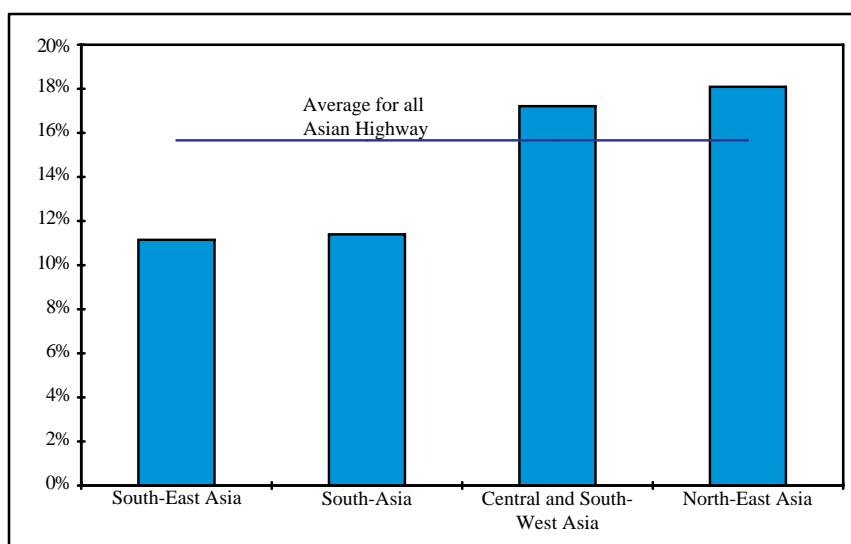


Figure 6. Asian Highway routes not conforming to the minimum standards, by subregion

In addition to the requirement for the Asian Highway to be upgraded in order to meet the specified design standards, the Parties to the Agreement are required to put in place the Asian Highway route signs within five years from the date that the Agreement enters into force for each State concerned. The provision provides flexibility in terms of selecting the background and inscription colour of the Asian Highway route sign as member States are using different road sign designs. Figure 7 shows some suggested Asian Highway route signs.



Figure 7. Asian Highway route signs

C. Status of the Asian Highway network by subregion

1. South Asia

The South Asian subregion⁴ comprises Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka. The total length of the Asian Highway routes in South Asia is 20,783 km, with India and Pakistan having the greater lengths due to their larger relative sizes.

The important international Asian Highway routes in South Asia that connect with the neighbouring subregions are:

- AH1 – New Delhi – Lahore – Islamabad – Peshawar – Kabul.
- AH1 – New Delhi – Lahore – Rohri – Quetta – Taftan – Zahedan.
- AH1 – Dhaka – Jessore – Benapol – Kolkata.
- AH1 – Tamu – Imphal – Dimapur – Shillong.
- AH41/AH2/AH42 – Mongla – Hatikamul – Banglabandh – Kakarbhatta – Narayangarh – Kathmandu.
- AH4 – Karachi – Lahore – Hassanabdal – Khunjarab – Kashi.
- AH48 – India (Siliguri – Phentsholing – Thimpu).⁵
- AH1/AH42 – Kolkata – Barhi – Raxual – Birgunj – Kathmandu – Kodari – Lhasa.
- AH43 – Matara – Colombo – Dhaumbala – Madurai – Bangalore – Agra – New Delhi.

Table 4 shows the status of the Asian Highway routes in the South Asian subregion. Of the total kilometres of Asian Highway in the subregion, the majority currently meet the Class III standard (double lane, paved road), while 2,511 km are below Class III, or approximately 12 per cent of the network. Pakistan and Bangladesh have (in absolute terms) the the greatest number of kilometres below Class III. Pakistan, however, also has the highest number of kilometres currently at Class I standard or above. Table 4 shows that 1,984 km of the Asian Highway network in South Asia are Class I standard or above, representing nearly 10 per cent of the total network in the subregion.

⁴ Maldives, which is also part of South Asia due to its geographical location, is not participating in the Asian Highway.

⁵ The Asian Highway in Bhutan has been extended to Thimphu. India has indicated no objection to designating Siliguri – Hashimara – Jaigaon in India as Asian Highway route linking to Bhutan which will be considered by the next session of the Working Group on the Asian Highway.

Table 4. Status of the Asian Highway routes in South Asia

(Kilometres)

Country	Primary	Class I	Class II	Class III	Below III	Total
Bangladesh	–	20	441	476	868	1 805
Bhutan	–	6	–	–	161	167
India	–	484	–	10 869	105	11 458
Nepal	–	–	311	1 003	12	1 326
Pakistan	358	1 116	160	2 569	1 174	5 377
Sri Lanka	–	–	269	190	191	650
Total	358	1 626	1 181	15 107	2 511	20 783
<i>Percentage</i>	<i>1.7</i>	<i>7.8</i>	<i>5.7</i>	<i>72.7</i>	<i>12.1</i>	<i>100.0</i>

The classification of the Asian Highway in South Asia is shown in figure 8.

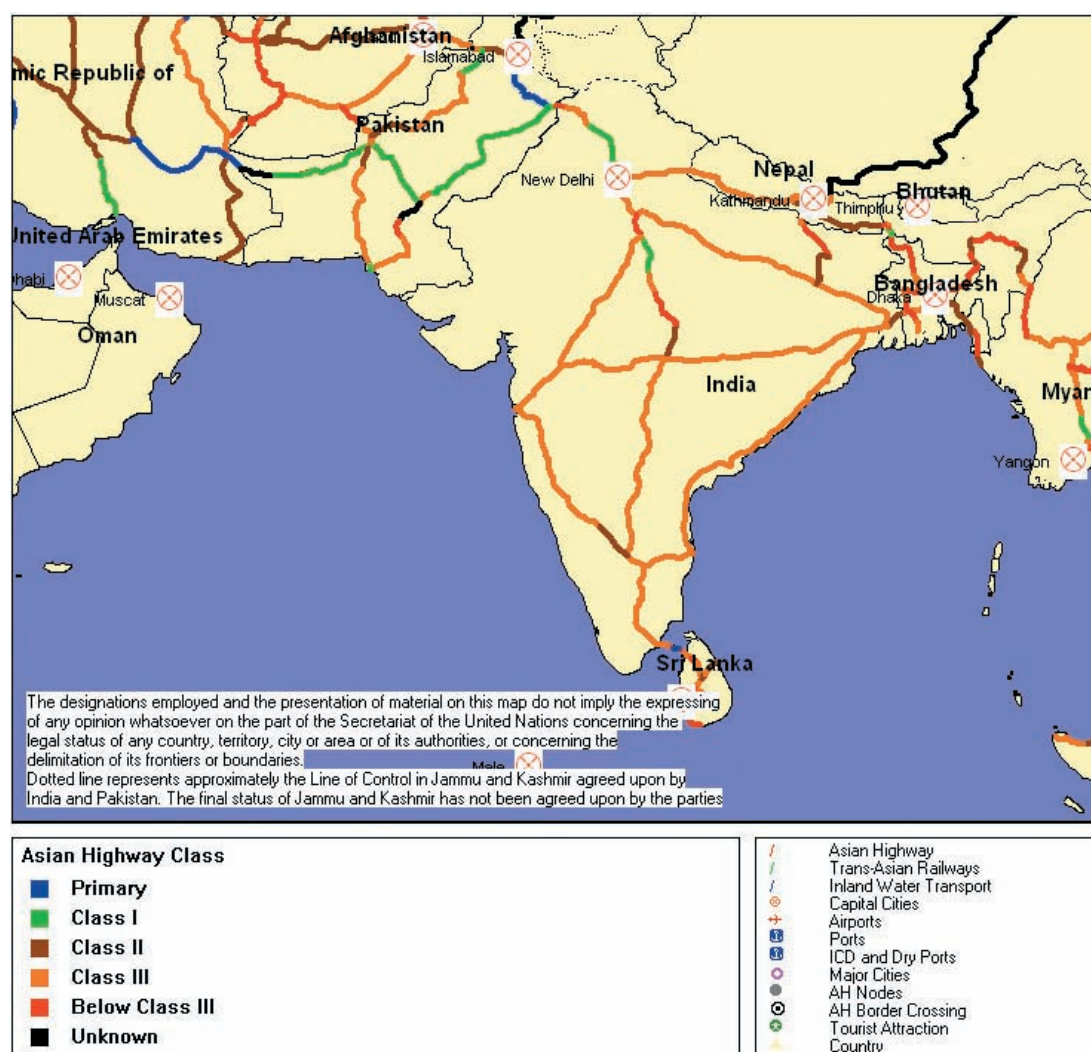


Figure 8. Existing classes of the Asian Highway in South Asia

Figure 9 shows an AH1 route in South Asia. The pavement condition of each of the routes in South Asia is listed in figure 10. As indicated in figure 10, different pavement conditions exist; the bad pavement conditions are shown in red colour, indicating the need for improvement by pavement overlay or rehabilitation in that section.



Figure 9. A section of the Asian Highway route in South Asia (Pakistan)

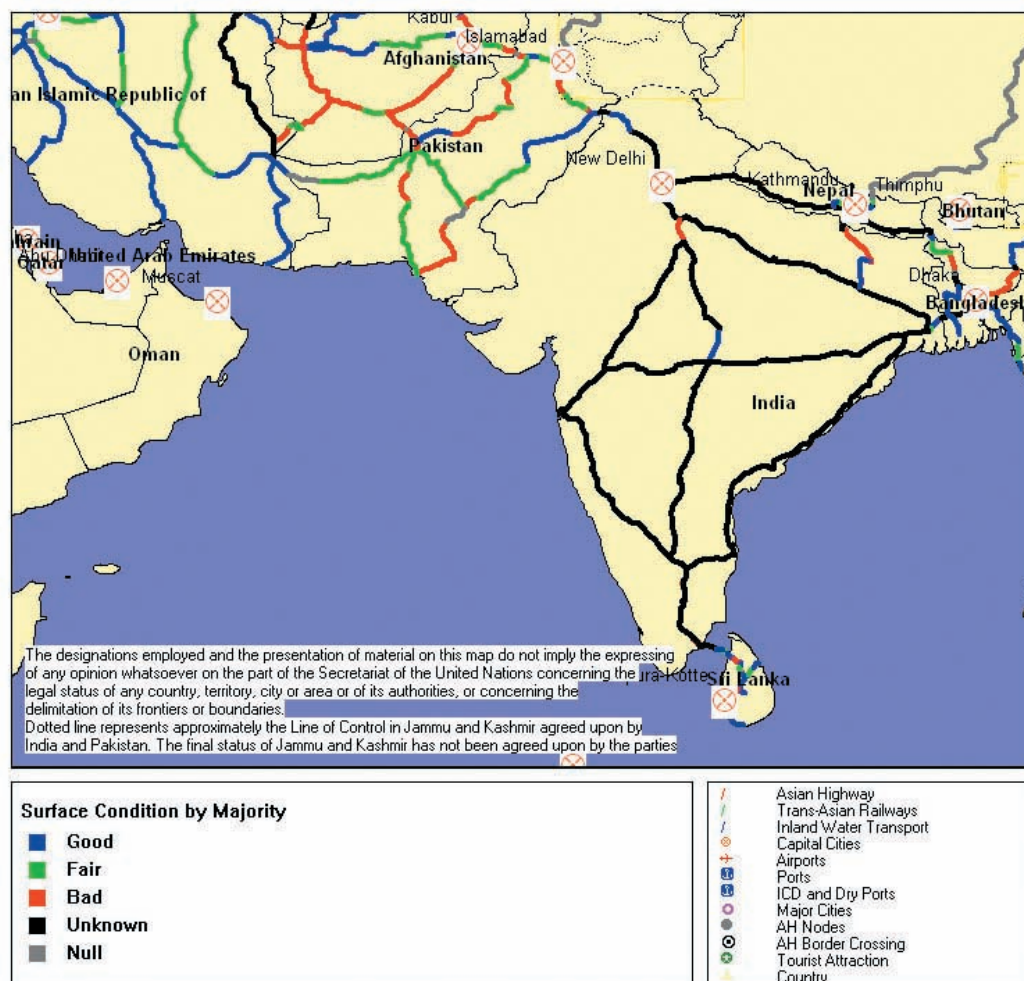


Figure 10. Pavement conditions of the Asian Highway in South Asia

Table 5 outlines the sections of the Asian Highway in each country that carry the highest average annual daily traffic (AADT). Figure 11 shows the level of traffic along the Asian Highway in South Asia.

In terms of overall volume, the highest volume segments of the Asian Highway in South Asia are the AH43 section from Colombo to Panadura in Sri Lanka (48,028 vehicles per day), the AH47 link from Panvel to Pune in India (46,401 vehicles per day) and AH2 from Dhaka (North) to Joydevpur in Bangladesh (46,231 vehicles per day).

Table 5. Sections of the Asian Highway carrying the heaviest traffic

Country	AH No.	AH section	AADT	AH Class
Bangladesh	AH2	Dhaka (North) – Joydevpur	46 231	II
Bhutan	AH48	Phuentshpling – Thimphu	1 168	Below III
India	AH47	Panvel – Pune	46 401	II
Nepal	AH42	Kathmandu Ring Road – Kathmandu	34 705	I
Pakistan	AH1	Islamabad Intersection – Hassanabdal	30 391	I
Sri Lanka	AH43	Colombo – Panadura	48 028	II

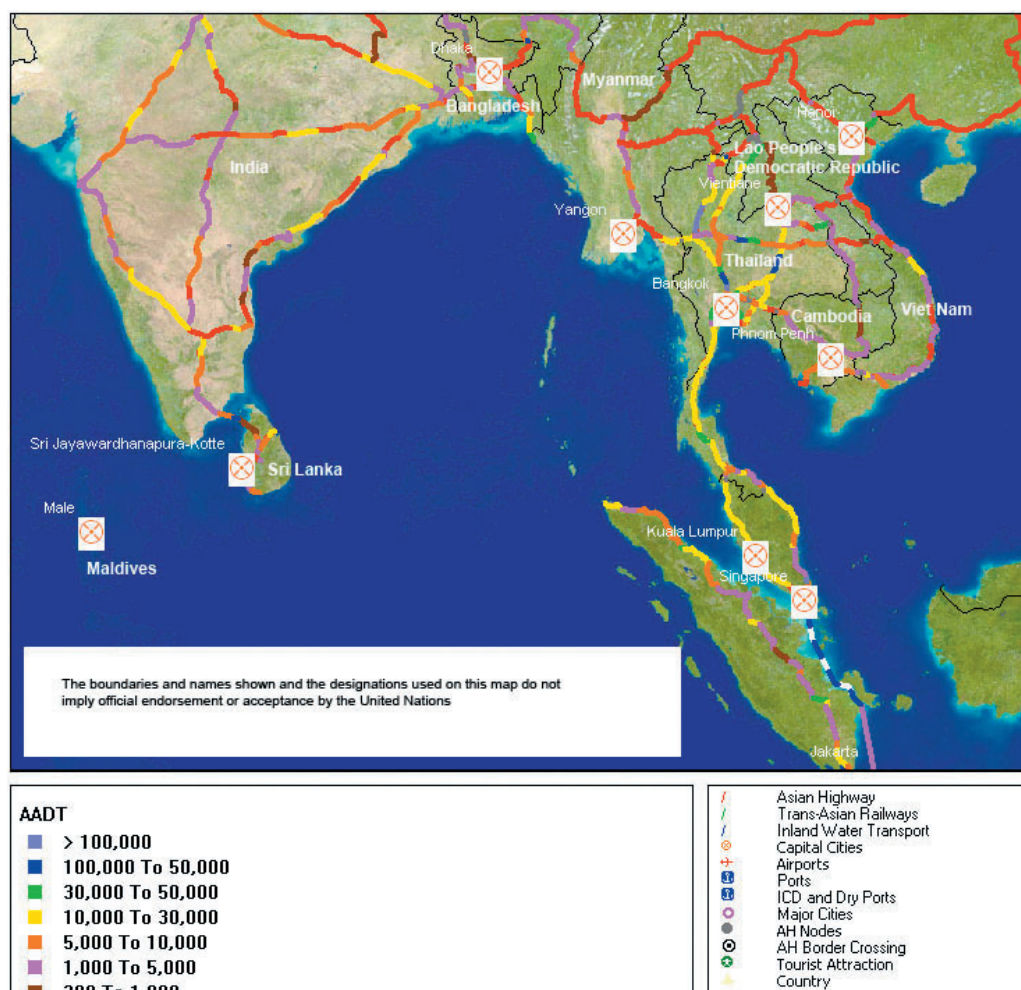


Figure 11. Traffic along the Asian Highway routes

2. Central and South-West Asia

The Central and South-West Asia subregion comprises Afghanistan, Armenia, Azerbaijan, Georgia, the Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Turkmenistan and Uzbekistan. The subregion currently has some 46,500 km of the Asian Highway, with the Islamic Republic of Iran and Kazakhstan having the greatest number of kilometres (due to their relative sizes).

Some of the main Asian Highway routes in the subregion are outlined below.

- AH1 – Islamabad – Torkham – Kabul – Dilaram – Herat – Mashhad – Tehran – Askala – Ankara – Kapikule to Europe.
- AH2 – Quetta – Taftan – Kerman – Yazd – Qom – Hamadan – Khosravi.
- AH6/AH30 – East-West route from Vladivostok port to Moscow and to Europe.
- AH8 – Bandar Emam – Saveh – Astara – Baku – Astrakhan – Moscow – St. Petersburg.
- AH70 – Bandar Abbas – Yazd – Turkmenbashi – Aktau – Beyneu – Atyaru – Astrakhan.
- AH75 – Chabahar – Zahedan – Mashhad – Mary – Bukhara – Tashkent.
- AH7 – Karachi – Quetta – Kabul – Nizhniy Panj – Dushanbe – Tashkent – Chaldovar – Astana.
- AH5 – Urumqi – Almaty – Bishkek – Tashkent – Ashgabat – Turkmenbashi-Baku – Tbilisi – Poti – Samsun – Istanbul – Kapikule.
- AH75/AH71/AH1/AH76/AH62 – Chabahar – Herat – Mazar-e-Sharif – Termez – Tashkent.
- AH82/81 – Eyvoghli – Jolfa – Meghri – Yerevan – Ashtarak – Tbilisi – Larsi.

The status of the Asian Highway in Central and South-West Asia is shown in table 6. Of the total kilometres of Asian Highway in the subregion, the majority (approximately 41 per cent) is Class III standard (double lane). A total of 8,000 km (around 17 per cent) of the Asian Highway network are below the minimum Class III standard. Afghanistan and Kazakhstan have (in absolute terms) the most kilometres below Class III. Some 3,800 km in the subregion are at Class I standard or above, representing around 8 per cent of the network in Central and South-West Asia.

Table 6. Status of the Asian Highway routes in Central and South-West Asia

(Kilometres)

Country	Primary	Class I	Class II	Class III	Below III	Other	Total
Afghanistan	–	–	621	77	3 549	–	4 247
Armenia	–	142	377	479	–	–	998
Azerbaijan	–	82	1 012	348	–	228	1 670
Georgia	–	8	788	358	–	–	1 154
Iran (Islamic Republic of)	752	1 067	9 334	–	–	–	11 153
Kazakhstan	–	72	767	10 004	2 346	–	13 189
Kyrgyzstan	–	–	464	511	720	–	1 695
Tajikistan	–	–	289	603	1 033	–	1 925
Turkey	1 212	155	1 219	2 685	–	–	5 271
Turkmenistan	–	–	–	2 180	24	–	2 204
Uzbekistan	–	255	765	1 618	328	–	2 966
Total	1 964	1 781	15 636	18 863	8 000	228	46 472
<i>Percentage</i>	<i>4.2</i>	<i>3.8</i>	<i>33.6</i>	<i>40.6</i>	<i>17.2</i>	<i>0.5</i>	<i>100.0</i>

Figure 12 shows a section of the Asian Highway route in Central Asia while the different classes of the Asian Highway in the subregion are shown in figure 13.



Figure 12. A section of the Asian Highway route in Central Asia (Kyrgyzstan)



Figure 13. Classification of the Asian Highway in Central and South-West Asia

Figure 14 shows two Asian Highway routes in Central Asia (Kazakhstan and Tajikistan).



Figure 14. Sections of Asian Highway routes in Central Asia (Kazakhstan and Tajikistan)

The pavement surface conditions of the Asian Highway routes in Central and South-West Asia are displayed in figure 15.

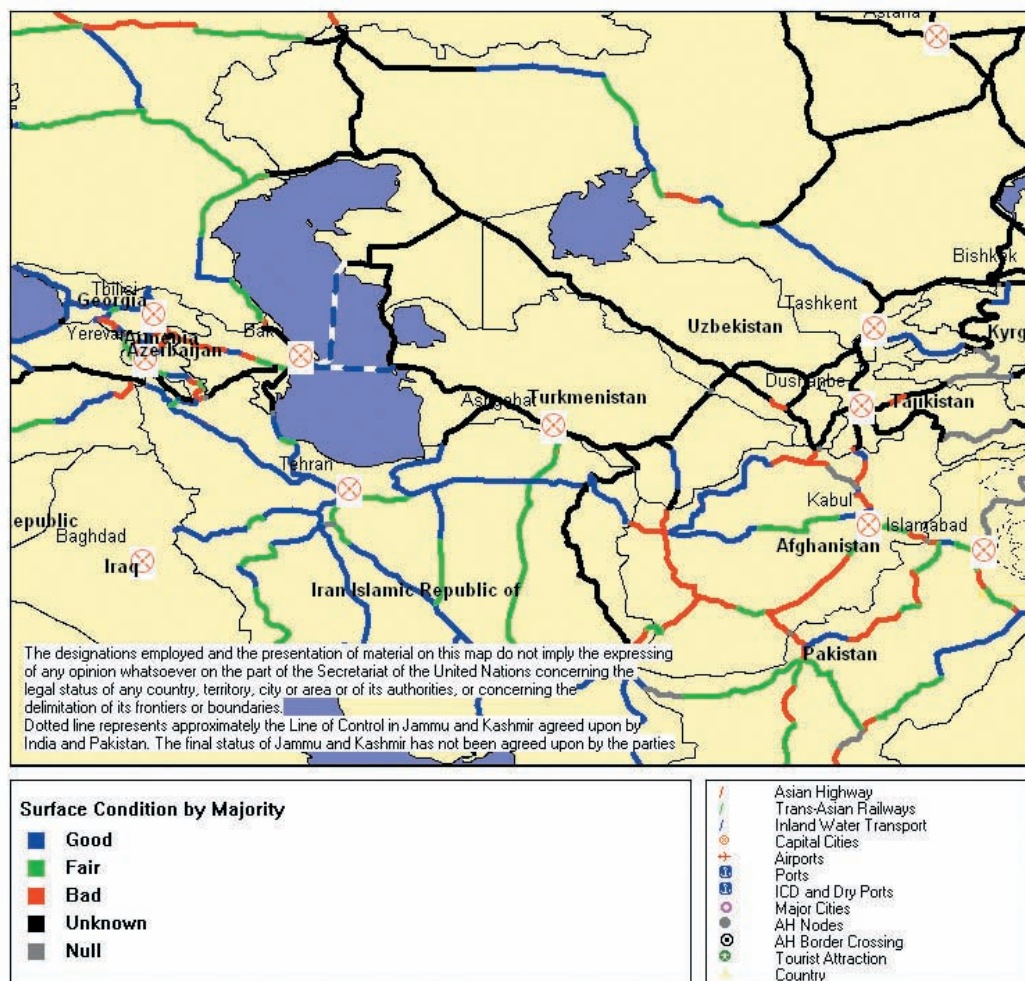


Figure 15. Surface conditions of the Asian Highway in Central and South-West Asia

Table 7 outlines the section of Asian Highway in each country that carries the highest traffic volume. In terms of overall volume, the highest volume segments of the Asian Highway in Central and South-West Asia are those located around major cities as well as the routes that connect with high-population areas. Most of the sections of highway carrying highest traffic have either Primary or Class I classification roads with good pavement condition.

Table 7. Traffic along the Asian Highway in Central and South-West Asia

Country	AH No.	AH Section	AADT	AH Class
Armenia	AH81	Yerevan – Ararat	12 100	I
Azerbaijan	AH8	Sumgayit – Baku (ferry terminal)	45 332	I
Iran (Islamic Republic of)	AH1	Tehran – Karaj	45 664	P
Kazakhstan	AH5	Almaty – Kaskelen	8 446	I
Kyrgyzstan	AH5	Bishkek – Kara Balta	20 976	I, II
Tajikistan	AH65	Kofirnigan – Dushanbe	8 700	I, II
Turkey	AH1	Istanbul (Anadolu Otoyolu Jct) – Istanbul (Mahmutbey Dogu Int)	171 794	P
Uzbekistan	AH63	Gazli – Bukhara	18 550	I , II, III

3. South-East Asia

The South-East Asian⁶ subregion comprises Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Thailand and Viet Nam. The subregion currently has some 23,400 km of Asian Highway, with Thailand, Indonesia, the Philippines and Myanmar having the largest number of kilometres. Some of the main Asian Highway routes forming international transport corridors in the subregion are outlined below.

- AH1 – Beijing – Guangzhou – Nanning – Youyiguan – Huu Nghi – Ha Noi – Hue – Da Nang – Hoi An – Nha Trang – Ho Chi Minh City – Phnom Penh-Bangkok – Tak – Yangon – Mandalay – Tamu.
- North-South routes:
 - (a) AH2 – Denpasar – Jakarta – Singapore – Kuala Lumpur – Hat Yai – Bangkok – Chiang Rai – Kyaing Tong – Meiktila – Mandalay – Tamu.
 - (b) AH3/AH13 – Kunming – Jinghong – Oudomxai – Uttaradit – Phitsanulok – Bangkok.
 - (c) AH3/AH12/AH19 – Kunming – Jinghong – Oudomxai – Vientiane – Khon Kaen – Kabin Buri – Laem Chabang.
 - (d) AH11 – Vientiane – Seno – Pakse – Stung Treng – Phnom Penh – Sihanoukville.
 - (e) AH14/AH1 – Kunming – Muse – Lashio – Mandalay – Payaggi – Yangon.
- East-West route AH16 – Dong Ha – Seno – Khon Kaen – Phitsanulok – Mae Sot – Myanmar.
- AH26 – Laoag – Manila – Matnog – ferry – Allen – Tacloban (– Ormoc – ferry – Cebu) – Liloan – ferry – Surigao – Davao (– Cagayan de Oro – General Santos – Zamboanga).
- AH25/AH2 – Bandar Aceh – Dumai – Jambi – Tanjung Karang – Jakarta – Semarang – Surabaya – Denpasar.

The current status of the Asian Highway in South-East Asia is shown in table 8. The majority of the network (10,170 km or about 43 per cent) in the subregion is Class III standard. Just over 2,600 km (11 per cent) of the Asian Highway network in the subregion are below the minimum Class III standard. Some 4,660 km are Class I standard or above, representing more than 19 per cent of the network in the subregion.

⁶ Brunei Darussalam, which is part of South-East Asia, has shown interest in joining the Asian Highway network and is already participating in related activities and meetings.

Table 8. Classification of the Asian Highway in South-East Asia

(Kilometres)

Country	Primary	Class I	Class II	Class III	Below III	Other	Total
Cambodia	–	–	398	743	199	–	1 340
Indonesia	335	18	1 600	1 965	–	34	3 952
Lao People's Democratic Republic	–	–	–	2 375	–	3	2 378
Malaysia	795	67	733	–	–	–	1 595
Myanmar	–	147	144	983	1 729	–	3 003
Philippines	–	17	27	2 872	451	150	3 517
Singapore	11	8	–	–	–	–	19
Thailand	182	2 572	1 226	1 128	–	4	5 112
Viet Nam	–	408	1 915	104	251	–	2 678
Total	1 323	3 237	6 043	10 170	2 630	191	23 594
<i>Percentage</i>	<i>5.6</i>	<i>13.7</i>	<i>25.6</i>	<i>43.1</i>	<i>11.1</i>	<i>0.8</i>	<i>100.0</i>

The Asian Highway routes and their status in South-East Asia are shown in figures 16a-16c. Figure 17 shows two sections of Asian Highway routes in South-East Asia.

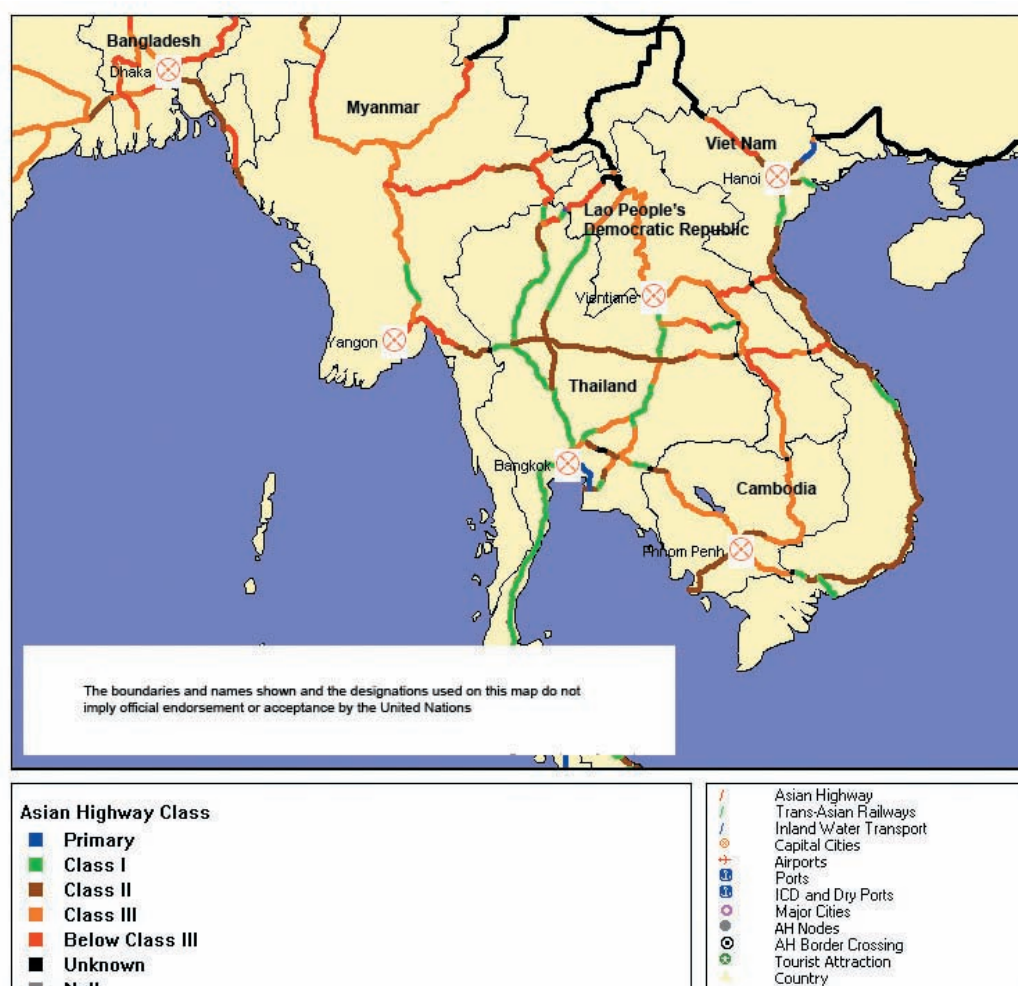


Figure 16a. Status of the Asian Highway in South-East Asia

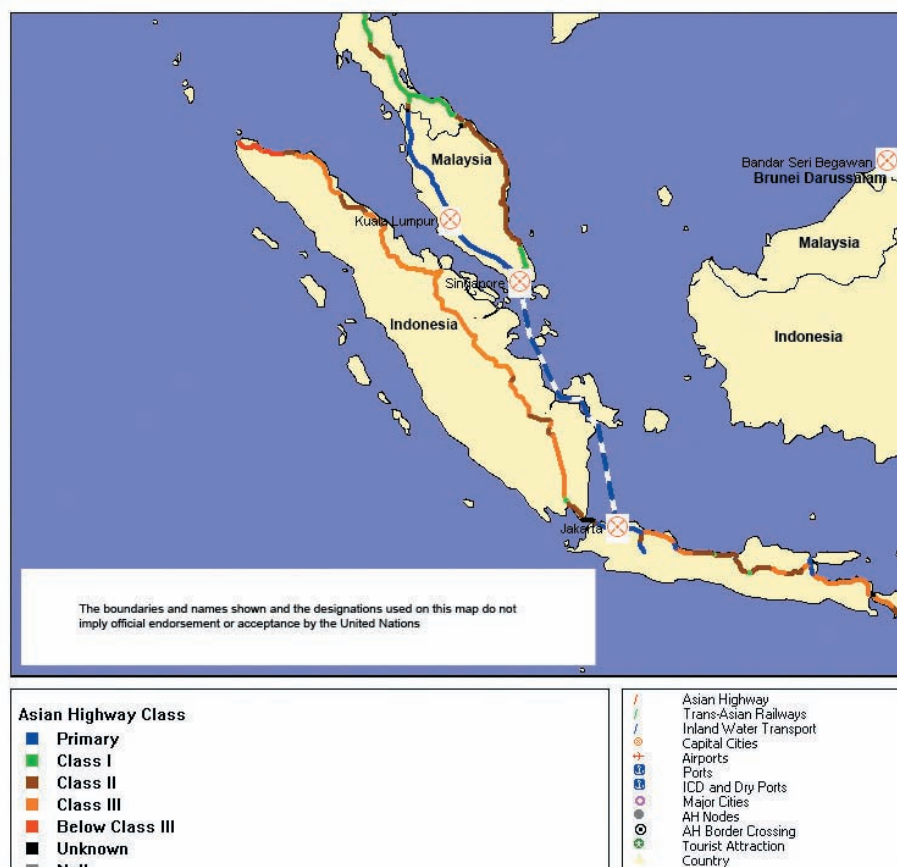


Figure 16b. Status of the Asian Highway in South-East Asia

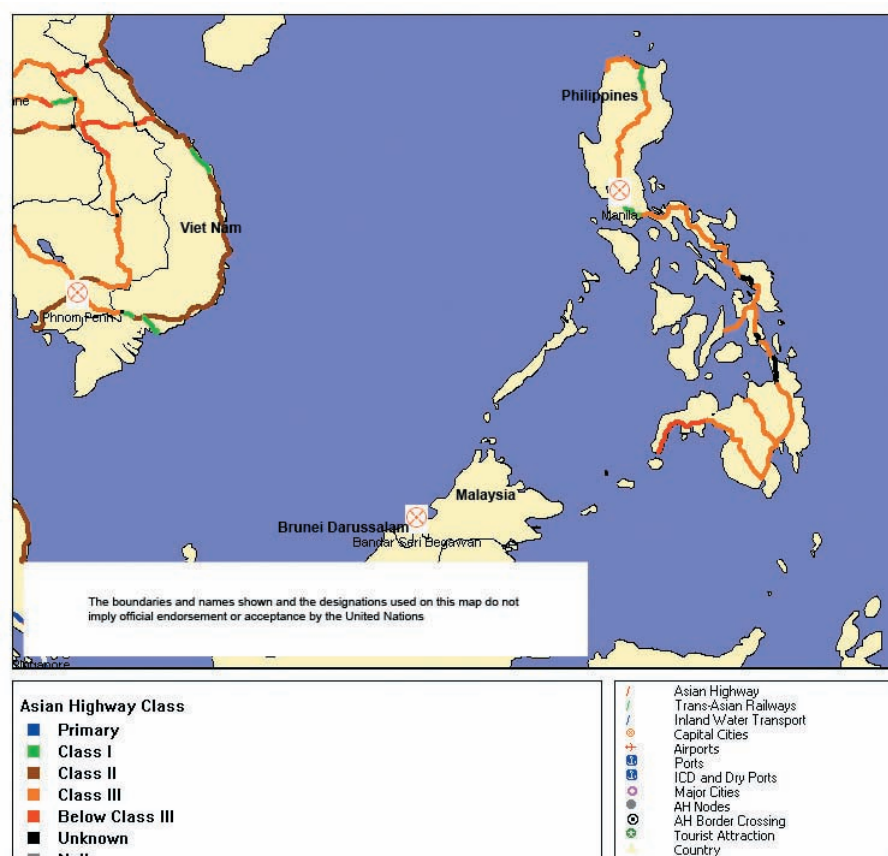


Figure 16c. Status of the Asian Highway in South-East Asia



**Figure 17. Sections of Asian Highway routes in South-East Asia
(Cambodia and Viet Nam)**

Table 9 outlines the section of Asian Highway in each country that carry the highest traffic volumes. Many of these segments are in good, at Class III or above standards and are located near highly populated cities, and those routes that connect these high population areas.

Table 9. Asian Highway links carrying the highest traffic volumes

Country	AH No.	AH Section	Km	AADT	AH class
Cambodia	AH1	Neak Loeung – Phnom Penh	61	41 538	III
Indonesia	AH2	Cawang – Tomang	16	282 861	P
Lao People's Democratic Republic	AH16	Muang Phin – Seno	127	1 804	III
Malaysia	AH18	Johor Bahru Causeway – Johor Bahru Interchange	9	146 739	I
Myanmar	AH1	Payagyi – Nyaunglebin	64	6 865	III
Philippines	AH26	Luneta, Manila – South Expressway	8	166 531	I
Singapore	AH2	Anak Buki Interchange – Woodlands Check post	11	64 400	P, I
Thailand	AH2	Nakhon Pathom – Bangkok West	25	380 084	I
Viet Nam	AH1	Hanoi – Phu Ly	46	15 201	I

4. North-East Asia

The North-East Asian subregion, which comprises China, the Democratic People's Republic of Korea, Japan, Mongolia, the Republic of Korea and the Russian Federation, currently has some 50,400 km of the Asian Highway, with China and the Russian Federation accounting for the largest number of kilometres.

Some of the main Asian Highway routes forming international transport corridors in North-East Asia are outlined below.

- AH4 – Novosibirsk – Barnaul – Tashanta – Ulaanbaishint – Hovd – Yarantai – Urumqi – Kashi – Honquiraf.
- AH3 – Ulan – Ude – Altanbulag – Ulaanbaatar – Choir-Zamin Uud – Erenhot – Beijing – Tanggu.
- AH1 – Tokyo – Osaka – Fukuoka – ferry – Busan – Daejeon – Seoul – Gaesong – Pyongyang – Sinuiju – Dandong – Shenyang – Beijing.
- AH6 – Nahodka – Razdolnoe – Ussuriysk – Suifenh – Harbin – Manzhouli – Chita – Ulan – Ude – Omsk – Moscow.
- AH30 – Khasan – Hasan – Razdolnoe – Ussuriysk – Khabarovsk.
- AH31 – Dalian-Shenyang – Changchun – Harbin – Heihe – Belogorsk.
- AH32 – Sonbong – Wonjong – Hunchun – Changchun – Arshan – Numreg – Sumer – Choybalsan – Ulaanbaatar – Uliastay – Hovd.

The status of the Asian Highway in North-East Asia is shown in table 10. The subregion has 11,767 km of the network (23 per cent) at Class II standard. Just over 9,100 km (18 per cent) of the network are below the minimum Class III standard. Some 6,300 kilometres are Class I standard or above, representing just over 14 per cent of the network in the subregion.

Table 10. Status of the Asian Highway routes in North-East Asia

(Kilometres)

Country	Primary	Class I	Class II	Class III	Below III	Other	Total
China ^a	4 140	189	2 749	2 008	1 443	15 400	25 929
Democratic People's Republic of Korea	–	–	–	–	–	1 320	1 320
Japan	1 111	–	–	–	–	–	1 111
Mongolia	–	–	440	345	3 501	–	4 286
Republic of Korea	466	197	244	–	–	–	907
Russian Federation	–	1 147	8 334	3 210	4 178	–	16 869
Total	5 717	1 533	11 767	5 563	9 122	16 720	50 422
<i>Percentage</i>	<i>11.3</i>	<i>3.0</i>	<i>23.3</i>	<i>11.0</i>	<i>18.1</i>	<i>33.2</i>	<i>100.0</i>

^a Of the total for China, Asian Highway routes comprise 10,529 km and potential Asian Highway routes comprise 15,400 km.

Figure 18 shows the Asian Highway routes and their classification in North-East Asia. The routes in Japan and the Republic of Korea are either Primary or Class I. The routes in Mongolia are mostly Class III and below. Figure 19 shows a section of AH4 near Yarantai in western Mongolia being upgraded to Class III standard. Figure 20 shows the pavement condition of the Asian Highway routes in North-East Asia. Figure 21 shows a section of route AH4 in Mongolia near Ulaanbaishint, the pavement of which needs from a gravelled to a bituminous surface.



Figure 18. Asian Highway routes and classification in North-East Asia



Figure 19. Upgrading a section of AH4 to Class III in North-East Asia (Mongolia)

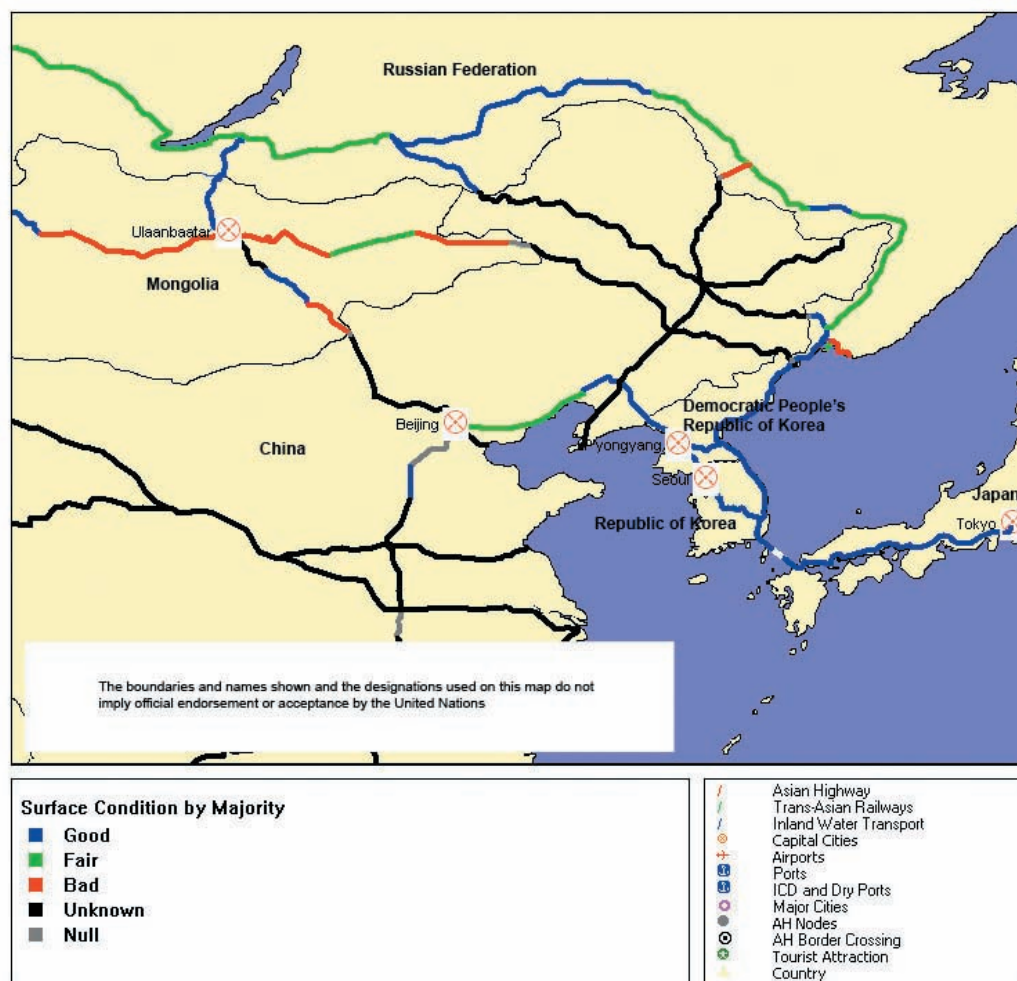


Figure 20. Pavement conditions of the Asian Highway in North-East Asia



Figure 21. Gravelled section of AH4 in North-East Asia (Mongolia)

Table 11 outlines the section of Asian Highway in each country that carry the highest traffic volumes. Many of these segments are in good condition, at Class I or above and are located around highly populated cities and connecting these cities.

Table 11. Asian Highway sections carrying the highest traffic volumes

Country	AH No.	AH Section	Km	AADT	AH class
Japan	AH1	Yokohama Machida Interchange – Atsugi Interchange	15	117 446	P
Mongolia	AH3	Ulaanbaatar – Nalyh	37	1 728	III
Republic of Korea	AH1	Chongju – Pyongtaek	55	104 000	P
Russian Federation	AH6	Ryazan – Moscow	183	30 125	I, II

II. PRIORITY INVESTMENT NEEDS

A. Introduction

As indicated in chapter I, of the total 141,000 km of the Asian Highway some 22,000 km or 15.8 per cent of the network does not conform to the minimum specified design standards. Therefore, the primary focus should be on constructing and upgrading those sections that are below Class III standard.

In addition, some sections of the Asian Highway already meet the minimum design standards but are in poor condition or are approaching their capacities due to the high volume of traffic they are carrying. Therefore, maintenance, rehabilitation and upgrading of those sections are required.

The obligation to undertake the construction and upgrading of the network sections within a member State lies with that country. While some States are capable of mobilizing sufficient resources to undertake the development and upgrading of the Asian Highway within their borders, other States will need the assistance of international financing institutions and bilateral donors.

Estimates of investment requirements or the investments being made or committed are not yet available. Therefore, the ongoing or committed investments in the development and upgrading are considered below, together with an assessment of investment needs and the identification of priority projects along the Asian Highway.

B. Assessment of ongoing investment

Table 12 summarizes the considerable investment currently being made by member countries in developing the Asian Highway.

Table 12. Current investment in the Asian Highway network^a

Country	Km	US\$ million	Country	Km	US\$ million
Afghanistan	3 134	829	Mongolia	430	78
Armenia	35	31	Myanmar	268	66
Azerbaijan	447	126	Nepal	179	49
Bangladesh	1 373	2 392	Pakistan	1 317	807
Bhutan	161	26	Philippines	505	413
Cambodia	308	190	Russian Federation	3 049	2 655
China	2 885	6 650	Sri Lanka	164	271
Georgia	–	108	Tajikistan	140	20
India	3 180	3 640	Thailand	1 273	373
Indonesia	3 576	245	Turkey	215	722
Iran (Islamic Republic of)	5 594	1 151	Turkmenistan	220	67
Kazakhstan	3 649	2 068	Uzbekistan	2 761	59
Kyrgyzstan	656	328	Viet Nam	572	1 961
Lao People's Democratic Republic	369	245	Total	36 566	25 851
Malaysia	106	281			

^a These data represent investments as at 2004 and 2005 that are backed by a financial commitment from either a government or other source, including where construction will be carried out in future. These data have largely been compiled from the country reports submitted, presentations made by the member States during subregional expert group meetings and information on donors' web sites. This does not represent the current level of investment in the highway sector as the Asian Highway in a country is only part of that country's highway system.

Table 12 shows that member countries, multilateral and bilateral donors are currently investing about US\$ 26 billion in the construction, rehabilitation and upgrading of some 37, 000 km of the Asian Highway network.

In absolute terms, it is clear that China is making a huge investment of about US\$ 6,650 million in the development of the Asian Highway network, followed by India at US\$ 3,640 million and the Russian Federation at US\$ 2,655 million.

Some of the large investment projects being undertaken along the Asian Highway are outlined in table 13.

Table 13. Selected large ongoing or committed projects along the Asian Highway

Country	AH route	Sections of the Asian Highway	Km	US\$ million
Afghanistan	AH1	Kabul – Ghazni – Kandahar	483	207
Afghanistan	AH76	Herat – Andkhoy	550	150
Bangladesh	AH41	Cox’s Bazar – Teknaf	80	540
Bangladesh	AH41	Dhaka – Chittagong	224	516
Cambodia	AH1	Phnom Penh – Neak Loueng	61	57
Cambodia	AH11	Kratie – Stung Treng	198	85
China	AH14	Mengzi – Hekou	145	970
China	AH14	Kunming – Chuxiong	153	800
China	AH3	Xiaomengyang – Mohan	175	680
China	AH14	Baoshan – Longling	78	670
China	AH32	Hunchun – Tumen	66	160
India	AH1	Khaga – Varanasi	190	314
India	AH45	Kharagpur – Chandikhole	257	287
Iran (Islamic Republic of)	AH1	Zanjan – Tabriz	285	261
Iran (Islamic Republic of)	AH8	Rasht – Qazvin	150	151
Kazakhstan	AH63	Beineu – Akzhigit – border with Uzbekistan	80	363
Kazakhstan	AH70	Atyrau – Aktau	900	313
Kazakhstan	AH7	Astana – Kostanai – Chelyabinsk (Russian Federation)		240
Kazakhstan	AH61, AH63	Samara (Russian Federation) – Shymkent	2 093	194
Kazakhstan	AH5	Tashkent (Uzbekistan) – Shymkent – Almaty – Khorgos (border with China)		163
Kazakhstan	AH64	Borovoye – Kokchetav – Petropavlovsk – border with the Russian Federation		154
Kyrgyzstan	AH61	Bishkek – Torugart		189
Lao People’s Democratic Republic	AH11	Huay Goan (Thailand) – Pak Baeng	50	32
Lao People’s Democratic Republic	AH3	Boten (border with China) – Houayxay (border with Thailand)	240	90
Lao People’s Democratic Republic	AH3	Bridge over the Mekong River connecting Houayxay to Chiang Kong (Thailand)	1	30
Malaysia	AH2	Seremban – Air Keroh and Rawang – Tanjung Malim	106	315

Table 13. *(continued)*

Country	AH route	Sections of the Asian Highway	Km	US\$ million
Mongolia	AH3	Choir – Saishand – Zammin Uud	430	78
Myanmar	AH1	Kalay – Monywa including bridge		42
Pakistan	AH1	Islamabad – Peshawar Motorway	154	460
Sri Lanka	AH43	Colombo – Matara expressway	126	260
Thailand	AH1/16	Mae Sot – Mukdahan	281	137
Thailand	AH16	Mukdahan – Savannakhet bridge	5.5	100
Turkey	AH84	Gaziantep – Birecik	55	215
Turkey	AH84	Suruc – Sanliurfa	73	199
Turkey	AH84	Birecik – Suruc	53	186
Viet Nam	AH14	Lao Cai – Ha Noi	291	600
Viet Nam	AH17	Bien Hoa – Vung Tao	74	85
Viet Nam	AH1	Hue – Da Nang tunnel (Hai Van Pass Tunnel)	6.4	251

C. Regional cooperation programmes

In addition to the efforts by countries to improve their international highway infrastructure, international financing institutions and bilateral donors are assisting member countries to improve their transportation networks. Several regional or subregional initiatives are underway to improve road transportation in the region.

Afghanistan, Azerbaijan, China (Xinjiang Uygur Autonomous Region), Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan and Uzbekistan are participating in the Central Asia Regional Economic Cooperation (CAREC) programme. The transport sector is a major sector of cooperation and the Asian Development Bank, the World Bank, the European Bank for Reconstruction and Development, and the Islamic Development Bank are providing support to various transport projects of subregional importance.

Northern South-East Asian member countries, including Cambodia, China, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam are cooperating in road transport development (and other areas) under the Greater Mekong Subregion (GMS) initiative. In the area of transportation, the GMS project has been divided into three main corridors: North-South (comprising the Kunming – Haiphong and Kunming – Bangkok routes); East-West (comprising the Mawlamyine – Da Nang route); and South (comprising the Bangkok – Quy Nhon and Bangkok – Vung Tau/Nam Can routes).

In addition, the Association of South East Asian Nations (ASEAN) Highway initiative has considerable complementarities with the Asian Highway efforts.

The South Asia Subregional Economic Cooperation (SASEC) initiated among Bangladesh, Bhutan, India and Nepal by the Asian Development Bank has considered the development of most of the Asian Highway routes connecting these countries. Regional Technical Assistance (RETA) is being provided for upgrading the transport corridors⁷ that are at different stages of implementation. Member States are also working towards the improvement of the above international corridors.

The Asian Development Bank, the Islamic Development Bank, the World Bank, the Japan Bank for International Cooperation, the European Bank for Reconstruction and Development, the Kuwaiti Fund for Arab Economic Development, the Saudi Fund for Development, the Japan International Cooperation Agency and the Infrastructure Development Institute, are assisting member countries in the development of the Asian Highway network. In addition, bilateral donors such as China, Thailand, Viet Nam, and the United Kingdom of Great Britain and Northern Ireland are providing support under bilateral assistance.

⁷ Draft summary of the Proceedings of the SASEC Workshop, 1-3 February 2004, Bangkok.

Subregional organizations such as the ASEAN Secretariat, the South Asian Association for Regional Cooperation Secretariat, the Economic Cooperation Organization Secretariat, Shanghai Cooperation Organization, Silk Road Initiatives and the Intergovernmental Commission-Transport Corridors Europe, Caucasus, Asia (IGC-TRACECA) also have programmes for developing regional/subregional road transportation networks in the region.

D. Priority investment needs

Because this was the first assessment of ongoing investment and identification of priority investment needs, a simple methodology was used. Information related to the status of national highway networks, ongoing and planned investment along the Asian Highway, national policies and priorities, and a list of priority projects were collected from each member State. A list of priority projects requiring investment in member countries were prepared, giving consideration to national strategies and priorities, the status and condition of the roads, their regional and subregional importance, and their potential to provide access to the landlocked countries.

Designated government representatives acting as focal points for the Asian Highway in member States provided information in the form of country reports. With the inputs from member States taking subregional approach, subregional overviews of investment needs and development priorities for the Asian Highway network were prepared separately for the South Asian, North, Central and South-West Asian and South-East Asian subregions.

Three subregional expert group meetings⁸ were organized. The first meeting, for South Asia (including Afghanistan and the Islamic Republic of Iran), was held in Islamabad from 23 to 25 September 2004. The second, for North, Central and South-West Asia, was held in Tehran from 25 to 27 January 2005. The third, for South-East Asia (including Mongolia), was held in Bangkok from 25 to 26 April 2005. The objectives of those meetings were to:

- (a) Review the status of the Asian Highway network in member countries;
- (b) Assess the current level of investment and identify the investment requirements for the development of the Asian Highway network;
- (c) Identify priority projects of subregional importance for the development of the Asian Highway network and related intermodal connections; and
- (d) Highlight and promote the identified priority projects for investment. Representatives of the member countries, donors and related subregional organizations participated in the meetings.

The status of the network was reviewed and priority investment requirements identified at the above subregional expert group meetings. Based on the country inputs and statements by delegations from member States, and considering road status,⁹ each meeting identified and finalized a list of priority projects along the Asian Highway and potential links to the highways requiring investment.

The three subregional meetings also provided forums for the member country delegates and the donor representatives to discuss strategies and priorities for the development of the road network. The meetings also facilitated dialogue between the participants as well as provided opportunities for the member countries and donors to discuss investment and priorities. The ESCAP secretariat is now working to further promote investment in the priority projects identified.

Table 14 provides a consolidated list of priority projects identified in 25 member countries by the three subregional expert group meetings.

⁸ The report of the meetings can be found at http://www.unescap.org/ttdw/common/tis/ah/priority_investment.asp#profiles.

⁹ The Asian Highway database can be found at <http://www.unescap.org/ttdw/common/tis/ah/Member%20countries.asp>.

Table 14. Identified priority projects for developing the Asian Highway in the South Asian, Central and South-West Asian, South-East Asian and North-East Asian subregions

Table 14a. South Asia

AH No.	Section	Km	Cost (US\$ m)
Bangladesh			
AH41	Daukandi – Chittagong (upgrading to four lanes)	246	191
AH41	Chittagong – Cox’s Bazar – Ramu – Gundam	186	144
AH2	Beldanga – Panchagarh	77	9
AH41	Dasuria – Paksey – Kushtia	38	4
AH41	Jhenaidah – Jessore	45	5
	Total	592	353
Bhutan			
AH48	Phuentsholing – Thimphu (upgrading to double lanes)	179	60
	Total	179	60
India			
AH1	Shillong – Dwaki	70	6
AH2	India – India/Nepal border	10	1
AH2	Siliguri – Fulbari Mod – border with Bangladesh	16	2
AH43	Madurai – Dhanushkodi	19	2
	Total	115	11
Nepal			
AH2	New Koshi bridge at Chatara and widening of bridges from Pathalaiya to Dhalkebar	170	31
AH42	Naubise – Thankot (tunnel) – Kathmandu – Kodari improvement and upgrading	48	24
AH42	Kathmandu – Birgunj ICD link road	110	80
	Total	328	135
Pakistan			
AH2	Improvement of Sibi – Sariat	160	68
AH2	Lakpass Tunnel		9
AH2	Improvement of the Dalbandin – Naushki section	167	34
AH4	Dualization of Hassanabdal – Abbottabad – Mansehra	90	51
AH7	Hub – Uthal	80	27
AH51	Improvement of Kuchlac – Zhob	306	60
Other	Gwadar – Turbat – Hoshab – Awaran – Khuzdar	650	271
Other	Hyderabad – Mirpurkhas – Umarkot – Khokhropar	222	50
Other	Schwan – Dadu – Ratodero	199	103
Other	National Highway N-70 (Multan – Muzafargarh; Muzaffargarh Bypass; Muzafargarh and Bewatta)	202	103
	Total	2 076	776

Sri Lanka			
AH43	Talaimannar – Medawachchiya	112	36
AH43-new land link	Land bridge connecting Sri Lanka and India ^b	32	880
	Total	144	916
	Grand total for the South Asia subregion	3 434	2 251

^a Part of State Road.

^b At the conceptual stage. A feasibility study is required that involves Sri Lanka and India.

Table 14b. Central and South-West Asia^a

AH No.	Section	Km	Cost (US\$ m)
Afghanistan			
AH1	Kabul – Surubi	68	30
AH7/AH77	Kabul – Bamiyan	140	40
AH1	Kandahar – Gereshk	114	76
AH76	Herat – Andkhoy	550	80
AH76/AH62	Polekhumri – Hayratan	265	29
AH76	Balkh – Andkhoy	180	36
AH7	Bridge over the Ammou River	360 m	40
	Total	1 317	331
Armenia			
AH82	Vaik – Gorhayq	75	30
AH82	Goris – Agarak (Islamic Republic of Iran border)	140	56
AH82	Bavra – Gumri	10	5
AH81	Border of Azerbaijan – Agarak – Meghri – Azerbaijan border	51	25
	Total	276	116
Azerbaijan			
AH5	Kazakh – border of Georgia	38	20
AH81	Nakhchivan – Sadarak – border of Turkey	92	46
AH81	Goradiz – Gazi Mammed	185	74
AH8/AH5/Other	Ring Road connecting AH5 and AH8 around Baku	40	20
	Total	355	160
Georgia			
AH5	Poti – Tbilisi – Red Bridge (Gori – Natakhtari section)	397 57	2 300 212) ^b
AH5	Poti – Batumi – Sarpi	87	123
AH81	Mtskheta – Kazbegi – Larsi	139	39
	Total	623	2 462
Iran (Islamic Republic of)			
AH1	Bazargan – Tabriz Freeway	280	250
AH8	Qazvin – Saveh Freeway	153	135
AH8	Khorramabad – Andimeshk	159	200
AH70	Sirjan – Bandar Abbas	332	290
AH70	Qeshm Bridge in the Persian Gulf	2.5	349
	Total	927	1 224

Kazakhstan			
AH5/AH61	Border of the Russian Federation (to Samara) – Pogodaeva – Shymkent – Almaty – Khorgos	992	347
AH7/AH5	Kaerak – Kostanai – Astana – Almaty – Khorgos	710	230
AH70	Kotyaevka – Atyrau – Aktau – border with Turkmenistan	1 070	374
AH61	Kamenka – Ural'sk – Karabutak – Aralsk – Kyzylorda – Shymkent	1 795	628
	Total	4 567	1 579
Kyrgyzstan			
AH61	Bishkek – Naryn – Torougart	539	173
Other	Road around Lake Issyk – Kul and connection to AH Balykchy – Cholpon – Ata – Karakol – Bokonbaevo – Balykchy	438	131
Other	Taraz – Talas – Susamyr	199	60
Other	Osh – Isfana	413	133
	Total	1 589	497
Tajikistan			
Other	Ajni – Pendzhikent	113	4
AH7	Khujand – Dushanbe	258	23
AH7	Kurgan Tube – Nizhiny Panj	102	4
Others	Khujand – Buston	65	2
Others	Khujand – Kanibadam – Isfara	130	2
AH66/ Others	Korog – border with Kyrgyzstan (to Sary Tash)	450	67
	Total	1 118	102
Turkey			
AH5	Gerede – Merzifon	300	350
	Total	300	350
Uzbekistan			
AH5	Bukhara – Navoi – Samarkand – Syrdaria – Tashkent	76	38
AH7	Andijon – Tashkent – Syrdaria	163	82
AH62	Tashkent – Syrdaria – Samarkand – Surhandarya	159	80
AH63	Nukus – Bukhara – Kashkadarya	490	240
AH65	Termez – Uzun	78	40
	Total	966	480
	Grand total for Central and South-West Asia subregions	12 038	7 301

^a Information from Turkmenistan on investment requirements is not available.

^b This is a section of the Poti – Tbilisi road.

Table 14c. South-East Asia

AH No.	Section	Km	Cost (US\$ m)
Cambodia			
AH11 (link)	NR7 Junction to Banlung (Rattanak Kiri)	125	44
AH11 (link)	Banlung (Rattanak Kiri) – Oyadav – border with Viet Nam	78	27
AH1 (link)	Battambang – Palin – border with Thailand	113	40
AH1/AH11 (link)	Preak Kdam – Thnal Keng	16	6
AH11 (link)	Snoul to Sen Monorom (Mondulkiri) – Lumphat (Rattanakiri)	335	117
AH11 (link)	NR7 Jct at Pratheath to Chhlong	57	20
AH1	Neak Leoung Mekong River bridge	2.5	200
AH1/AH11 (link)	Siem Reap – Stung Treng	253	260
	Total	980	714
Indonesia			
AH2	Improvement and upgrading of various sections	160	14
AH25	Improvement and upgrading of various sections	412	15
	Total	572	29
Lao People's Democratic Republic			
AH13 (link)	Oudomaxay – Muangkhuwa – Tai Chang	202	40
AH11 (link)	Phiafai – Attapeu (NH18A)	114	23
	Total	316	63
Myanmar			
AH1	Myawadi (border with Thailand) – Kawkareik	40	19
AH1	Monywa – Kalay/Kalewa	184	40
AH2	Kyaing Tong – Takaw – Loilem – Taunggyi	450	23
	Total	674	82
Philippines			
AH26	Tuguegarao City Bypass	8	5
AH26	Santiago City Bypass	3	2
AH26	San Jose City Bypass	7	8
AH26	Tiaong Bypass	3	2
AH26	Candelaria Bypass	9	5
AH26	Sariaya Bypass	8	5
AH26	Daraga Diversion Road	15	9
AH26	Sipocot – Putiao Diversion Road	58	36
AH26	Palo Bypass	4	2
AH26	Cebu North Coastal Road	9	6
AH26	Tagum City Bypass	13	8
AH26	Panabo City Bypass	10	6
AH26	Davao City Coastal Road	10	6
AH26	Cotabato City Bypass	12	7
AH26	Digos City Bypass	6	4
AH26	Koronadal City Bypass	10	6
AH26	General Santos City Bypass	14	9
	Total	199	126

Viet Nam			
AH14	Ha Noi – Hai Phong Expressway (four-six lanes)	100	410
AH1	Bien Hoa – Vung Tau Expressway (four-six lanes)	90	600
AH16	Da Nang – Quang Ngai (four lanes)	140	700
AH1	Sai Gon – Long Thanh – Dau Day (four-six lanes)	55	350
AH14	Ha Noi – Lao Cai Expressway	290	600
AH15	Vinh – Cau Treo rehabilitation	85	44
AH1/AH14	Ha Noi Ring Road	65	600
	Van Phong Transshipment Hubport (two terminals, 700 m, 500,000 TEU/year)		200
	Rehabilitation of the Soai Rap Assess Channel in Ho Chi Minh City (for ships of 30,000 DWT assessable)	30	120
	Total	855	3 624
	Grand total for South-East Asia subregion	3 569	4 638

Table 14d. North-East Asia ^a

AH No.	Section	Km	Cost (US\$ m)
China			
AH3	Jinghong – Mohan	343	1 160
AH3	Jinghong – Daluo	60	60
AH4	Kashi – Honqiraf	360	70
AH42	Lhasa – Zhangmu	680	140
	Total	1 443	1 430
Mongolia			
AH4	Ulaanbaishint – Ulgii – Khovd – Bulgan – Yarant	785	114
AH32	Western link: Ulaanbaatar – Hovd	1 291	188
AH32	Eastern link: Baganuur – Ondorhaan – Choibalsan – Sumer – border with China	1 044	152
	Total	3 120	454
Russian Federation			
AH6/AH30	Moscow – Khabarovsk – Vladivostok	1 400	950
AH8	Moscow – Tambov – Volgograd – Astrakhan – Mahachkala	390	300
AH61	Border of Ukraine – Kursk – Voronezh – Saratov – border with Kazakhstan with Kazakhstan	50	30
AH70	Bridge over the Kigach River in Astrakhan – Atyrau road section	393 m 3	11
AH61/AH7/ AH6	Yekaterinburg – Tumen – Ishim – Omsk	140	60
	Total	1 983	1 351
	Total for North-East Asia	6 546	3 235
	Grand total	25 587	17 425

^a Information from the Democratic People's Republic of Korea on investment requirements is not available.

Table 14 clearly shows that almost US\$ 18 billion in investment is required to implement 121 priority road projects for upgrading some 26,000 km of the Asian Highway in 25 member countries. Central and South-West Asia require about US\$ 7.3 billion followed by South-East Asia at US\$ 4.6 billion.

The US\$ 18 billion in investment requirements for the Asian Highway is a very small amount compared to a recent ESCAP study¹⁰ that estimated a total investment of US\$ 367 billion per year would be required in the road sector for developing Asia-Pacific countries during 2005-2010. The estimate for total transport infrastructure during the same period was US\$ 448 billion per year. It shows that road infrastructure investment needs are about 82 per cent of total transport requirements.

Japan, Malaysia, the Republic of Korea, Singapore and Thailand are developing and upgrading of their sections of the Asian Highway entirely from their national budgets. China and Kazakhstan have also indicated that they will finance their part of the identified priority projects.

Following the identification of priority projects, member States provided details in a project profile template with the objectives of promoting and highlighting the projects among interested bilateral and multilateral donors or private sector investors.

The Annex features selected project profiles of the priority projects identified (table 14) in 25 member countries. Each project profile contains essential information such as project name and location, brief outline, the rationale and objectives, scope of work, expected impacts and benefits, status and other project-related information, and a contact address.

Some of the identified priority projects that have high priority are already in different phases of implementation or entering the implementation phase.

E. Prioritization of investment needs

Numerous approaches are available for assisting in the process of prioritizing various alternate infrastructure investments.

It is usual practice to use parameters such as internal rate of return (IRR), benefit-cost ratio (B/C ratio), net present value (NPV), potential traffic and a combination of these with national and subregional policies to prioritize investments. Economists usually prefer this approach to ensure a thorough, consistent ranking of investment alternatives. These methods attempt to quantify the net project benefits in order to ensure the selection of projects that generate the greatest benefits.

The extent and length of the Asian Highway rules out the use of thorough cost-benefit project evaluation to assist prioritization. Instead, a subjective methodology based on criteria such as current status of the route, national policies, subregional and regional priorities, and the potential of the route/corridor to provide transit to other countries (including landlocked countries) can provide a valuable hint for ranking various investment alternatives. These criteria – while not ideal – can adequately filter out competing investment alternatives. For example, missing and inter-country links and roads below Class III standard and with poor surface conditions could be considered as having a higher priority than other groups, as these improvements could have wider benefits, both for the country concerned and for neighbouring countries.

Those projects that member countries consider potentially worthwhile, and which are consistent with national road investment plans, can then move forward to further detailed assessment prior to commissioning and implementation.

¹⁰ *Enhancing Regional Cooperation in Infrastructure Development Including that Related to Disaster Management*, Economic and Social Commission for Asia and the Pacific, 2006, p. 38.

III. INTERMODAL CONNECTIVITY AND THE ASIAN HIGHWAY NETWORK

A. Introduction

The Asian Highway network is an important component of an integrated international intermodal transport network. Roads are normally not the only mode of transportation used before goods reach their final market. This is particularly the case in international trade, which commonly relies on maritime transportation. In order to ensure efficient and smooth delivery of goods to the final destination, the development of other modes of transport and intermodal facilities should also be adequately addressed.

In addition, one of the criteria used in the formulation of the Asian Highway network is the provision of connectivity to major seaports, river ports as well as major container terminals and depots. Road transportation carries some 94 per cent of freight in Thailand,¹¹ 97 per cent of freight in Indonesia,¹² and about 92 per cent of freight and 96 per cent of passenger traffic in the Islamic Republic of Iran.¹³ This clearly shows that by far the greatest proportion of inland transportation of goods and people is by road. Therefore, highway connectivity with major ports, inland container depots (ICD) and railways becomes even more important.

Table 15 outlines the Asian Highway connections to major ports in the Asia-Pacific region.

The land transport networks of coastal member countries are oriented towards their seaports. Inland linkages between road, rail, inland waterways and seaports together with logistics services and facilities are not as developed as in the coastal areas. In order to take full advantage of containerization, intermodal facilities such as ICDs, freight terminals and dry ports need to be developed as a more efficient way of connecting inland areas to the coastal production networks.

Improvements in both capacity and connectivity between different modes of transport, ICDs and freight terminals can result in more efficient handling of containerized cargoes, thereby reducing transportation costs and providing transport opportunities for inland areas.

Development of different transport modes and intermodal connections to major sea ports is particularly important for landlocked countries such as Afghanistan, Armenia, Azerbaijan, Bhutan, the Lao People's Democratic Republic, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Tajikistan, Turkmenistan and Uzbekistan. Regional cooperation in improving the intermodal connections of the Asian Highway network to these landlocked countries would ensure improved access to maritime transport and thus to extended global markets.

In addition, to realize fully the trade benefits that roads can provide, investment is also required in important complementarities such as improving facilities and efficiency at ports, ICDs and border crossing points. In that regard, cooperation between member countries is desirable in standardizing and harmonizing border crossing and customs clearance procedures and in overcoming bottlenecks in the transport chain that cause delays during modal changes.

¹¹ World Bank, *Project Appraisal Document Highways Management Project Thailand*, 27 October 2003.

¹² Indonesian Country Report to the Economic and Social Commission for Asia and the Pacific, Bangkok, 2004.

¹³ Country Report, the Islamic Republic of Iran, January 2005.

Table 15. Asian Highway intermodal connections to the major ports

Country	Port	Total TEUs, 2004	AH connection
Bangladesh	Chittagong	625 155 ^a	AH41
Bangladesh	Mongla	23 737 ^b	AH41
Cambodia	Sihanoukville		AH11
China	Dalian	2 211 200	AH31
China	Guangzhou	3 308 200	AH1
China	Shanghai	14 557 200	AH3, AH5
China	Shenzhen	13 650 000	AH1
China	Tianjin	3 814 000	AH3
Georgia	Poti	38 328	AH5
India	Jawaharlal Nehru	2 268 989	AH43
India	Mumbai	196 500 ^a	AH43
India	Chennai	539 265 ^a	AH45
India	Kolkata	233 695 ^a	AH1, AH45
Indonesia	Tanjung Priok (Jakarta)	3 248 149	AH2
Indonesia	Tanjung Perak (Surabaya)	1 575 000 ^b	AH2
Iran (Islamic Republic of)	Bandar Abbas	1 023 606 ^a	AH70
Iran (Islamic Republic of)	Imam Khomeini	40 256 ^b	AH8
Japan	Tokyo	3 580 000	AH1
Japan	Nagoya	1 684 082	AH1
Malaysia	Port Klang	5 243 593	AH2
Malaysia	Tanjung Pelepas	4 020 421	AH2
Malaysia	Pasir Gudang	805 689	AH18
Malaysia	Klang	2 520 000 ^a	AH2
Myanmar	Thilawa (Yangon)	65 000 ^b	AH1
Pakistan	Karachi	738 610 ^b	AH4, AH7
Philippines	Manila	2 629 342	AH26
Republic of Korea	Busan	11 430 000	AH1, AH6
Russian Federation	St. Petersburg	773 441	AH8
Russian Federation	Vostochniy	272 529	AH6
Russian Federation	Vladivostok	102 169	AH6
Singapore	Singapore	20 600 000	AH2
Sri Lanka	Colombo	2 220 573	AH43
Thailand	Laem Chabang	3 624 000	AH19
Thailand	Bangkok	1 346 121	AH1, AH2, AH19
Turkey	Izmir	590 760	AH87
Turkey	Istanbul (Haydarpasa)	239 978	AH1, AH5
Turkey	Icel (Mersin)	394 715	AH84
Viet Nam	Ho Chi Minh City	1 471 030 ^a	AH1
Viet Nam	Da Nang	33 020 ^a	AH1
Viet Nam	Hai Phong	376 644 ^a	AH14

Source: Containerization International, 2005.

^a 2003 data.

^b 2002 data.

B. Initiatives for improving connectivity and intermodal facilities

Significant progress has been made in improving connectivity and intermodal facilities such as ports and ICDs in the Asia-Pacific region. The region has realized the importance of such improvements, as evidenced by the efforts being undertaken to connect the different modes to each other and to improve their capacities. Some of examples of these efforts are outlined below:

- The recent upgrading by Viet Nam of Da Nang port and ongoing upgrade of the Thi Vai and Cai Mep ports at Vung Tau;
- The improvement by Thailand of Laem Chabang deep seaport with intermodal connection with the ICD at Lat Krabang;
- The planned development of the Kalagauk and Dawei deep seaports in Myanmar;
- In Bangladesh, both the Chittagong and Mongla ports are connected to national highways. There is an ICD in Dhaka connecting Chittagong by rail. Chittagong port also has ICD facilities, and the Government is planning similar facilities at Mongla;
- India has approved plans to upgrade road connectivity to 10 of its major ports, including those in the important locations of Jawarlal Nehru Port, Haldia, Cochin and Chennai. There are 41 Exim Terminals (rail/road-linked ICDs and port side container terminals (PSCTs) operated by Container Corporation of India Ltd.;
- Pakistan is developing a deep seaport at Gwadar that will be linked to other parts of the country by motorways currently under construction or upgrading;
- The main Sri Lankan port in Colombo is connected to the country's road and rail network (although the rail services require further improvements);
- Nepal has three container terminals at Birgunj, Bhairahawa and Biratnagar that are in operation and all well connected by road. The Birgunj ICD (on the border with India) has a rail connection to the gateway port of Kolkatta in India;
- Bhutan is planning the construction of dry ports (ICDs) at the border towns of Phuentsholing, Samdrupjongkhar and Gelephu to enhance its international trade and improve access to regional markets;
- Cambodia is planning to develop and improve the Sihanoukville port facilities through the construction of a new 400-m cargo wharf, a 160-m container wharf and a 60,000-m² container yard. In addition to improving road links, rehabilitation of the railway between Phnom Penh and Sihanoukville port is planned;
- The Islamic Republic of Iran is developing second and third basins at Shahid Rajaei port in Bandar Abbas as well as Shahid Beheshti port in Chabahar. The Government is also planning to develop the transportation infrastructure of Qeshm Island; and
- The Philippines, being an archipelago, is pursuing the development and enhancement of intermodal connectivity through the development of roll on-roll off ports and highways connecting them, and the implementation of the Strong Republic Nautical Highway project.

In developing efficient intermodal transportation, member countries should continue to invest in upgrading roads, modernizing ports and constructing ICDs as well as the provision of sufficient cargo/container handling equipment and the streamlining of clearance procedures. The development of the intermodal facilities and networks outlined above requires large investments. Government resources are often not sufficient to meet such requirements. Therefore, countries need to explore different funding options including public-private partnerships, development assistance and loans from financing institutions. There are already many good examples of private sector involvement in the area of development and operation of road, ports and ICDs.

IV. CONCLUSIONS

The study entitled “Priority investment needs for the development of the Asian Highway network” was carried out with the involvement of all member countries participating in the Asian Highway network development as well as multilateral and bilateral donors and subregional organizations. The main objectives were (a) to assess the current level of investment and (b) to identify investment needs and priorities for the development of the Asian Highway.

A new phase of the Asian Highway, which now extends to 32 countries and totals more than 141,000 km, began with the entry into force of the Intergovernmental Agreement on the Asian Highway Network on 4 July 2005. So far, 28 member States have signed the Agreement and 20 are Parties to it.

One of the major obligations of the Parties to the Agreement is to develop the routes of the network in conformity with the Asian Highway classification and design standards, which specify a minimum standard of double-lane paved road. Some 22,000 km (15.8 per cent) of the network do not conform to the specified minimum standard, including some major international trade and transport corridors in the region.

Although there are many regional and subregional initiatives supporting the development of the regional transportation infrastructure and the removal of barriers to transport, member countries are facing major challenges in mobilizing sufficient resources for the development and upgrading of the regional highway infrastructure.

During the study, three subregional expert group meetings were organized: South Asia (with the participation of Afghanistan and the Islamic Republic of Iran) in September 2004 at Islamabad; North, Central and South-West Asia in January 2005 at Tehran; and South-East Asia (with the participation of Mongolia) in April 2005 at Bangkok.

For the first time, this study: (a) assessed the current level of investments being made or committed; and (b) identified the priority projects and investment needs for developing and upgrading the Asian Highway to the required technical standards as outlined in the Agreement.

A consolidated picture revealed that about US\$ 26 billion was currently being invested or committed to the development of 37,000 km of the Asian Highway routes in member countries. A shortfall of US\$ 18 billion¹⁴ was also identified in the investment required to upgrade and improve about 26,000 km of priority sections of the Asian Highway. This investment is required for implementing 121 priority projects along the Asian Highway or for providing connectivity to the Asian Highway in 25 member countries. Selected project profiles (see the annex) provide detailed information on each priority project. Some of the identified priority projects are already at different stages of development.

The study provided opportunities for the member countries and development partners¹⁵ to exchange respective policies and strategies on financing transportation and highway infrastructure as well as initiate policy dialogues for the mobilization of funds for the identified priority projects. The Working Group on the Asian Highway established by the Agreement will continue to provide a forum for the member countries and development partners to meet and discuss issues related to development of domestic and regional road transportation.

¹⁴ Assessment of investment requirement is largely based on the input from the member countries on their priorities and estimates of resource requirement.

¹⁵ The Asian Development Bank, the World Bank, the Islamic Development Bank, the Japan International Cooperation Agency, the Japan Bank for International Cooperation, the Association of South East Asian Nations Secretariat, the Economic Cooperation Organization, the Intergovernmental Commission-Transport Corridors Europe, Caucasus, Asia and the Infrastructure Development Institute participated in the subregional expert group meetings.

In addition to developing road infrastructure to ensure efficient and smooth delivery of goods to the final destination, the development of other modes of transportation and intermodal facilities should also be adequately addressed. This includes improving the capacity of, and connectivity to different modes of transport, ports, ICDs and freight terminals. Member countries should continue to invest in intermodal connectivity and facilities.

The tasks ahead

Member countries should make efforts to develop and upgrade priority sections of the Asian Highway that are below the minimum standards, and that are in need of improvements and repairs. When countries experience difficulty in funding such activities, due to inadequate provisions in the national budgets, they need to explore alternative funding options including public-private sector partnerships, development assistance and loans from financing institutions. This requires a cooperative approach of dialogue between member countries and international financing institutions, bilateral donors, subregional organizations and the private sector.

In addition to the development of road infrastructure, in order to promote the use of Asian Highway, increased attention needs to be given by governments to promoting and developing efficient measures for facilitating land transportation. This should be done through a set of integrated measures in terms of establishing or strengthening national coordinating mechanisms, improvement of legal frameworks, application of new technologies (including information and communication technology), the use of facilitation tools and human resources development.

The task of promoting investment in the identified priority projects and the development of the Asian Highway network is an ongoing activity that will continue in collaboration with member countries and development partners.

ANNEX

PROFILES OF PRIORITY PROJECTS ALONG THE ASIAN HIGHWAY

A. Afghanistan

1. Project name:	AH77, Bamiyan – Changcharan, AH71, Herat – Touraghendi.
2. Location:	The Bamiyan – Changcharan section is part of AH77 and the central East-West corridor connecting Herat and Kabul, with a length of 344 km. The Herat – Touraghendi section is part of AH71 connecting Afghanistan and Turkmenistan, with a length of 120 km.
3. Brief outline of the project:	<p>The Asian Highway network in Afghanistan consists of a ring road, central East-West road and links to the neighbouring countries. The road connection to: (a) the Islamic Republic of Iran is through Zarang and Islam Qila; (b) Pakistan through Spin Boldak and Torkham; (c) Tajikistan through Shrikhan; (d) Uzbekistan through Hairatan; and (e) Turkmenistan through Touraghendi.</p> <p>Most of the roads in Afghanistan have been damaged by war, and need upgrading and rehabilitation. Various sections of the Asian Highway in Afghanistan are under construction or in the feasibility study stage with support from multilateral and bilateral donors.</p> <p>The Bamiyan – Changcharan (AH77) and Herat – Touraghendi (AH71) sections of the Asian Highway need to be upgraded to establish efficient East-West link and connection to Turkmenistan.</p> <p>In addition to the above sections, substantial financial assistance will be necessary for undertaking other projects along the Asian Highway and national roads that are currently at the feasibility study stage.</p>
4. Rationale and objectives:	The rehabilitation of the Asian Highway and roads in Afghanistan will restore the road network in the country. This will contribute to efficient transport, a reduction in vehicle operating costs and savings in travel times as well as help to stabilize economic activities in Afghanistan.
5. Scope of work:	The project scope is the improvement of a 515-km of section of the above road. The feasibility study will define exactly the scope of work.
6. Expected impacts and benefits:	The project will provide benefits to the people of Afghanistan, improve mobility, lower transportation costs and reduce travel times. The implementation of the project will create employment and contribute towards reducing poverty by increasing household income.
7. Estimated cost:	US\$ 200 million ¹ (preliminary estimate).
8. Project duration:	Three to four years.
9. Proposed project financing arrangements:	The World Bank, the Asian Development Bank or other international and bilateral financing organizations.
10. Implementation arrangements:	The Ministry of Public Works will be the implementing agency. Project implementation arrangements will be established as required.

¹ Estimate based on the cost of the Herat – Andkhoy section supported by the Asian Development Bank.

11. Project status:	A feasibility study needs to be conducted. ADB is providing TA to prepare master plan for road improvement and development of North-South corridors.
12. Critical success factors:	Availability of financing, efficient cooperation between donors and the Government, timely selection of consultants and contractors, and the establishment of a project management office.
13. Other project-related information:	Project implementation will complete the restoration of the main road network in Afghanistan and will boost economic opportunity and stability.
14. Contact address:	Directorate of Foreign Relations, Ministry of Public Works, Ministry Building, Great Massoud Road, Kabul, Afghanistan. Fax: 39-831-246-103.

B. Armenia

1. Project name:	AH82, Vayq – Gorhayq – Sisian section (from Yerevan, km 135 – km 210).
2. Location:	The route passes through the difficult Ughedzor gorge and Sisian mountain valley. The length is 75 km.
3. Brief outline of the project:	<p>The Vayq – Gorhayq gorge section (km 135 – km 175) of Ughedzor, which is on the Vayq – Goris route, was constructed during 1950-1960 to Class IV technical standards. The partial improvement of a 30-km section stretching towards Goris was completed in 1975.</p> <p>In addition to supporting the improvement of transport linkages between Armenia, the Islamic Republic of Iran and Middle Eastern countries, implementation of the project will assist in improving transit transport operations through the territory of Armenia towards Georgia, the Russian Federation and other States that are located north of Armenia. It will also contribute to the regional development of the Vayots Dzor and Syunik regions.¹</p>
4. Rationale and objectives:	The project will reduce transport costs, increase volumes of passenger and cargo transport from Armenia (Georgia, the Russian Federation etc.) towards the Islamic Republic of Iran and the Middle East. It will promote tourism, create new jobs and contribute to poverty alleviation.
5. Scope of work:	The improvement of 75 km of road located in the Vayots Dzor and Syunik regions of Armenia.
6. Expected impacts and benefits:	Although the project will not shorten the length of the North-South route, it will provide major economic benefits in terms of reduced vehicle operation costs and travel times. International and national entrepreneurs as well as agricultural, transport, industrial, trade and tourism sectors have shown great interest in the project.
7. Estimated cost:	US\$ 30 million (according to the prefeasibility study).
8. Project duration:	Two to three years.
9. Proposed project financing arrangements:	The World Bank, Asian Development Bank or other international financing organizations.
10. Implementation arrangements:	The project implementation office will be established in Yerevan. Activities will be implemented by selected local and international contractors.
11. Project status:	A feasibility study has to be conducted.
12. Critical success factors:	Availability of financing, efficient cooperation between donors and the Government, the timely selection of consultants and contractors, and the establishment of the project management office.
13. Other project-related information:	The early implementation of the project will improve the efficiency of Armenia's transport and trade sectors as well as international transportation.
14. Contact address:	Ministry of Transport and Communications, 28 Nalbandyan Street, Yerevan 375010, Armenia. Tel:/Fax: (374-10) 523-862.

¹ Armenia is divided into 11 administrative units (marzes, regions). Yerevan city is a separate administrative unit.

1. Project name:	AH82, Goris – Agarak section (border with the Islamic Republic of Iran).
2. Location:	The continuation of the AH82 route, Vayq – Sisian segment, to the border with the Islamic Republic of Iran (from Yerevan, km 243 km – km 383).
3. Brief outline of the project:	The existing road was constructed to Class IV technical standard. The Goris – Kapan road segment (60 km) was constructed during 1955-1965, while the Qajaran – Meghri (48 km) segment was completed in 1980. It includes the difficult gorge sections of Goris – Kapan and Qajaran – Meghri.
4. Rationale and objectives:	The project will reduce transport costs, increase volumes of passenger and cargo transport from Armenia (Georgia, the Russian Federation etc.) towards the Islamic Republic of Iran and the Middle East. It will promote tourism, create new jobs and contribute to poverty alleviation.
5. Scope of work:	Improvement of 140 km of road in the Syunik region of the Armenia.
6. Expected impacts and benefits:	Although the project will not shorten the length of the North-South route, it will provide major economic benefits in terms of reduced vehicle operation costs and travel times.
7. Estimated cost:	US\$ 56 million (preliminary estimate).
8. Project duration:	Five years.
9. Proposed project financing arrangements:	The World Bank, the Asian Development Bank and other international financing organizations.
10. Implementation arrangements:	The project implementation office will be established in Yerevan. Activities will be implemented by selected local and international contractors.
11. Project status:	A feasibility study needs to be conducted.
12. Critical success factors:	Availability of financing, efficient cooperation between donors and the Government, the timely selection of consultants and contractors, and the establishment of a project management office.
13. Other project-related information:	Early implementation of the project will improve the efficiency of Armenia's transport and trade sectors as well as international transport.
14. Contact address:	Ministry of Transport and Communication, 28 Nalbandyan Street, Yerevan 375010, Armenia. Tel:/Fax: (374-10) 523-862.

1. Project name:	AH81, Bavra – Gyumri road section.
2. Location:	The road section is located in Armenia’s Shirak region (Yerevan, km 146 – km 156).
3. Brief outline of the project:	<p>The road was constructed during the 1950s and some improvement works were carried out in 1989. It is the only section with Class IV technical standard on the Bavra – Yerevan route.</p> <p>It will improve traffic flow to Armenia from neighbouring Georgia and the Black Sea coastal areas as well as improve international transit passenger and cargo transportation via Armenia. The improvement will also contribute to the economic development of the Shirak region.</p>
4. Rationale and objectives:	The project will reduce transport costs, increase passenger and cargo transport volumes via Armenia towards the Islamic Republic of Iran and Middle East. It will also promote tourism and create employment opportunities.
5. Scope of work:	Improvement of 10 km of road in the Shirak region of Armenia, 25 km from Gyumri.
6. Expected impacts and benefits:	Although the project does not envisage any shortening of the North-South routes, it will be of major importance in view of time savings and traffic security improvement. International and national entrepreneurs as well as the agricultural, industrial, trade, transport and tourism sectors have shown great interest in the project.
7. Estimated cost:	US\$ 5 million. (Primary cost of the project).
8. Project duration:	One year.
9. Proposed project financing arrangements:	The World Bank, Asian Development Bank.
10. Implementation arrangements:	The project implementation office will be established in Yerevan. Activities will be implemented by competition-based, elected local and international contractors.
11. Project status:	A feasibility study is required.
12. Critical success factors:	Availability of financing, efficient cooperation between donors and the Government, the timely selection of consultants and contractors and the establishment of a project management office.
13. Other project-related information:	Early implementation of the project will result in higher efficiency of Armenia’s transport and trade sectors as well as international transportation.
14. Contact address:	Ministry of Transport and Communication, 28 Nalbandyan Street, Yerevan 375010, Armenia. Tel:/Fax: (374-10) 523-862.

1. Project name:	AH81, Nakhchivan (Azerbaijan border) – Agarak – Meghri – Shvanidzor – Nyuvadi – Azerbaijan border.
2. Location:	The road passes along the left bank of the Araks River from Armenia to the Islamic Republic of Iran. The total length is 51 km.
3. Brief outline of the project:	<p>The 11-km section from the Nakhchivan border to Agarak has not been in operation since 1989 due to a transport blockade at Nakhchivan. The next 7-km section to Meghri station is paved with asphalt concrete but needs rehabilitation. The 10-km Meghri – Shvanidzor segment is of Classes IV-V standard and is crossed by the Baku – Yerevan railway at several locations. The road is being reconstructed (since 2005) with national budget funding, to connect various settlements in the region of Meghri. The 28-km Shvanidzor – Nyuvadi – border of Azerbaijan section is passable only by lorries.</p> <p>The implementation of the project will connect the Alda, Shvanidzor and Nyuvadi settlements with Meghri. The road will contribute to the development and growth of fruit farming in these regions, which have a tropical climate. If the transport blockade were to be removed, it would provide transit transportation via Armenia for Naghijevan – Azerbaijan. This will support the economic development of Armenia’s territories bordering the Islamic Republic of Iran.</p>
4. Rationale and objectives:	The project will ensure the economic development of the region as well as facilitate international cargo transportation to Azerbaijan from Nakhijevan and neighbouring Turkey.
5. Scope of work:	Improvement of 51 km of road in Armenian territory bordering the Islamic Republic of Iran.
6. Expected impacts and benefits:	It will be of major importance for the development of the region and will create a new international East-West corridor for cargo transportation. Road contractors as well as international and national entrepreneurs have shown great interest in the project.
7. Estimated cost:	US\$ 25 million.
8. Project duration:	Three to four years.
9. Proposed project financing arrangements:	The World Bank, Asian Development Bank and other interested financing institutions.
10. Implementation arrangements:	The project implementation office will be established in Yerevan. Activities will be carried out by competitive-based, elected contractors.
11. Project status:	
12. Critical success factors:	Availability of financing, efficient cooperation between donors and the Government, the timely selection of consultants and contractors and the establishment of a project management office.
13. Other project-related information:	Early implementation of the project will improve the efficiency of Armenia’s transport and trade sectors as well as international transportation.
14. Contact address:	Ministry of Transport and Communication, 28 Nalbandyan Street, Yerevan 375010, Armenia. Tel:/Fax: (374-10) 523-862.

C. Azerbaijan

1. Project name:	AH84, Nakhchivan – Sadarak – border with Turkey Road Rehabilitation.
2. Location:	The construction area covers Babak, Sharur, Kangarli and Sadarak districts of the Nakhchivan Autonomy Republic, Azerbaijan.
3. Brief outline of the project:	The Nakhchivan – Sadarak – border with Turkey section is 87 km long, Class II technical standard with 15-m subgrade width, 7.5-m asphalt-concrete carriageway and 2 x 3.75-m shoulders. The road passes through 17 settlements. The Nakhchivan – Sadarak – border of Turkey road is included in the TACIS/TRACECA programme and is a part of the European Road (E002) and Asian Highway network (AH81).
4. Rationale and objectives:	As a part of AH81 and E002, the Nakhchivan – Sadarak – border with Turkey road links Nakhchivan, which is currently under blockade, with Turkey and Mediterranean seaports. Road improvement will increase internal as well as transit transportation traffic.
5. Scope of work:	Rehabilitation of the 87-km section of road from Nakhchivan city to the border with Turkey, passing through Givrag and Sharur towns and thereafter to Diluju and Igdir towns in Turkey (via AH81).
6. Expected impacts and benefits:	The completion of rehabilitation work on the Nakhchivan – Sadarak – border with Turkey section will contribute to the improvement of international freight transportation in the region. It is also expected to reduce vehicle operation costs, develop and improve transport links with Turkey, and facilitate upgrading of the road section to international standards as part of the Euro-Asia international transport route.
7. Estimated cost:	US\$ 38 million.
8. Project duration:	From 2006 to 2008.
9. Proposed project financing arrangements:	Due to limitations in government resources and budget, it proposed that the project be financed with funds from international banks and financing institutions.
10. Project status:	The feasibility study was completed in December 2004.
11. Critical success factors:	Availability of funding, efficient cooperation between donors and the Government, the establishment of a capable project management team, and the timely procurement of the services of a consultant and contractors.
12. Other project-related information:	The overall effectiveness coefficient of the invested capital for road rehabilitation is equal to 0.219 and the invested capital repayment period through projected incomes is five years.
13. Other project-related information:	
14. Contact address:	“Roadtransservice” Department, Ministry of Transport, 72/4 U. Hajibayov Street, Baku AZ1010, Azerbaijan. Tel: (994-12) 493-8083, Fax: (994-12) 493-8083, E-mail: nn-ynsd@azeronline.com.

1. Project name:	AH81, Horadiz – Hajigabul (Gazi Mammed) Road Rehabilitation and Reconstruction.
2. Location:	The construction area covers the Fizuli, Beylagan, Imishli, Saatli, Sabirabad and Hajigabul districts of Azerbaijan.
3. Brief outline of the project:	The first 39 km of the existing 186-km Horadiz – Hajigabul (Gazi Mammed) road is Class II standard with 2 x 375-m carriageway, 2 x 375-m shoulders and 15-m subgrade. The remaining 147 km section is Class III standard with 2 x 375-m, carriageway, 2 x 275-m shoulders and 10-m subgrade. The road is included in the TACIS/TRACECA programme and is a part of the European Road (E002) and Asian Highway network (AH81).
4. Rationale and objectives:	The Horadiz – Hajigabul (Gazi Mammad) road directly links Azerbaijan with Turkey, and is part of AH81.
5. Scope of work:	Rehabilitation of the 186-km road section starting from Hajigabul city and extending to Horadiz district. It passes through Sabirabad, Saatli and Bahramtepe towns and other settlements to Nakhchivan.
6. Expected impacts and benefits:	Rehabilitation and reconstruction of the Horadiz – Hajigabul (Gazi Mammad) road is of great importance for the development of international freight transportation in the region. Due to its location, the road will improve internal and international transportation in Azerbaijan, and increase trade and tourism with Turkey and neighbouring countries.
7. Estimated cost:	US\$ 74 million.
8. Project duration:	Two to three years.
9. Proposed project financing arrangements:	Due to limitations in government resources and budget, it proposed that the project be financed with funds from international banks and financing institutions.
10. Implementation arrangements:	The consultant for the preparation of the detailed design and construction contractors will be selected based on international competitive bidding procedures.
11. Project status:	
12. Critical success factors:	Availability of funding, efficient cooperation between donors and the Government, the establishment of a capable project management team, and the timely procurement of the services of a consultant and contractors.
13. Other project-related information:	
14. Contact address:	“Roadtransservice” Department, Ministry of Transport, 72/4 U, Hajibayov Street, Baku AZ1010, Azerbaijan. Tel: (994-12) 4938083, Fax: (994-12) 4938083, E-mail: nn-ynsd@azeronline.com.

D. Bangladesh

1. Project name:	Four-lane upgrading of the Dhaka – Chittagong Highway. (Daudkandi – Chittagong Section).
2. Location:	Daudkandi – Chittagong, 198 km of AH41.
3. Brief outline of the project:	<p>Traffic on the Dhaka – Chittagong Highway is increasing at a much higher rate than expected and has already exceeded 40,000 PCU/day at many locations. This is beyond the capacity of this two-lane road and the situation has resulted in heavy congestion.</p> <p>Widening the road to at least in four lanes is therefore a very urgent necessity. To make a start, the Roads and Highways Department of Bangladesh began upgrading a 28-km section of the Dhaka to Daudkandi road (AH41) with Government of Bangladesh funding. The project has already been completed in about two and half years, and is acknowledged to have been a success. The number of accidents has been reduced, and head-on collisions, which occur mostly on two-lane undivided highways and are always fatal, have not occurred on this section of the road since it was opened to traffic.</p> <p>It is therefore necessary for upgrading to four lanes to proceed on subsequent sections of AH41 in order to create a basic four-lane divided carriageway road facility.</p>
4. Rationale and objectives:	<p>The main objective of this project is to reduce constraints and increase efficiency of road transportation by upgrading the Dhaka – Chittagong Highway (Daudkandi – Chittagong section) from two to four lanes. This will enable:</p> <ul style="list-style-type: none"> (a) Optimization of Chittagong port; (b) The development of an adequate and efficient transport system between the capital, Dhaka and commercial port city of Chittagong, thus enhancing economic development for the expansion and integration of markets and the growth of international trade. The improvement of this strategic corridor is expected to provide substantial economic and social benefits to the south-eastern region of Bangladesh, in particular through the generation of employment, the creation of improved facilities for trade and commerce, the promotion of social integration and the development of tourism. It will thus assist economic development and the reduction of poverty in the country; (c) Assisting sustainable economic development through the enhancement of transportation between agricultural centres as well as industrial areas; and (d) The enhancement of road safety measures.
5. Scope of work:	Upgrading to four lanes the Dhaka – Chittagong Highway (Daudkandi – Chittagong section) comprises road construction from Daudkandi to Chittagong, including the construction of earthworks, pavement, culverts and bridges. It also includes constructing railway bridges at Comilla, Feni and Fakirhat near Chittagong as well as construction work on three long river bridges and river protection works at Kalidash, Muhuri and Feni, near Feni. Two separate lanes will be constructed along the existing two-lane highway and separated by a raised median.
6. Expected impacts and benefits:	<p>The expected impact of the project will be: (a) to cater to current and projected traffic flows along this crucial commercial arterial road; and (b) to provide a safe and efficient connection between Dhaka and Chittagong.</p> <p>As a major road communication project, it will generate employment in the construction and transportation sectors. It will improve distribution of farm products and accessibility to urban markets for poor farmers. It will also generate more opportunities in the market centres for the rural poor and improve the livelihood of day-labourers, thus making it supportive of PRSP.</p> <p>Although this project is located in Bangladesh, it will greatly facilitate trade and tourism between Myanmar and Bangladesh as well as the use of Chittagong Port via the Asian Highway.</p>

Section and package EIRR and NPV/capital costs have been calculated, as shown in the table below.

Package	EIRR(%)	NPV/capital cost at 12%
Daudkandi Toll plaza – Kutumbpur (km 28.00 – km 50)	31.77	2.64
Kutumbpur – start of Comill Bypass (km 50 – km 74)	32.65	2.85
From start to end of Comilla Bypass (km 74 – km 94)	26.88	1.86
End of Comilla Bypass – Batisha (km 94 – km 114)	28.80	2.18
Batisha – Mophipal (km 114 – km 134)	28.61	2.15
Mophipal to start of Dhum Ghat bridge (km 134 – km 154)	26.56	1.81
Dhum Ghat Bridge to Mirersarai bazaar (km 154 – km 172)	35.57	2.92
Mirersarai bazaar to Panchashila bazaar (km 172 – km 190)	39.25	3.55
Panchashila bazaar to end of Kumira Bypass (km 190 – km 208)	39.04	3.51
End of Kumira Bypass to Alanker Cinema Hall (Chittagong) (km 208 – km 226)	38.79	3.47

7. Estimated cost: US\$ 261.45 million (US\$ 1.00 = BD Tk 65.00).

Note: Estimated cost may vary after detailed survey and design.

8. Project duration: January 2006 to December 2010.

9. Proposed project financing arrangements: Funding by the Government of Bangladesh (100 per cent).

10. Implementation arrangements: The Department on Roads and Highways under the Ministry of Communications will undertake the execution of the project. A fully staffed Project Management Office will be established. The construction works can be implemented by international contractors, and designed and supervised by international consultants in association with local firms.

11. Project status: BD Tk 2 billion (US\$ 30.77 million) has been allotted for the project from the Japan Debt Cancellation Fund through the Annual Development Programme of fiscal year 2005-2006. The necessary steps have been taken for the procurement of design and supervision consultancy services. Physical construction will start as soon as the adequate design is completed.

Extensive maintenance work is being carried out on about 113 km of the Dhaka Chittagong Highway, including some bypasses, growth centre development and additional construction of the Chittagong Port access road under a road maintenance and improvement project financed by the Government of Bangladesh and its development partner, the Asian Development Bank.

A feasibility study and detailed engineering design of the Dhaka – Chittagong four-lane access controlled highway is due to start shortly, with Asian Development Bank funding. This project will reduce travel time between Dhaka and Chittagong.

12. Critical success factors: Availability of funding, efficient cooperation between different agencies, the establishment of a capable project management team, and the timely procurement of consultant and contractor services.

13. Other project-related information: As the project has high economic rate of return (EIRR), early start of project would to boost the Bangladesh's economy by increasing efficiency in internal and international transport and trade.

14. Contact address: Chief Engineer, Roads and Highways Department, Sarak Bhaban, Ramna, Dhaka, Bangladesh. Tel: (88-02) 956-2829; Fax: (88-02) 956-2798; Website: www.rhd.gov.bd.

1. Project name:	Chittagong – Cox’s Bazar – Ramu – Gundum Road.
2. Location:	Chittagong (AH41) – Ramu (km 135 of the Chittagong – Cox’s Bazar Road) – Fatekharkhul – Maricha – Balukhali – Gundum – Taungbro (Myanmar).
3. Brief outline of the project:	This project covers the old Arkan Road, which was used during the period of the British regime, connecting Chittagong (Bangladesh), Akiub, and Yangon (Myanmar). The section from Chittagong to Ramu has recently been upgraded, but from Ramu to Gundum (36 km) it still needs to be developed. The road will provide a direct link between Bangladesh and Myanmar, which is already connected to Thailand and China.
4. Rationale and objectives:	The project is expected to open a new economic horizon (business corridor) within Asian countries such as Myanmar, Thailand, China, Malaysia, Singapore, Cambodia, the Lao People’s Democratic Republic and Viet Nam. The project will contribute to poverty reduction in rural areas by providing access to rural people, which at present is very restricted. The project will also provide employment opportunities for the indigenous people and will promote tourism within the region.
5. Scope of work:	The road from Ramu to Gundum (36 km) has to be reconstructed to national road standards, including many bridges and culverts. The remaining portion is already up to national standards but needs upgrading to four lanes.
6. Expected impacts and benefits:	A new corridor will be opened. Traffic will be generated. Business will be expanded among the neighbouring countries. Bangladesh will have a direct road link to Myanmar. Indigenous people in this hilly region will gain easy access to education and livelihood, thereby getting rid of poverty.
7. Estimated cost:	US\$ 144 million.
8. Project duration:	Five years.
9. Proposed project financing arrangements:	Multilateral or bilateral funding (loans/grants) is required for the project.
10. Implementation arrangements:	The Roads and Highways Department, Ministry of Communications will be the executing agency. The project will be managed by a project management office headed by a project director of Additional Chief Engineer’s rank. The construction packages will be awarded to contractors through national/international competitive bidding and will be supervised by appointed national/international consultants.
11. Project status:	The feasibility is being examined by both the Bangladesh and Myanmar Governments and a Memorandum of Understanding has been signed.
12. Critical success factors:	Funding, timely disbursements, an efficient project team, and the timely appointment of a consultant and contractors.
13. Other project-related information:	An expected higher internal rate of return.
14. Contact address:	Chief Engineer, Roads and Highways Department, Sarak Bhaban, Ramna, Dhaka. Tel: (88-02) 956-2829; Fax: (88-02) 956-2798.

1. Project name:	Jhenaidah – Jessore Road, AH41.
2. Location:	Jessore district headquarters to Jhenaidah district headquarters.
3. Brief outline of the project:	The project area is a part of National Highway N-7. It connects the two district headquarters of Jessore and Jhenaidah. Passenger traffic and goods traffic use this road from Benapole Land Port, Mongla seaport and Khulna Divisional Headquarters, and adjacent districts of south-western and northern Bangladesh.
4. Rationale and objectives:	With the improvement of this 45-km section of road, the transportation of goods and passengers will be made efficient. This will contribute to the socio-economic development of the local people as well as the national economy.
5. Scope of work:	The provision of base course, wearing surface on carriageway, and widening of pavement and hard shoulder.
6. Expected impacts and benefits:	The local population, including women, will gain employment opportunities. Vehicle operating costs travel times will be reduced.
7. Estimated cost:	US\$ 8.00 million.
8. Project duration:	Three to four years.
9. Proposed project financing arrangements:	Funding by the Government of Bangladesh, the Asian Development Bank, the World Bank, the International Monetary Fund, the Government of Japan.
10. Implementation arrangements:	The Roads and Highways Department, Ministry of Communications will be the executing agency. The project will be managed by a project management office headed by a project director of Additional Chief Engineer's rank. The construction packages will be awarded to contractors through national/international competitive bidding and will be supervised by appointed national/international consultants.
11. Project status:	At present, 5.50 m – 6 m carriageways with 9-m average crest width. This section of road is being maintained through a periodic and routine maintenance programme.
12. Critical success factors:	Funding, timely disbursements, an efficient project team, and timely appointment of consultant and contractors.
13. Other project-related information:	Expected higher internal rate of return.
14. Contact address:	Chief Engineer, Roads and Highways Department, Sarak Bhaban, Ramna, Dhaka. Tel: (88-02) 956-2829; Fax: (88-02) 956-2798.

1. Project name:	AH2, Beldanga – Panchagarh Road.
2. Location:	The project is located in Dinajpur and Panchagarh Districts under Rajshahi Division.
3. Brief outline of the project:	Dinajpur is connected with the capital by National Highway N-5 through Rangpur, Gaibandha, Bogra, Seragonj, Tangail and Gazipur districts. The National Highway then extends through Panchagarh, Tetulia and Banglabandha border towards India and Nepal from Beldanga (Panchagarh). The Beldanga – Panchagarh road (78 km) was earlier a cement concrete road and was developed in 1995 with Italian grant aid. As this segment will be a part of the Asian Highway, it needs to be developed up to National Highway standard. The Panchagarh – Tetulia – Banglabandha road (57 km) is being developed up to national highway standard under a road network improvement and maintenance project of the Roads and Highways Department, and is expected to be completed within the next two years.
4. Rationale and objectives:	The project will open a new business corridor between Bangladesh, India, Nepal, Pakistan, Uzbekistan, Kazakhstan and Middle Eastern countries. It will play an important role in poverty reduction and the creation of new employment opportunities in the northern region of Bangladesh. It will be also facilitate industrialization and promote tourism.
5. Scope of work:	The existing road has been constructed to National Highway specifications up to a width of 6.10 m. Now, for international transportation purposes, the road is to be widened by 2.40 m, including the hard shoulder, and strengthened. Bridges and culverts of 120 m are to be replaced.
6. Expected impacts and benefits:	Industrial and agricultural growth will take place in the area served by the road. The main beneficiaries will be road transportation, international and domestic business entrepreneurs, workers engaged in agro-industry, manufacturing, commercial and tourism activities, and farmers in the project area.
7. Estimated cost:	US\$ 12.5 million.
8. Project duration:	Three to four years.
9. Proposed project financing arrangements:	Multilateral or bilateral funding will be required for the project. The Asian Development Bank, the World Bank or the Japan Bank for International Cooperation may be the development partner(s).
10. Implementation arrangements:	The Roads and Highways Department, Ministry of Communications will be the executing agency. The project will be managed by a project management office headed by a project Director of Additional Chief Engineer's rank. The construction packages will be awarded to contractors through national/international competitive bidding and will be supervised by appointed national/international consultants.
11. Project status:	This section of road is being maintained through a periodic and routine maintenance programme.
12. Critical success factors:	Funding, timely disbursements, an efficient project team, and the timely appointment of consultant and contractors.
13. Other project-related information:	Expected higher internal rate of return.
14. Contact address:	Chief Engineer, Roads and Highways Department, Sarak Bhaban, Ramna, Dhaka. Tel: (88-02) 956-2829; Fax: (88-02) 956-2798.

1. Project name:	Dasuria – Paksey – Kushita, AH41.
2. Location:	From Kushita District Headquarters to Paksey Bridge.
3. Brief outline of the project:	This road is part of national Highway N-705, which was built in early 1960s. It connects south-western Bangladesh with the northern region of the country. The road will connect Mongla seaport and Benapole port with the capital without any interruption, as the Lalon Shah Bridge has already been constructed over the River Padma.
4. Rationale and objectives:	The project will facilitate industrialization and poverty alleviation in the south-western region of Bangladesh. It will also promote tourism.
5. Scope of work:	This section of the road, which is 38 km in length, will need to be strengthened and widened.
6. Expected impacts and benefits:	Increased employment opportunities for the local population, including women.
7. Estimated cost:	US\$ 2.55 million.
8. Project duration:	Two to three years.
9. Proposed project financing arrangements:	Funding by the Government of Bangladesh, the Asian Development Bank, the World Bank, the International Monetary Fund, the Government of Japan.
10. Implementation arrangements:	The Roads and Highways Department, Ministry of Communications will be the executing agency. The project will be managed by a project management office headed by a Project Director of Additional Chief Engineer's rank. The construction packages will be awarded to contractors through national/international competitive bidding and will be supervised by appointed national/international consultants.
11. Project status:	Two-lane highway, 7.50-m carriageway, crest width average 9.50 m. A 21-km stretch of the road has been upgraded under the RRMP-II and Paksey Bridge project. The remaining 17 km are being maintained through a periodic and routine maintenance programme.
12. Critical success factors:	Funding, timely disbursements, an efficient project team, and the timely appointment of consultant and contractors.
13. Other project-related information:	Expected higher internal rate of return.
14. Contact address:	Chief Engineer, Roads and Highways Department, Sarak Bhaban, Ramna, Dhaka. Tel: (88-02) 956-2829; Fax: (88-02) 956-2798.

E. Bhutan

1. Project name:	Thimphu – Phuentsholing Highway, AH48.
2. Location:	Thimphu (capital) and Phuentsholing (nodal point of the Asian Highway in Bhutan).
3. Brief outline of the project:	<p>The Thimphu – Phuentsholing Highway, the length of which is approximately 179 km, was constructed in 1968 with a 6.9 m formation width to cater to a design traffic volume of 145 vehicles per day. It now carries more than 1,000 vehicles per day, which far exceeds the initial design traffic volume.</p> <p>The highway links Phuentsholing, the second largest commercial town in the country, to the capital, Thimphu. Although it is currently classified as a National Highway, it does not conform to the national highway standard in terms of geometric characteristics such as road width, radius of curvatures, gradients and sight distances. These inadequacies have resulted in the limitation of speed to a maximum of about 30 km/hr while creating traffic hazards due to two-way traffic flow being imposed on a primarily single-lane road.</p> <p>It is planned to construct a dry port at Phuentsholing, which is the nodal point of the Asian Highway in Bhutan, and to upgrade the Thimphu – Phuentsholing highway (which has been designated as AH48) to Asian Highway standards. This project has the potential for major enhancement of transportation and transit facilities.</p>
4. Rationale and objectives:	<p>The objectives of this project are: (a) to widen the highway between Thimphu and Damchu, and Chhukha and Phuentsholing, and (b) to construct a bypass between Damchu and Chhukha to double lane standard in order to facilitate an unrestricted flow of two-way traffic between Thimphu and Phuentsholing.</p> <p>At present, it takes about five and half hours to travel from Thimphu to Phuentsholing. However, the journey is expected to be reduced to about four hours once the project has been completed. Substantial savings are expected to accrue from reduced road user costs, enhanced reliability and reduced accident hazards.</p>
5. Scope of work:	The project comprises of two distinct components: (a) the widening of 114 km of the existing road between Thimphu and Damchu, and Chhukha and Phuentsholing, and (b) the construction of a 23-km bypass between Damchu and Chhukha.
6. Expected impacts and benefits:	Movement of goods and services at present is constrained largely due to the poor geometric features of the road coupled with restrictive road width. Construction and development of this road into double-lane highway will ease traffic congestion, reduce vehicle operating costs (the pavement will be designed to carry 30-ton trucks in line with Bhutan Vision 2020) and enhance safety aspects. It will also provide faster and easy access to the dry port proposed to be established at Phuentsholing while the travel time between Thimphu and Phuntsholing will be reduced from five and half hours to about four hours as a result of the reduction in the length of the road and increased speed of travel.
7. Estimated cost:	US\$ 470 million (Nu 2,083 million). (US\$ 1.00 = Nu 44.38). The estimated cost of the project includes construction of the Damchu – Chhukha bypass (Nu 350 million).
8. Project duration:	The project duration for the Thimphu – Damchu and Chhukha – Phuentsholing highway section is five years, while the duration for the construction of Damchu – Chhukha bypass is three years.

9. Proposed project financing arrangements:	The Government of India is financing the project.
10. Implementation arrangements:	The survey and design works for constructing the double lane work are being carried by the Department of Roads. Construction work is being undertaken by Project Dantak of the Government of India. The latter has also been asked to fund the construction of the Damchu – Chhukha bypass, the alignment of which is being finalized.
11. Project status:	A topographic survey for widening the road between Thimphu and Damchu, and between Chhukha and Phuentsholing has been completed except for a 5-km stretch between Kharbandi and Phuentsholing. The detail design for a 32-km stretch between Thimphu and Damchu has been completed. Widening between Thimphu and Damchu has started.
12. Critical success factors:	The completion of the project depends on the timely release of funds.
13. Other project-related information:	
14. Contact address:	Director, Department of Roads, Ministry of Works and Human Settlements, Royal Government of Bhutan, Thimphu.

F. Cambodia

1. Project name: NR78 (AH11 Feeder Road) Road Improvement Project 1.
2. Location: From NR7 (AH11) Junction to Banlung (Rattanak Kiri provincial centre), north-eastern Cambodia.
3. Brief outline of the project: The project road links the Asian Highway (AH11) and is located about 460 km from Phnom Penh, at the Balung Provincial Centre in Rattanak Kiri province, which is the ecotourism centre of the country. The existing gravel road is in very poor condition; during the rainy season, it is very difficult to pass. The project will improve 125 km of laterite road replacing it with 7 m of double bituminous surface treatment (DBST) standard carriageway and 2 m laterite shoulder on both sides. The horizontal and vertical alignment of NR78 will remain unchanged. Thirty-three box/pipe culverts and 40 bridges will be replaced. The project will include a special subcontractor to confirm the absence of landmines and unexploded ordinance, especially in areas of borrow pits, where the standard mine-clearing depth may not be sufficient.
4. Rationale and objectives: <ul style="list-style-type: none"> • Poverty reduction among the population living in Rattanak Kiri • Facilitation of the delivery of social services, education and health care • Enhancement of the economy development of Cambodia • Exploitation of agro-industrial areas • Trade exchanges between Cambodia and Viet Nam • Facilitation of tourist transportation.
5. Scope of work: <ul style="list-style-type: none"> • Surface replacement with 7 m of carriageway DBST and 2-m gravel shoulders • Replacement or repair of 33 box/pipe culverts • Replacement or repair 40 bridges (total length 593 m) • Clearance of landmines and unexploded ordinance.
6. Expected impacts and benefits: <i>Benefits</i> <ul style="list-style-type: none"> • Reduction of poverty through increased international tourism • Promotion of investment in the agro-industrial area • Increased trade exchanges between Cambodia and Viet Nam • Improved accessibility to the health centre, schools etc. • Reduced travelling time • Reduced vehicle operation costs • Reduced dust. <i>Impact</i> <ul style="list-style-type: none"> • The minority people living in the area could be affected by HIV.
7. Estimated cost: US\$ 44 million.
8. Project duration: Twenty-eight months.

9. Proposed project financing arrangements:	China is considering funding the project. Accounting will be managed by a Project Implementation Unit (PIU) of the Ministry of Public Works and Transport. Accounting and financial statements will be prepared every month. The PIU will prepare an annual project financial statement in a format acceptable to the donor. To ensure acceptable standards of financial management, an internationally recognized auditing firm will be selected to provide onsite financial and accounting advice. An independent auditor acceptable to the donor will be hired to audit the project.
10. Implementation arrangements:	The PIU will be set up to administer, manage and supervise the project. An international consultant should be selected, based on quality and cost, to supervise the civil works. National competitive bidding (NCB) should be used for awarding the civil works contract.
11. Project status:	<ul style="list-style-type: none"> • Difficult to pass in the rainy season • The road is in bad condition • The road surface is covered by gravel.
12. Critical success factors:	
13. Other project related information:	
14. Contact address:	Dr. Hong Sinara, Deputy Director-General of Public Works, Ministry of Public Works and Transport, Phnom Penh, Cambodia. Tel:/Fax: (855-23) 723-028; E-mail: hongsinara@yahoo.com.

1. Project name: NR78 (AH11 Feeder Road) Road Improvement Project 2.
2. Location: From Banlung (Rattanak Kiri provincial town) to the border with Viet Nam.
3. Brief outline of the project: The project road provides a link between the provincial centre (Banlung) of Rattanak Kiri province, a tourism destination in Cambodia, and the border with Viet Nam. The existing laterite road is in very poor condition. The project will improve 78 km of laterite road with a 7-m DBST carriageway and a 2-m gravel shoulder on each side. The horizontal and vertical alignment of NR78 will remain unchanged. Two culverts and one bridge will be replaced or repaired. The project will include a special subcontractor to confirm the absence of landmines and unexploded ordinance, especially in areas to be excavated where the standard mine-clearing depth may not be sufficient.
4. Rationale and objectives: <ul style="list-style-type: none"> • Poverty reduction among people living in Rattanak Kiri • Facilitation of the delivery of social and welfare services • Enhancement of the economy development of Cambodia • Exploitation of agro-industrial areas • Trade exchanges between Cambodia and Viet Nam • Facilitation of tourist transportation.
5. Scope of work: <ul style="list-style-type: none"> • Surface replacement with 7 m DBST carriageway with 2 m laterite shoulder • Replacement or repair of two box/pipe culverts • Replacement or repair of one bridge (length, 26 m) • Clearance of landmines and unexploded ordinance.
6. Expected impacts and benefits: <p><i>Benefits</i></p> <ul style="list-style-type: none"> • Reduction of poverty through increased tourism • Promotion of investment in the agro-industrial area • Increased trade exchanges between Cambodia and Viet Nam • Improved accessibility to the health centre, schools etc. • Reduced travelling time • Reduced vehicle operation costs • Reduced dust. <p><i>Impact</i></p> <ul style="list-style-type: none"> • The minority people living in the area could be affected by HIV.
7. Estimated cost: US\$ 27 million.
8. Project duration: Twenty-four months.

<p>9. Proposed project financing arrangements: Funding support is being sought from international banks and financing institutions.</p> <p>Accounting will be managed by a Project Implementation Unit (PIU) of the Ministry of Public Works and Transport. Accounting and financial statements will be prepared every month. The PIU will prepare an annual project financial statement in a format acceptable to the donor. To ensure acceptable standards of financial management, an internationally recognized auditing firm will be selected to provide onsite financial and accounting advice. An independent auditor acceptable to the donor will be hired to audit the project.</p>
<p>10. Implementation arrangements: The PIU will be set up to administer, manage and supervise the project.</p> <p>An international consultant should be selected, based on quality and cost, to supervise the civil works. National competitive bidding (NCB) should be used for awarding the civil works contract.</p>
<p>11. Project status:</p> <ul style="list-style-type: none"> • Difficult to pass in the rainy season • The road is in bad condition
<ul style="list-style-type: none"> • The road surface is covered by gravel and is very dusty.
<p>12. Critical success factors:</p>
<p>13. Other project-related information:</p>
<p>14. Contact address: Dr. Hong Sinara, Deputy Director-General of Public Works, Ministry of Public Works and Transport, Phnom Penh, Cambodia. Tel:/Fax: (855-23) 723-028; E-mail: hongsinara@yahoo.com.</p>

1. Project name: NR57 (AH1 Feeder Road) Road Improvement Project.
2. Location: Battambang to the border with Thailand, via Pailin.
3. Brief outline of the project: The project road provides a link to the Asian Highway (AH1) between Battambang provincial town and the border with Thailand, via Pailin. The existing laterite road is in very poor condition and it is very difficult to pass, especially during the rainy season. The project will improve 113 km of laterite road by replacing it with 7 m of DBST standard carriageway and a 2-m laterite shoulder on each side. The horizontal and vertical alignment of NR57 will remain unchanged. A total of 77 pipe/box culverts and 14 bridges will be replaced or repaired. The project will include a special subcontractor to confirm the absence of landmines and unexploded ordinance, especially in areas to be excavated where the standard mine-clearing depth may not be sufficient.
4. Rationale and objectives: <ul style="list-style-type: none"> • Poverty reduction in Pailin and the north-western region of the country • Facilitation of the delivery of social and welfare services • Enhancement of the economy development of Cambodia • Trade exchanges between Cambodia and Thailand • Exploitation of agro-industrial areas • Facilitation of tourism.
5. Scope of work: <ul style="list-style-type: none"> • Surface replacement with 7 m DBST carriageway and 2-m laterite shoulders • Replacement or repair of 77 box/pipe culverts • Replacement or repair of 14 bridges (total length, 400 m) • Clearance of landmines and unexploded ordinance.
6. Expected impacts and benefits: <i>Benefits</i> <ul style="list-style-type: none"> • Reduction of poverty through increased tourism • Promotion of investment in agro-industrial areas • Increased trade exchanges between Cambodia and Viet Nam • Improved accessibility to the health centre, schools etc. • Reduced travelling time • Reduced vehicle operation costs • Reduced dust. <i>Impact</i> <ul style="list-style-type: none"> • The minority people living in the area could be affected by HIV.
7. Estimated cost: US\$ 40 million.
8. Project duration: Twenty-eight months.

<p>9. Proposed project financing arrangements: Funding support is being sought from international banks, financing institutions and bilateral donors.</p> <p>Accounting will be managed by a Project Implementation Unit (PIU) of the Ministry of Public Works and Transport. Accounting and financial statements will be prepared every month. The PIU will prepare an annual project financial statement in a format acceptable to the donor. To ensure acceptable standards of financial management, an internationally recognized auditing firm will be selected to provide onsite financial and accounting advice. An independent auditor acceptable to the donor will be hired to audit the project.</p>
<p>10. Implementation arrangements: The PIU will be set up to administer, manage and supervise the project.</p> <p>An international consultant should be selected, based on quality and cost, to supervise the civil works. National competitive bidding (NCB) should be used for awarding the civil works contract.</p>
<p>11. Project status:</p> <ul style="list-style-type: none"> • Difficult to pass in the rainy season • The road is in bad condition • The road surface is covered with gravel and is very dusty.
<p>12. Critical success factors:</p>
<p>13. Other project-related information:</p>
<p>14. Contact address: Dr. Hong Sinara, Deputy Director-General of Public Works, Ministry of Public Works and Transport, Phnom Penh, Cambodia. Tel:/Fax: (855-23) 723-028; E-mail: hongsinara@yahoo.com.</p>

1. Project name: NR61 (connecting AH1 and AH11) Road Improvement Project.
2. Location: Preak Kdam (AH1) to Thnal Keng (AH11).
3. Brief outline of the project: The project road provides links to the Asian Highway (AH1) at Preak Kdam and the Asian Highway (AH11) at Thnal Keng. The project will improve the existing 16-km sealed road with high International Roughness Index (IRI) to the Asian Highway standard. The standard road design cross-section is 7-m DBST and 2-m paved shoulder on each side. There are no structures crossing the road. The horizontal and vertical alignment of NR61 will remain unchanged.
4. Rationale and objectives: <ul style="list-style-type: none"> • The linking of two Asian Highway (AH1 and AH11) routes bypassing the Phnom Penh capital • Reduction of the traffic volume crossing Phnom Penh • Reduction of travelling time • Reduction of vehicle operation costs • Enhancement of the economic development of Cambodia.
5. Scope of work: Surface replacement with 7-m DBST carriageway and a 2-m DBST shoulder on each side. No work on structures will be carried out.
6. Expected impacts and benefits: <i>Benefits</i> <ul style="list-style-type: none"> • Reduction in poverty • A contribution to the development of the Cambodian economy • Reduced travelling time • Reduced vehicle operation costs • A significant reduction in transportation costs • Reduced traffic jams in Phnom Penh.
7. Estimated cost: US\$ 6 million.
8. Project duration: Twelve months.
9. Proposed project financing arrangements: Funding support is being sought from international banks, financing institutions and bilateral donors.
10. Implementation arrangements: A Project Implementation Unit of the Ministry of Public Works and Transport will be set up to administer, manage and supervise the project. An international consultant should be selected, based on quality and cost, to supervise the civil works. National competitive bidding (NCB) should be used for awarding the civil works contract.
11. Project status:
12. Critical success factors:
13. Other project-related information:
14. Contact address: Dr. Hong Sinara, Deputy Director-General of Public Works, Ministry of Public Works and Transport, Phnom Penh, Cambodia. Tel:/Fax: (855-23) 723-028; E-mail: hongsinara@yahoo.com.

1. Project name: NR76 (AH11 Feeder Road) Road Improvement Project.
2. Location: NR7 Junction – Sen Monorom (Mondul Kiri) – Banlung (Rattanak Kiri provincial town).
3. Brief outline of the project: The project road provides a link with the Asian Highway (AH11) at Snoul, about 257 km from Phnom Penh, the provincial centre (Sen Monorom) of Mondul Kiri province (a tourist destination in Cambodia) and a further connection to Banlung (Rattanak Kiri province). The existing laterite road is in very poor condition. The stretch of road in the mountainous area is susceptible to erosion during the rainy season. The project will upgrade 335 km of laterite road to a 7-m wide DBST carriageway standard with a 2-m laterite shoulder on each side. Some of the road sections are currently impassible. The horizontal and vertical alignment will be changed accordingly to meet the safety standard. The project will contribute to the reduction of traffic accidents. Culverts and bridges will be replaced or repaired. The project will include a special subcontractor to confirm the absence of landmines and unexploded ordinance, especially in areas to be excavated where the standard mine-clearing depth may not be sufficient.
4. Rationale and objectives: <ul style="list-style-type: none"> • Poverty reduction in Kratie, Mondul Kiri and Rattanak Kiri provinces • Facilitation of the delivery of social and welfare services • Enhancement of the economic development of Cambodia • Exploitation of agro-industrial areas • Enhanced trade exchanges between Cambodia and Viet Nam • Facilitation of tourism.
5. Scope of work: <ul style="list-style-type: none"> • Surface replacement with a 7-m bituminous DBST carriageway and a 2-m laterite shoulder on each side • Replacement or repair of box and pipe culverts • Replacement or repair of bridges • Clearance of landmines and unexploded ordinance.
6. Expected impacts and benefits: <p><i>Benefits</i></p> <ul style="list-style-type: none"> • Reduction of poverty through enhanced tourism potential • Promotion of investment in agro-industrial areas • Increased trade exchanges between Cambodia and Viet Nam • Improved accessibility to the health centre, schools etc. • Reduced travelling time • Reduced vehicle operation costs • Reduced dust. <p><i>Impact</i></p> <ul style="list-style-type: none"> • The minority people living in the area could be affected by HIV.
7. Estimated cost: US\$ 44 million.
8. Project duration: Twenty-eight months.

<p>9. Proposed project financing arrangements: Funding support is being sought from international banks, financing institutions and bilateral donors.</p> <p>Accounting will be managed by a Project Implementation Unit (PIU) of the Ministry of Public Works and Transport. Accounting and financial statements will be prepared every month. The PIU will prepare an annual project financial statement in a format acceptable to the donor. To ensure acceptable standards of financial management, an internationally recognized auditing firm will be selected to provide onsite financial and accounting advice. An independent auditor acceptable to the donor will be hired to audit the project.</p>
<p>10. Implementation arrangements: The PIU will be set up to administer, manage and supervise the project.</p> <p>An international consultant should be selected, based on quality and cost, to supervise the civil works. National competitive bidding (NCB) should be used for awarding the civil works contract.</p>
<p>11. Project status:</p> <ul style="list-style-type: none"> • Difficult to pass in the rainy season • The road is in bad condition • The road surface is covered by laterite and it is very dusty.
<p>12. Critical success factors:</p>
<p>13. Other project-related information:</p>
<p>14. Contact address: Dr. Hong Sinara, Deputy Director-General of Public Works, Ministry of Public Works and Transport, Phnom Penh, Cambodia. Tel:/Fax: (855-23) 723-028; E-mail: hongsinara@yahoo.com.</p>

1. Project name: NR73 (AH11 Feeder Road) Road Improvement Project.
2. Location: NR7 Junction of AH11 to Chhlong (Kratie province).
3. Brief outline of the project: The project road provides links to the Asian Highway (AH11) at km 150 from Phnom Penh and to Chhlong in Kratie province. Many people live in the project area along the Mekong River and the area has strong agriculture production and light industry potential. The existing laterite road is in fair condition but the health of the people living along the road is adversely affected by dust caused by the steadily increasing volume of traffic. The project will upgrade 57 km of gravel road to a 7-m wide DBST standard carriageway and a 2-m laterite shoulder on each side. The horizontal and vertical alignment will not be changed significantly. A total of 46 box/pipe culverts and seven bridges will be replaced or repaired. This project will include a special subcontractor to confirm the absence of landmines and unexploded ordinance, especially in areas to be excavated where the standard mine-clearing depth may not be sufficient.
4. Rationale and objectives: <ul style="list-style-type: none"> • Poverty reduction in Chhlong district communities • Facilitation of the delivery of social and welfare services • Enhancement of the economic development of Cambodia • Exploitation of agriculture and industrial areas.
5. Scope of work: <ul style="list-style-type: none"> • Surface replacement with a 7-m carriageway and a 2-m laterite shoulder on each side • Replacement or repair of 46 box/pipe culverts • Replacement or repair of seven bridges (total length, 219 m) • Clearance of landmines and unexploded ordinance.
6. Expected impacts and benefits: <i>Benefits</i> <ul style="list-style-type: none"> • Reduction of poverty • Improved commerce and trade • Promotion of investment in agriculture and light industries • Improved accessibility to the health centre, schools etc. • Reduced travelling time • Reduced vehicle operation costs • Reduced dust. <i>Impacts</i> <ul style="list-style-type: none"> • The people living in the area could be affected by HIV.
7. Estimated cost: US\$ 20 million.
8. Project duration: Twenty-eight months.

<p>9. Proposed project financing arrangements: Funding support is being sought from international banks, financing institutions and bilateral donors.</p> <p>Accounting will be managed by a Project Implementation Unit (PIU) of the Ministry of Public Works and Transport. Accounting and financial statements will be prepared every month. The PIU will prepare an annual project financial statement in a format acceptable to the donor. To ensure acceptable standards of financial management, an internationally recognized auditing firm will be selected to provide onsite financial and accounting advice. An independent auditor acceptable to the donor will be hired to audit the project.</p>
<p>10. Implementation arrangements: The PIU will be set up to administer, manage and supervise the project.</p> <p>An international consultant should be selected, based on quality and cost, to supervise the civil works. National competitive bidding (NCB) should be used for awarding the civil works contract.</p>
<p>11. Project status:</p> <ul style="list-style-type: none"> • The road is in fair condition • The road surface is covered by laterite and is very dusty.
<p>12. Critical success factors:</p>
<p>13. Other project-related information:</p>
<p>14. Contact address: Dr. Hong Sinara, Deputy Director-General of Public Works, Ministry of Public Works and Transport, Phnom Penh, Cambodia. Tel:/Fax: (855-23) 723-028; E-mail: hongsinara@yahoo.com.</p>

1. Project name: East-West Corridor Road Improvement Project (Siem Reap – Stung Treng).
2. Location: Siem Reap – Stung Treng to Rattanak Kiri.
3. Brief outline of the project: The project road provides a link with the Asian Highway (AH1) and AH11 via Angkor Wat, the world-famous ancient temples of Cambodia, in Siem Reap province, the ecotourism centre in Rattanak Kiri province and Viet Nam. The project will facilitate tourism development within Cambodia as well as from Thailand and Viet Nam (visits to Angkor Wat). The project will open a new Asian Highway section connecting Bangkok with Quinhon seaport in Viet Nam. The existing gravel road is in poor condition, especially in the rainy season when some sections are very difficult or impossible to pass. The project will upgrade 253 km of gravel road to a 7-m wide DBST standard carriageway with a 2-m gravel shoulder on each side. In some places, the horizontal and vertical alignment will be modified. Culverts and bridges will be replaced or repaired. The project will include a special subcontractor to confirm the absence of landmines and unexploded ordinance, especially in areas to be excavated where the standard mine-clearing depth may not be sufficient.
4. Rationale and objectives: <ul style="list-style-type: none"> • Poverty reduction • Facilitation of the delivery of social and welfare services • Enhancement of the economic development of Cambodia • Exploitation of agriculture areas • Increased trade exchanges between Cambodia, Thailand and Viet Nam • Enhancement and facilitation of tourism growth and accessibility.
5. Scope of work: <ul style="list-style-type: none"> • Surface replacement with a 7-m bituminous carriageway and a 2-m gravel shoulder on each side • Replacement or repair of box and pipe culverts • Replacement or repair of bridges • Clearance of landmines and unexploded ordinance.
6. Expected impacts and benefits: <i>Benefits</i> <ul style="list-style-type: none"> • Reduction of poverty through increased tourism • Promotion of investment in agriculture and agro-industrial areas • Increased trade exchanges between Cambodia, Thailand and Viet Nam • Improved accessibility to the health centre, schools etc. • Reduced travelling time • Reduced vehicle operation costs • Reduced dust. <i>Impact</i> <ul style="list-style-type: none"> • The people living in the area could be affected by HIV.
7. Estimated cost: US\$ 260 million.
8. Project duration: Forty months.

<p>9. Proposed project financing arrangements: Funding support is being sought from international banks and financing institutions.</p> <p>Accounting will be managed by a Project Implementation Unit (PIU) of the Ministry of Public Works and Transport. Accounting and financial statements will be prepared every month. The PIU will prepare an annual project financial statement in a format acceptable to the donor. To ensure acceptable standards of financial management, an internationally recognized auditing firm will be selected to provide onsite financial and accounting advice. An independent auditor acceptable to the donor will be hired to audit the project.</p>
<p>10. Implementation arrangements: The PIU will be set up to administer, manage and supervise the project.</p> <p>An international consultant should be selected, based on quality and cost, to supervise the civil works. National competitive bidding (NCB) should be used for awarding the civil works contract.</p>
<p>11. Project status:</p> <ul style="list-style-type: none"> • Difficult passable in the raining season • The road is in bad condition • The road surface is covered by gravel and is very dusty.
<p>12. Critical success factors:</p>
<p>13. Other project-related information:</p>
<p>14. Contact address: Dr. Hong Sinara, Deputy Director-General of Public Works, Ministry of Public Works and Transport, Phnom Penh, Cambodia. Tel:/Fax: (855-23) 723-028; E-mail: hongsinara@yahoo.com.</p>

G. China

1. Project name:	Jinghong (Xiaomengyang) – Mohan, AH3.
2. Location:	Jinghong (AH3) to Mohan (AH3) in southern Yunnan province, China
3. Brief outline of the project:	The road is the only Asian Highway link between China and the Lao People's Democratic Republic. It has played an important role in regional development, international exchanges and improvement of living standards among local residents. The 211-km road is a Class II rough route with many long slopes and sharp bends. Although an important section of the corridor between Kunming and Bangkok and an import link in the Greater Mekong Subregion, the target of a rapid increase in the volume of trade and passenger traffic between these countries has not been achieved.
4. Rationale and objectives:	<ul style="list-style-type: none"> • Enhancement of the economic development in the area • Strengthening of communications between China and South-East Asian countries such as the Lao People's Democratic Republic, Cambodia, Thailand and Singapore • Accelerating economic cooperation with the Greater Mekong Subregion • Play an important role in poverty relief programmes in the region.
5. Scope of work:	The road will be shortened from 211 km to 184 km. The new expressway will have four lanes, thus greatly facilitating trade and tourism between China and the Lao People's Democratic Republic.
6. Expected impacts and benefits:	The project will construct a new 184-km expressway from Xiaomengyang to the crossing point at Mohan. The safety and ease of road transportation will be noticeably improved as a result of improved road conditions. Regional development will be greatly accelerated, and international trade and tourism between China and the Lao People's Democratic Republic will be increased. Regional cooperation will also benefit from the project.
7. Estimated cost:	US\$ 800 million (as indicated by the project feasibility study).
8. Project duration:	Three years. The project is scheduled to be completed by 2007.
9. Proposed project financing arrangements:	The cost of road construction will be partly financed by the Central Government of China. Local government will support the remaining project expenses.
10. Implementation arrangements:	The communications authorities of Yunnan province and the Xishuangbanna local government.
11. Project status:	Project implementation began in 2005 and construction will be completed in 2007.
12. Critical success factors:	An efficient management team is required to ensure the timely completion of the project.
13. Other project-related information:	
14. Contact address:	Ministry of Communications, 11 Jianguomennei Avenue, Beijing, China. Fax: (86-10) 6529-2261.

1. Project name:	Menghun – Daluo Road, AH3.
2. Location:	Menghun (AH3) to Daluo (AH3) in southern Yunnan province, China.
3. Brief outline of the project:	The 60-km, Class II road is one of the two Asian Highway links between China and Myanmar. The road, which was constructed in 1960, has played an important role in developing the economy of Yunnan province as well as the promotion of international exchanges and the improvement of the local population's standard of living. The target of a rapid increase in the volume of trade and passenger traffic between China and Myanmar has not yet been achieved.
4. Rationale and objectives:	<ul style="list-style-type: none"> • Accelerating economic development in this area • Strengthening of communications between China and South-East Asian countries such as Myanmar, Thailand and Singapore • Enhancement of international transport cooperation between China, South-East Asia and South Asia.
5. Scope of work:	The road is an important corridor for the Dai minority in southern Yunnan province. The project, which will greatly facilitate trade and tourism between China, Myanmar, Thailand and Cambodia, will upgrade the road to Class I.
6. Expected impacts and benefits:	<p>The safety and ease of road transportation will be noticeably improved. Regional development will be greatly accelerated, and international trade and tourism between China and Myanmar will benefit significantly.</p> <p>The direct economic benefits of the project will be savings in vehicle operating costs, travel time, maintenance costs and road accident costs. Based on highway network planning, analysis shows that the project is economically viable.</p>
7. Estimated cost:	US\$ 60 million.
8. Project duration:	Two years. The project is scheduled to be completed by 2010.
9. Proposed project financing arrangements:	Local government.
10. Implementation arrangements:	Local government of Xishuangbanna.
11. Project status:	Construction will be completed by 2010 and will be undertaken during the eleventh Five-Year Plan.
12. Critical success factors:	Funding support, efficient cooperation between the Ministry of Communications and local government, and a highly efficient supervisory team.
13. Other project-related information:	
14. Contact address:	Ministry of Communications, 11 Jianguomennei Avenue, Beijing, China. Fax: (86-10) 6529-2261.

1. Project name:	Kashi – Honqilaf, AH4.
2. Location:	Kashi (AH4) to Honqilaf (AH4) in south-western Xinjiang Autonomous Region, China.
3. Brief outline of the project:	The 417-km Kashi – Honqilaf Road was built in the 1960s. It is mostly Class II or below, and has a low level of protection against natural disasters and road transportation is interrupted annually. The current traffic volume is about 2,000 AADT.
4. Rationale and objectives:	<ul style="list-style-type: none"> • Acceleration of economic development in the project area • Strengthening of communications between the western region of China and South and West Asian countries such as Pakistan, Afghanistan and Tajikistan • Enhancement of international transportation cooperation between China and Central and South Asian countries.
5. Scope of work:	The 417-km long road connects AH61 and AH65 at Kashi and AH66 at Kalasu. The project will greatly facilitate trade and tourism between China, Kyrgyzstan, Tajikistan and Pakistan.
6. Expected impacts and benefits:	<p>The project will shorten the road to 390 km. The ability of disaster protection will be considerably enhanced and regional development will be strongly promoted. International trade and tourism will also benefit significantly from the project.</p> <p>The direct economic benefits of the project will be savings in vehicle operating costs, travel time, maintenance costs and losses due to unpredictable disasters. Based on the feasibility study, analysis shows the project to be economically viable (EIRR = 14.87 per cent; ENPV = US\$ 8.23 million; and EBCR = 2.13).</p>
7. Estimated cost:	Approximately US\$ 74.5 million (2004 prices).
8. Project duration:	Four years.
9. Proposed project financing arrangements:	Central Government of China.
10. Implementation arrangements:	The communications authority of Xinjiang Autonomous Region and the local government of Kashi.
11. Project status:	The feasibility study of the road was completed in 2002. Construction began in 2004.
12. Critical success factors:	Funding support, efficient cooperation between the Ministry of Communications and local government, and a highly efficient supervisory team.
13. Other project related information:	
14. Contact address:	Ministry of Communications, 11 Jianguomennei Avenue, Beijing, China. Fax: (86-10) 6529-2261.

1. Project name:	Lasha – Zhangmu Road, AH42.
2. Location:	Lasha (AH42) to Zhangmu (AH42) in southern Xizang Tibet Autonomous Region, China.
3. Brief outline of the project:	The road length is 754 km, of which 120 km is Class III and the remainder below Class III. The road was built under very difficult natural conditions from 1955 to 1962. It has a low level of protection from natural disasters and road transportation is interrupted occasionally by mud-rock flows, flooding and landslides. It is the most important connection between China and Nepal.
4. Rationale and objectives:	<ul style="list-style-type: none"> • Enhancement of the economy of southern Xizang Tibet Autonomous Region • Improvement of the efficiency of external and internal trade and communications between western China and South Asian countries, particularly Nepal • Enhancement of international transport cooperation between China and South Asian countries.
5. Scope of work:	The road connects the important cities of Lasha and Rikaze in Xizang Tibet Autonomous Region. It is the south-north corridor for Xizang, linking the Chinese inland province of Qinghai with Nepal. The project will shorten the road significantly.
6. Expected impacts and benefits:	The project will improve transportation services, and boost the regional economy and development, particularly in Lasha, Rikaze and Ali. The interruptions in transportation by natural disasters along this road will be greatly reduced. The income of the poor in the undeveloped area of this region will be raised and poverty levels partly reduced. Travel times will be reduced. International trade and tourism between China and Nepal will benefit because this is the most important road through the Himalayas.
7. Estimated cost:	Approximately US\$ 410 million.
8. Project duration:	Six years.
9. Proposed project financing arrangements:	Central Government of China.
10. Implementation arrangements:	The communications authorities of the Central Government and Xizang Tibet Autonomous Region.
11. Project status:	Feasibility studies of the road from Lasha to Qushui, from Dazuka to Rikaze and from Laodinri to Zhangmu are ongoing. Construction will be undertaken during the eleventh Five-Year Plan.
12. Critical success factors:	The provision of financial support from the Central Government and local government authorities, and a highly efficient construction team that is experienced in working in severe natural conditions.
13. Other project related information:	
14. Contact address:	Division of Highway Planning, Transport Planning and Research Institute, Ministry of Communications, Beijing, China. Tel: (86-10) 6491-2277 and (86-10) 6491-3463; Fax: (86-10) 6489-8376; E-mail: gaomz@tpri.gov.cn.

H. Georgia

1. Project name:	AH5, Poti – Tbilis – Red Bridge (Gori – Natakhtari Section); AH5, Poti – Batumi – Sarpi; AH 81, Mtskheta – Kazbegi – Larsi.
2. Location:	The Poti – Tbilisi – Red Bridge section is part of AH5 and the East-West Highway Corridor. The Poti – Batumi – Sarpi section of AH5 connects Turkey with Poti Port. Mtskheta – Kazbegi – Larsi is part of AH81, connecting the capital, Tbilisi with the border of the Russian Federation.
3. Brief outline of the project:	<p>Due to its geographical location, Asian Highway route AH5 in Georgia is an important East-West corridor for transit transportation from the Black Sea to Central Asia. In addition, the Mtskheta – Kazbegi – Larsi road provides the North-South corridor for transit transportation.</p> <p>The total length of the above road sections is 623 km. The Poti – Tbilisi – Red Bridge section, including 57 km of the Gori – Natakhtari section, is 397 km. The Poti – Batumi – Sarpi section is 87 km. The Mtskheta – Kazbegi–Larsi section is 139 km. The Gori – Natakhtari section (57 km) is the most congested and critical section in the East-West Highway corridor and requires upgrading.</p> <p>The Government of Georgia is adopting the policy of developing efficient transit transportation through Georgia for its neighbouring countries and Central Asian nations. However, the main highways in Georgia are in poor condition and need urgent rehabilitation.</p> <p>The Government recently completed construction of a 670-m tunnel on the Poti – Batumi – Sarpi road, and has started modernization of 16-km section of the Natakhtari – Agaiani road. It is also proposed that the Rikoti Tunnel located along the Poti – Tbilisi road be rehabilitated with private sector participation. The World Bank is undertaking a feasibility study of the 36-km Agaiani – Sveneti section of the Poti – Tbilisi road in addition to supporting rehabilitation of secondary and local roads. The Kuwait Fund and KfW have also supported rehabilitation of roads in Georgia. To enhance financing for infrastructural development, Georgia has signed a five-year agreement with the Millennium Challenge Corporation.</p> <p>Additional financial resources are required for completing the modernization of the Georgian road network. The Government of Georgia is seeking additional financing from other international and bilateral institutions and private sector investors.</p>
4. Rationale and objectives:	The rehabilitation and upgrading of the Asian Highway and roads in Georgia will enhance the efficiency of transit transportation through Georgia and support the Government's initiative to improve the transportation infrastructure. The development of road infrastructure will directly contribute to economic development and poverty alleviation by creating employment opportunities as well as foreign currency earnings from transit fees. The proposed highways improvement will reduce vehicle-operating costs, save travel time and help to stabilize economic activities.
5. Scope of work:	It is proposed to upgrade the Poti – Tbilisi – Road section to four-lane expressway standards. Cement concrete pavement with a design speed of 120 km/hour is proposed for some sections of roads.
6. Expected impacts and benefits:	The projects will provide various benefits to the people of Georgia, improve transit transportation and mobility, and reduce transport costs and travel time. The implementation of the projects will create employment and contribute towards reducing poverty by increasing household income.

7. Estimated cost:	US\$ 374 million ¹ (Gori – Natakhtari section, US\$ 57 million; Poti – Batumi – Sarpi section, US\$ 87 million; Mtskheta – Kazbegi – Larsi section, US\$ 139 million).
8. Project duration:	Four to five years.
9. Proposed project financing arrangements:	The World Bank, Asian Development Bank or other international and bilateral financing organizations.
10. Implementation arrangements:	The Ministry of Economic Development and the Department of Roads of Georgia will be the implementing agency. Project implementation arrangements will be established as required.
11. Project status:	Modernization and feasibility studies of some road sections are ongoing. It is proposed to modernize the East-West Highway corridor through a step-by-step approach, beginning with the most feasible and critical high-volume traffic sections.
12. Critical success factors:	Availability of financing, efficient cooperation between donors and the Government, the timely selection of consultants and contractors, and the establishment of a project management office.
13. Other project-related information:	The implementation of the projects will enhance domestic and transit transportation from Georgia to neighbouring countries and Central Asia.
14. Contact address:	Department of Roads, Ministry of Economic Development Tbilisi, Georgia. Fax: (995-32) 376-308.

¹ The estimated cost of modernizing the 397-km Poti – Tbilis – Red Bridge is US\$ 2,300 million.

I. India

1. Project name:	Strengthening and improvement of the road (part of AH2) from Panitanki to Fulbari (border with Nepal to the border with Bangladesh).
2. Location:	Darjeeling and Jalpaiguri districts, West Bengal State, India.
3. Brief outline of the project:	Kakabhitta, near the Panitanki border post in India on NH31C, to the Fulbari border post on the border with Bangladesh on State Highway 12. Improvement work on this State Highway has been considered together with the improvement of NH34 within West Bengal to facilitate cross-border movement between West Bengal and Nepal as well as West Bengal and Bangladesh.
4. Rationale and objectives:	The reduction of transportation costs from Nepal to Bangladesh through Jalpaiguri and Darjeeling districts in West Bengal by more than 25 per cent. Increased efficiency in the movement of passengers and goods within Nepal, India and Bangladesh.
5. Scope of work:	Strengthening and widening of the pavement along a 44-km stretch of the 54-km road (a diversion through the 10-km Canal West Road, which will reduce the road length) from Fulbari in India (near Bangladesh) to Panitanki in India (near the Nepal border station at Kakabhitta).
6. Expected impacts and benefits:	Traffic density between Bangladesh and Nepal is very low. With free trade and improved vehicle movement, there will be considerable growth in traffic between the two countries. The mutual development is important for both Nepal and Bangladesh, and is the main reason that the two countries wish to develop the link for maritime trade via the ports of Bangladesh as well as Kolkata and Haldia ports in India.
7. Estimated cost:	As per PPTA project, US\$ 4.38 million (2005 prices).
8. Project duration:	Two years.
9. Proposed project financing arrangements:	A substantial loan is required for the project. The Asian Development Bank would be the loan financing authority.
10. Implementation arrangements:	The Government of India and the Public Works Department of the Government of West Bengal.
11. Project status:	The final PPTA report is under consideration.
12. Critical success factors:	Availability of funding, efficient cooperation between the concessionaire and the Government, the establishment of a capable project management team, the timely procurement of materials and the engagement of consultants and contractors.
13. Other project-related information:	The necessary resources (i.e., manpower, materials and skills) are available in the project area, thus enabling the completion of the project on schedule. On completion of the project, the road will provide uninterrupted, year-round traffic flow, thus providing significant reductions in fuel consumption and travel times.
14. Contact address:	Director-General (Road Development), Ministry of Shipping, Road Transport and Highways, Department of Road Transport and Highways, Transport Bhawan, 1, Parliament Street, New Delhi 110 001, India. Tel: (91-11) 2371-8575; Fax: (91-11) 2371-5047; Website: www.morth.nic.in.

1. Project name:	Improvement of the Shillong – Dawki section of NH40, which is part of AH1.
2. Location:	This section is in the north-eastern region of India in the State of Meghalaya on National Highway 40. It traverses from north to south across the eastern part of Meghalaya State through mountainous terrain in highest rainfall area (3,000-5,000 mm/year), and then joins the India-Bangladesh international border (AH1) at Tamabil.
3. Brief outline of the project:	The total length of the Shillong – Dawki section of NH40 is 84 km. Some stretches of this section have already been upgraded to two lanes and Class III of the Asian Highway Classification and Design Standards. An additional 13 km is in the advanced phase of two-lane construction. One major bridge (106 km) at Dawki near the international border has been approved and is likely to be completed by October 2008. Development of the entire road section up to Class III of the Asian Highway Classification and Design Standards has been proposed.
4. Rationale and objectives:	The section covered by the project connects Shillong, the state capital of Meghalaya, to the border with Bangladesh at Tamabil. The region is rich in mineral resources (e.g., coal and limestone) and agriculture products. Therefore, providing a proper road infrastructure will further improve trade development with other States of India as well as Bangladesh. In addition, the project will open up even greater opportunities for tourism in this picturesque valley of the Shillong Plateau (including Cherrapunji, where some of the highest levels of rainfall in the world are recorded).
5. Scope of work:	The section between Shillong and Dawki is to be developed into a two-lane road that complies with the National Highway two-lane standard. It will meet Class II of the Asian Highway Classification and Design Standards.
6. Expected impacts and benefits:	The economic growth of Meghalaya State will be enhanced, ensuring the overall development of the Shillong Plateau population. In addition, trade between India and Bangladesh will be significantly increased. Travel times and vehicle operating costs will be reduced.
7. Estimated cost:	US\$ 37 million.
8. Project duration:	Four to five years.
9. Proposed project financing arrangements:	Budgetary support from the Government of India.
10. Implementation arrangements:	Ministry of Shipping, Road Transport and Highways, Government of India, will undertake the construction work through the Public Works Department of the Government of Meghalaya State.
11. Project status:	Upgrading of the Shillong – Dawki (Tamabil) section of NH40 to two lanes is included in the tenth Five-Year Plan and is expected to be completed by March 2010.
12. Critical success factors:	Funding availability, and efficient project management and coordination between the departments concerned and the contractors/consultants.
13. Other project-related information:	Completion of the project will boost the tourism industry as well as trade with other States of India and Bangladesh, thereby contributing to the socio-economic development of India. The necessary resources (i.e., manpower, materials and skills) are available in the project area, which will help in completing the project within the designated timeframe. On completion of the project, the road will allow an uninterrupted, year-round flow of traffic, thus providing significant reductions in fuel consumption and travel times.
14. Contact address:	Director-General (Road Development), Ministry of Shipping, Road Transport and Highways, Department of Road Transport and Highways, Transport Bhawan, 1, Parliament Street, New Delhi 110 001, India. Tel: (91-11) 2371-8575; Fax: (91-11) 2371-5047; Website: www.morth.nic.in .

1. Project name:	Improvement/construction of the Banbasa – Indo-Nepal border road near Tanakpur (AH2).
2. Location:	Udham Singh Nagar district, in the northern area of Uttranchal State, India.
3. Brief outline of the project:	The route begins at Chainage (km 42.50) on NH-125 at Banbasa and traverses a 3-km, single-lane road up to the old Sharda Barrage and along the Sharda River for 7 km to the New Barrage, which is the gateway to Brahmdev Temple situated in Nepal. The total length of the proposed highway (AH2) will be 10 km. Of this length, an entirely new 4-km, two-lane highway will have to be constructed and an existing 6-km, single-lane road will have to be reconstructed and upgraded to two lanes as per Class III of the Asian Highways Classification and Design Standards. The road is under the control of the Uttranchal State Government.
4. Rationale and objectives:	The road will boost the economy by increasing efficiency in internal trade and exports. The project is expected to reduce transportation costs and will therefore increase efficiency in the movement of passengers and goods between India and Nepal. The project will support rural development and increase the earnings of low-income groups by providing reliable and speedy access to the area. The project will also contribute to poverty alleviation and provide employment opportunities for indigenous people along the route.
5. Scope of work:	Improvement of an existing 6-km, single-lane road to two-lane standard and the construction of a new 4-km road. The improvement/construction of the road will be to a minimum Class III of the Asian Highway Classification and Design Standards.
6. Expected impacts and benefits:	A significant increase in trade between Nepal and India. With the completion of the project (AH2), quantifiable benefits will include savings in passenger and freight transportation costs, and reduced travel times and vehicle operating and maintenance costs.
7. Estimated cost:	US\$ 4.50 million.
8. Project duration:	One year after project approval and land becomes available.
9. Proposed project financing arrangements:	As it is a State road, funding arrangements have not yet been finalized.
10. Implementation arrangements:	To be completed by the State Public Works Department of the Government of Uttranchal State.
11. Project status:	See proposed project financing arrangements.
12. Critical success factors:	The timely transfer of land from the Forest Department and the National Hydro Power Corporation.
13. Other project-related information:	The land required belongs to the Forest Department or other government departments, and compensation will have to be paid to those departments. Moreover, widening of road in Banbasa town will necessitate land acquisition and payment of compensation to property owners.
14. Contact address:	The Secretary, Public Works Department, Government of Uttarnchal, Dehradun, India. Tel: (91-11) 135-271-2092; Fax: (91-11) 135-271-2437.

1. Project name:	Improvement of the Madurai – Ramanathapuram – Rameshwaram – Dhanushkodi Road, NH49 (part of AH43).
2. Location:	Tamil Nadu State, southern India. It passes through Madurai City to Dhanushkodi on the eastern coast of India.
3. Brief outline of the project:	The road is a part of National Highway 49, a very important National Highway connecting Madurai, the temple city in Tamil Nadu, with Rameshwaram, the famous pilgrimage centre. The total length of the road is 188 km. It is planned to upgrade the road to Asian Highway standards. The road passes through various important towns (Manamadurai at km 45, Paramagudi at km 75, Ramanathapuram at 113 km and Rameshwaram at 167 km). Dhanushkodi is the last land station before the coast on the route to Sri Lanka. The road is aimed at boosting the economy by increasing efficiency in domestic and export/import trade.
4. Rationale and objectives:	The reduction of transportation costs and increased efficiency in the movement of passengers and goods within India and between India and Sri Lanka. The project will support rural development and increase earnings of the low-income groups by providing reliable and speedy access to the area. The project will contribute to poverty alleviation and provide employment opportunities for indigenous people along the route. Although located in southern India, the project will greatly facilitate trade and tourism with China, Nepal, Bangladesh and Sri Lanka.
5. Scope of work:	Currently, the road is of two-lane standard. It is planned to improve the road to Asian Highway standards in order to provide a high-speed corridor for rapid, safe and efficient movement of freight and passenger traffic. Necessary traffic safety measures will be adopted at vulnerable locations.
6. Expected impacts and benefits:	Reduced passenger and freight transportation costs, reduced travel times and savings in vehicle operating and maintenance costs. The actual benefits will be ascertained by a feasibility study. The project will accelerate industrial and agricultural growth in the project area. The main beneficiaries will be road transport operators, international and domestic business entrepreneurs, workers engaged in the agricultural, agro-industry, manufacturing, commercial and tourism sectors as well as farmers in neighbouring areas.
7. Estimated cost:	Approximately US\$ 200 million (2005 prices).
8. Project duration:	Three to four years.
9. Proposed project financing arrangements:	Not yet decided.
10. Implementation arrangements:	Ministry of Shipping, Road Transport and Highways through the National Highways Authority of India (NHAI) or State Government Public Works Department.
11. Project status:	A feasibility study and preparation of a detailed project report to be undertaken by NHAI.
12. Critical success factors:	Availability of funding, efficient cooperation between the concessionaire and the Government, the establishment of a capable project management team, timely procurement of materials and the selection of consultants and contractors.
13. Other project-related information:	The resources (i.e., manpower, materials and skills) are available in the project area, which will help in completing the project within the designated timeframe. On completion of the project (AH43), the road will provide a year-round, uninterrupted flow of traffic, thus providing significant reductions in fuel consumption and travel times.
14. Contact address:	Director-General (Road Development), Ministry of Shipping, Road Transport and Highways, Department of Road Transport and Highways, Transport Bhawan 1, Parliament Street, New Delhi 110 001, India. Tel: (91-11) 2371-8575; Fax: (91-11) 2371-5047; Website: www.morth.nic.in .

J. Indonesia

1. Project name:	Installation of road signage for the Asian Highway network (AH2, AH25).
2. Location:	Road network corridors from Banda Aceh – Bakauheuni (Sumatra Island) and Merak – Denpasar (Jawa – Bali Island).
3. Brief outline of the project:	The Banda Aceh – Bakauheuni and Merak – Denpasar corridors have been designated as part of the Asian Highway network. Therefore, to ensure ease of road use, standard Asian Highway network road signage needs to be installed.
4. Rationale and objectives:	The project is aimed at assisting Asian Highway network users, especially travellers from other countries. This objective has become even more important since the start of the ferry service between Penang (Malaysia) – Belawan (Indonesia) in August 2005.
5. Scope of work:	Undertaking a survey to identify the location points for road signage. Installing the Asian Highway network road signage.
6. Expected impacts and benefits:	Assisting road user to use the Asian Highway Network.
7. Estimated cost:	US\$ 528,300 (2005 prices).
8. Project duration:	Two years.
9. Proposed project financing arrangements:	Substantial multilateral or bilateral grants or loans will be required for the project, based on their involvement in the road subsector in Indonesia, including the Governments of Japan, India, China, Germany and Switzerland as well as multi-lateral agencies such as the Asian Development Bank, the World Bank and the Islamic Development Bank.
10. Implementation arrangements:	Directorate of Road Traffic and Transport, and the Directorate-General of Land Communications, Ministry of Transportation.
11. Project status:	
12. Critical success factors:	Availability of funding, efficient cooperation between donor(s) and the Government, the establishment of a capable project management team, and the timely selection of consultant and contractors.
13. Other project-related information:	
14. Contact address:	Directorate of Road Traffic and Transport, Directorate-General of Land Communications, Ministry of Transportation, Jakarta. Tel: (62-21) 350-6122-3.

K. Islamic Republic of Iran

1. Project name:	Bazargan – Tabriz Freeway, AH1.
2. Location:	Western Azerbaijan province, in the north-western region of the Islamic Republic of Iran. The road connects Bazargan, on the border with Turkey, with Tabriz in the centre of eastern Azerbaijan province, through to Marand (AH1).
3. Brief outline of the project:	Bazargan – Tabriz road is a part of the Tehran – Qazvin – Zanjan – Tabriz – Bazargan road, which connects the capital to border with Turkey. Due to high local and transit traffic volumes, during the past 30 years it has been upgraded, section by section. From Tehran to midway between Zanjan and Tabriz, the road has been upgraded to a six-lane freeway and the remaining stretch to Tabriz will be completed by the end of 2006. The present condition of the Bazargan – Tabriz Freeway is Class II and near Tabriz it has been upgraded to Class I.
4. Rationale and objectives:	The development of the main part of AH1 in the Islamic Republic of Iran as the increasing volume of the traffic on this route has created a bottleneck on the Bazargan – Tabriz section. Implementation of this project will increase safety and decrease travel time by about one hour.
5. Scope of work:	According to the feasibility study, the length of the project is 250 km with four lanes, a 78-m right of way and a width of 28 m. There are five tunnels, 16 long bridges and 10 grade-separated interchanges along the project.
6. Expected impacts and benefits:	The upgrading of the Bazargan – Tabriz freeway will complete the Tehran – Bazargan freeway and make transportation along AH1 smoother and faster. Travel time from Tehran to the border with Turkey will be reduced by about one hour for passenger traffic and 1.5 hours for freight vehicles. The most important benefit of the project will be increased transportation safety and a decrease in road accidents and casualties.
7. Estimated cost:	US\$ 250 million (based on the feasibility study).
8. Project duration:	Four years.
9. Proposed project financing arrangements:	Because of the project's socio-economic aspects, it is expected to attract grants or loans from the Islamic Development Bank, the Asian Development Bank or the World Bank. Reimbursement of the loan will be guaranteed by the government. At least 50 per cent of the project investment will be by the private sector in participation with the Government in commissioning the freeway.
10. Implementation arrangements:	The State Construction and Development of Transportation Infrastructures Company, Ministry of Road and Transportation, will be responsible for construction. Design and implementation of the project may be undertaken by national consultants and contractors, to be selected through the bidding process.
11. Project status:	The feasibility study has been completed.
12. Critical success factors:	The availability of funding, efficient cooperation between the investor(s) and the Government.
13. Other project-related information:	The construction of the Bazargan – Tabriz freeway will complete the freeway connection between Tehran and Bazargan, thereby increasing the efficiency of the Tehran – Tabriz freeway.
14. Contact address:	State Construction and Development of Transportation Infrastructures Company, Ministry of Road and Transportation, Sh. Dadman Building, Africa Highway, Tehran, Islamic Republic of Iran.

1. Project name:	Khorramabad – Andimeshk Freeway, AH8.
2. Location:	In the south-west of the country, along AH8, connects Khorramabad (centre of Lorestan province) to Andimeshk city in Khuzestan province, Islamic Republic of Iran.
3. Brief outline of the project:	The Tehran – Bandar Emam road is one of the main routes in the North-South corridor, and connects the capital with one of the two important maritime terminals (Bandar Emam and Bandar Abbas) located in the Persian Gulf. This road has different standards along its 985-km length. About 750 km of the Tehran – Bandar Emam road is either complete or under construction up to primary or Class I standards. The remaining portion that passes through the Zagros mountains is Class II highway standard. The 235-km Khorramabad – Andimeshk section is located in this mountainous area. Without upgrading the road in the bottleneck area of Khorramabad – Andimeshk, full use of the completed parts of the Tehran – Bandar Emam highway will not be possible.
4. Rationale and objectives:	Steep slopes and hairpin bends along the present route between Khorramabad and Andimeshk make it a hazardous area. The low speed of vehicles and the lack of safety are the main reasons for upgrading the Khorramabad – Andimeshk road.
5. Scope of work:	The project involves a 159-km, four-lane freeway with a 25.8 m width. From Khorramabad to Pol-e-zal (about 104 km), the area is mountainous and covered with forest, while the terrain between Pol-e-zal and Andimeshk (55 km) is rolling or level. Elevation of the highway above sea level is 1,200 m at its beginning, reaching 1,765 m at its highest point. It has 13 dual tunnels totalling 25 km, and 46 long bridges (total length, approximately 4,900 m).
6. Expected impacts and benefits:	The project will shorten AH8 by at least 60 km. Thus, in addition to providing road safety, the Khorramabad – Andimeshk freeway will double the rate of transportation and will shorten travel time along Tehran – Bandar Emam section by two hours. It is expected that completion of the project will increase the efficiency of transshipments at Bandar Emam.
7. Estimated cost:	Approximately US\$ 200 million (2003 prices).
8. Project duration:	Approximately six years (four years for Khorramabad – Pol-e-zal, and two years for Pol-e-zal – Andimeshk).
9. Proposed project financing arrangements:	<ul style="list-style-type: none"> • The Khorramabad – Pol-e-zal segment was commissioned under a 50-50 per cent public-private partnership in early 2005. It is planned to issue government bonds as a part of the public sector share. • For the Pol-e-zal – Andimeshk segment, potential partners are the private sector, internal banks or international agencies such as the Islamic Development Bank, the Asian Development Bank or the World Bank.
10. Implementation arrangements:	The State Construction and Development of Transportation Infrastructures Company, Ministry of Road and Transportation, will be responsible for construction. Design and implementation of the project may be undertaken by national consultants and contractors, to be selected through the bidding process.
11. Project status:	The detailed design of the first part (Khorramabad – Pol-e-zal) is complete and construction has started. The feasibility study for the second part (Pol-e-zal – Andimeshk) was completed in 2004.
12. Critical success factors:	Availability of funding and efficient cooperation between the investors and the Government.
13. Other project-related information:	The economic benefits from the implementation of the project will include an increase in productivity from previous investments in Bandar Emam (port) as well as economic growth of Khuzestan and Lorestan provinces.
14. Contact address:	State Construction and Development of Transportation Infrastructures Company, Ministry of Road and Transportation, Sh. Dadman Building, Africa Highway, Tehran, Islamic Republic of Iran.

1. Project name:	Qazvin – Saveh Freeway, AH8.
2. Location:	Central and northern regions of the Islamic Republic of Iran, near Tehran, lies along AH8 and connects Qazvin on AH1 to Saveh on AH2.
3. Brief outline of the project:	Qazvin – Saveh is an important National Highway that carries traffic from the north and north-west to the central region of the country. The existing road, Qazvin – Bueenzahra – Saveh, is about 160 km long and of relatively low quality. However, it carries a high traffic volume between the two industrial zones of Qazvin and Saveh. Completion of the Rasht – Qazvin freeway (AH8), which is under construction, will increase the demand for the Qazvin – Saveh route. Upgrading that section is therefore necessary.
4. Rationale and objectives:	Facilitation of passenger and freight transport, reduction of road accidents and transportation costs, reduction of travel times and ability to meet transit transportation demand along the North-South corridor.
5. Scope of works:	The project comprises two parts: <ul style="list-style-type: none"> Qazvin – Bueenzahra, about 50 km in length, is under rehabilitation and upgrading to a four-lane highway. Bueenzahra – Saveh, about 103 km in length, is under study for upgrading to a four-lane highway.
6. Expected impacts and benefits:	The project will reduce the length of the Qazvin – Saveh road by 7 km, and will reduce travel times for passenger cars by 30 minutes and freight vehicles by one hour. The project will return its investment in five years for a four-lane highway Class I, and in eight years for a four-lane Primary Class highway. Enhancement of road safety, a reduction of transportation costs and development of trade, industry and tourism are the other advantages of the project.
7. Estimated cost:	US\$ 135 million, (US\$ 44 million for Qazvin – Bueenzahra [under rehabilitation] and US\$ 91 million for Bueenzahra – Saveh) (2003 prices).
8. Project duration:	Two to three years.
9. Proposed project financing arrangements:	<ul style="list-style-type: none"> Grants or loans from international banks such as the Islamic Development Bank, the Asian Development Bank or the World Bank. At least 50-50 per cent participation by the private sector and the Government in constructing and commissioning the project.
10. Implementation arrangements:	The State Construction and Development of Transportation Infrastructures Company, Ministry of Road and Transportation, will be responsible for construction. Design and implementation of the project may be undertaken by national consultants and contractors, to be selected through the bidding process.
11. Project status:	The feasibility study of the project is complete.
12. Critical success factors:	Availability of funding and efficient cooperation between the investor and the Government.
13. Other project-related information:	Keeping in mind that the Rasht – Qazvin freeway will be open to traffic in two years, the necessity for the Qazvin – Saveh freeway construction becomes obvious in order to ensure efficient transport along the North-South corridor and economic development in Qazvin and Markazi provinces.
14. Contact address:	State Construction and Development of Transportation Infrastructures Company, Ministry of Road and Transportation, Sh. Dadman Building, Africa Highway, Tehran, Islamic Republic of Iran.

1. Project name:	Qeshm Bridge in the Persian Gulf.
2. Location:	Southern region of the Islamic Republic of Iran, between Qeshm Island and the mainland in the Persian Gulf. Qeshm Bridge is located at the terminal point of AH70.
3. Brief outline of the project:	Qeshm Island is a free economic zone in the Hormoz Strait of the Persian Gulf. In recent years, infrastructure such as roads, an airport and seaports have been constructed on the island; other infrastructure is under implementation. Currently, ferry transportation is used between the free zone and the mainland. This project comprises the construction of a long bridge that connects a coastal point on Qeshm Island, called “Laft”, to the opposite point “Sarpol” about 40 km far from Bandar Abbas.
4. Rationale and objectives:	Qeshm is the largest island of the Islamic Republic of Iran in the Persian Gulf, and is a relatively short distance from the mainland. Industrial development and growth of trade on the island has increased the volume of transportation between Qeshm and Bandar Abbas to a high level. The most convenient means for passenger and goods transportation in this region is by ferryboat. However, the ferry has limited capacity and cannot respond adequately to this increasing demand. Construction of the bridge is a reliable solution for present and future problems facing Qeshm development.
5. Scope of work:	The Qeshm Bridge will comprise a two-lane road and a single-track rail bridge, with a total length of approximately 2.5 km, including the ramps in each side.
6. Expected impacts and benefits:	This project will enhance the safety of passenger and goods transportation to Qeshm. A reduction of transportation costs to a minimum will be the other benefit. In addition, the improved ease and comfort in travelling to the beautiful Qeshm Island will lead to strong development of tourism and trade in the area.
7. Estimated cost:	US\$ 349 million (2002 prices).
8. Project duration:	Two to three years.
9. Proposed project financing arrangements:	Because of the socio-economical aspects of the project, it is anticipated that the private sector or commercial banks will participate in the project financing. In each case, the Qeshm Free Zone Organization will be the fixed party of partnership.
10. Implementation arrangements:	The Qeshm Free Zone Organization will be responsible for implementation of the project. Internal and international consultants and contractors are welcome to contribute to the design and construction of the project.
11. Project status:	The feasibility study is complete. Negotiations between the Qeshm Free Zone authorities and European investors have reached the stage of a preliminary Memorandum of Understanding.
12. Critical success factors:	Efficient cooperation between investors and the Qeshm Free Zone authorities, and efficient coordination between the Qeshm authorities and the Ministry of Road and Transportation on the project and the mainland road network.
13. Other project-related information:	The extension of AH70 (and AH78) to Qeshm Island via the Qeshm Bridge will increase the capacity for transshipments along the North-South corridor, especially once the ongoing international commercial port project at Kaveh in the north of the island is complete. Kaveh port, which is a complementary port to Shahid Rajaei, is designed for large-scale vessels.
14. Contact address:	Tehran office of the Qeshm Free Zone, No. 15875/1548, Tehran, Islamic Republic of Iran.

1. Project name:	Sirjan – Bandar Abbas Freeway, AH70.
2. Location:	In the south of the Islamic Republic of Iran, between Sirjan city and Shahid Rajaei port in Bandar Abbas. The Sirjan – Bandar Abbas project is a part of AH70.
3. Brief outline of the project:	Shahid Rajaei port is one of the most important seaports for transshipping the major portion of the country's imports and exports. The Sirjan – Bandar Abbas road conveys goods from Shahid Rajaei port to the national road network. The traffic volume of this road is more than 20,000 vehicles per day, the majority of which are heavy trucks. The present road is under rehabilitation and has been studied in three parts for upgrading to a four-lane Primary Class highway.
4. Rationale and objectives:	Enhancing road safety and reducing travel time between Sirjan and Bandar Abbas. The project will reduce transportation costs and provide employment opportunities in the region.
5. Scope of work:	The Sirjan – Bandar Abbas Freeway will be a 303-km, four-lane highway, with a 35.3-m width.
6. Expected impacts and benefits:	In addition to the special situation of Bandar Abbas as a commercial port, it is located near the industrial zone (aluminium complex and refinery) and gas resources. Thus, construction of the project will promote industrial development in the region through transport facilitation along the Sirjan – Bandar Abbas route.
7. Estimated cost:	US\$ 380 million (2003 prices). (Based on the project feasibility study.)
8. Project duration:	About four years.
9. Proposed project financing arrangements:	<ul style="list-style-type: none"> Grants or loans from international banks such as the Islamic Development Bank, the Asian Development Bank, the World Bank or other international financing institutions. At least 50-50 per cent participation by the private sector and the Government in constructing and commissioning the project.
10. Implementation arrangements:	The State Construction and Development of Transportation Infrastructures Company, Ministry of Road and Transportation, will be responsible for construction. Design and implementation of the project may be undertaken by national consultants and contractors, to be selected through the bidding process.
11. Project status:	The feasibility study and the detailed design, excluding tunnels and bridges, have been completed.
12. Critical success factors:	The availability of funding and efficient cooperation between the investor(s) and the Government.
13. Other project related information:	Owing to financial benefits of the project, its construction will increase the productivity of previous investments in Hormozgan province.
14. Contact address:	State Construction and Development of Transportation Infrastructures Company, Ministry of Road and Transportation, Sh. Dadman Building, Africa Highway, Tehran, Islamic Republic of Iran.

L. Kazakhstan

1. Project name:	AH5/AH63, from the border with the Russian Federation (Samara) – Pogodaevo – Shymkent – Almaty – Khorgos.
2. Location:	The highway passes from the border of the Russian Federation via Uralsk, Aktobe, Kyzylorda, Shymkent, Taraz, Almaty and Khorgos up to the border with China.
3. Brief outline of the project:	The route passes along National Highways Samara – Shymkent and Khorgos – Almaty – Tashkent. The technical standards of the roads do not meet international requirements. The project aims to reconstruct the whole length of the route to Class II standards and strengthen the pavement to withstand 13 tons per axle load.
4. Rationale and objectives:	The objective of the project is to upgrade the technical standards of the road to international standards and reduce transportation costs.
5. Scope of work:	Reconstruction of the road from border of the Russian Federation – Uralsk – Aktobe – Kyzylorda – Shymkent – Taraz – Almaty – Khorgos. The total length is 2,966 km. Work was carried out in 2005 on 502 km in sections: (a) from the border of the Russian Federation – Uralsk, (b) Aktobe – Karabutak, and (c) Bishkek – Almaty. In accordance with the State Programme on the Development of Highways for 2006-2012, it is planned to reconstruct the remaining 2,259 km of the road.
6. Expected impacts and benefits:	Improvement and upgrading of the technical status of the roads, increased traffic volume, improved road safety, higher cargo and passenger transportation volumes, and a decrease in the adverse impact on the environment.
7. Estimated cost:	US\$ 1,320 million.
8. Project duration:	Six years (2006-2012).
9. Proposed project financing arrangements:	National budget.
10. Implementation arrangements:	In accordance with the law of the Republic of Kazakhstan, the project will be undertaken by contracting organizations.
11. Project status:	
12. Critical success factors:	Sustainable financing of the project, and effective cooperation between the client and the contractors.
13. Other project-related information:	
14. Contact address:	Ministry of Transport and Communications, Kabanbai Batyr Avenue, 47, Astana, Kazakhstan. Tel: (7-3172) 242-097; Fax: (7-3172) 241-763; E-mail: abisheva@mtc.gov.kz or duisenbekova@mtc.gov.kz.

1. Project name:	AH7/AH5, Kaerak – Koatanai – Astana – Almaty – Khorgos.
2. Location:	From the border with the Russian Federation via Kostanai, Astana, Almaty and Khorgos to the border of China.
3. Brief outline of the project:	The proposed project comprises three sections: (a) Astana – Kostanai – Chelyabinsk; (b) Almaty – Astana – Petropavlovsk; and (c) Khorgos – Almaty – Tashkent. All are up to National Highway standards. However, the technical standards of the roads are not in conformity with international standards. It is planned to reconstruct the whole length of the road, upgrade it to Class II technical standards and strengthen the pavement to 13 tons per axle load.
4. Rationale and objectives:	Upgrading the technical standards of the roads to the international standards and the reduction of transportation costs.
5. Scope of work:	Reconstruction of the highway, Kaerak – Kostanai – Astana – Almaty – Khorgos. The road is divided into three sections: (a) Kaerak (Chelyabinsk) – Kostanai – Astana; (b) Astana – Almaty; and (c) Almaty – Khorgos. The total length of the road is 2,442 km. Work on 1,414 km (on the sections from the border with Russian Federation – Kostanai – Astana, and Astana – Almaty) was carried out in 2005. In accordance with the State Programme on the Development of Highways for 2006-2012, reconstruction of the remaining 1,216 km sections of the road and the upgrading of Astana – Karaganda (188 km) to Class I technical standards is scheduled.
6. Expected impacts and benefits:	Upgrading of the technical standards of the roads, improved road traffic safety, increased cargo and passenger transportation volumes, and a reduction in the adverse impacts on the environment.
7. Estimated cost:	US\$ 870 million.
8. Project duration:	Five years (2006-2010).
9. Proposed project financing arrangements:	National budget.
10. Implementation arrangements:	In accordance with the law of the Republic of Kazakhstan, the project will be undertaken by contracting organizations.
11. Project status:	
12. Critical success factors:	Sustainable financing, and effective cooperation between the client and the contractors.
13. Other project-related information:	
14. Contact address:	Ministry of Transport and Communications, Kabanbai Batyr Avenue, 47, Astana, Kazakhstan. Tel: (7-3172) 242-097; Fax: (7-3172) 241-763; E-mail: abisheva@mtc.gov.kz or duisenbekova@mtc.gov.kz.

1. Project name:	AH70, Kotyaevka – Atyrau – Aktau – border with Turkmenistan.
2. Location:	From the border of the Russian Federation via Atyrau to the border with Turkmenistan.
3. Brief outline of the project:	The proposed road is an existing National Highway, “Border of Russian Federation (Astrakhan) – Atyrau – Aktau – border with Turkmenistan (Turkmenbashi). The technical standards of the road do not meet international standards and it is planned to reconstruct the whole length of the road, upgrade to Cass II technical standards and strengthen the pavement to 13 tons per axle load.
4. Rationale and objectives:	Upgrading the technical standards to international standards and the reduction of transportation costs.
5. Scope of work:	Reconstruction of the highway, Astrakhan – Atyrau – Aktau – border with Turkmenistan. The total length of the road is 1,402 km. Work on a 15-km section from the border with the Russian Federation to Atyrau was carried out in 2005. In accordance with the State Programme on the Development of Highways for 2006-2012, reconstruction of the remaining 1,387 km is scheduled.
6. Expected impacts and benefits:	Upgrading of technical standards, improved road traffic safety, increased cargo and passenger transport volumes, and a reduction in adverse impacts on the environment.
7. Estimated cost:	US\$ 810 million.
8. Project duration:	Six years (2006-2012).
9. Proposed project financing arrangements:	<ul style="list-style-type: none"> • Section Atyrau – Beineu (398 km) – a loan from the European Bank of Reconstruction and Development and co-financing from the national budget; • Remaining sections – national budget.
10. Implementation arrangements:	In accordance with the law of the Republic of Kazakhstan, the project will be undertaken by contracting organizations.
11. Project status:	
12. Critical success factors:	Sustainable financing of the project, and effective cooperation between the client and the contractors.
13. Other project-related information:	Construction of a bridge is planned across the River Kigach jointly with the Russian Federation.
14. Contact address:	Ministry of Transport and Communications, Kabanbai Batyr Avenue, 47, Astana, Kazakhstan. Tel: (7-3172) 242-097; Fax: (7-3172) 241-763; E-mail: abisheva@mtc.gov.kz or duisenbekova@mtc.gov.kz .

M. Kyrgyzstan

1. Project name:	AH61, Bishkek – Naryn – Torugart Road Rehabilitation Project.
2. Location:	Joins AH5 and gives access to Kazakhstan in two directions, East and West, then joins AH7 and gives access to Uzbekistan as well as AH65, giving access to Tajikistan and China (Kashgar and Urumqi). AH61 extends to China (Kashgar), AH4 and Pakistan ports.
3. Brief outline of the project:	The 539-km Bishkek – Naryn – Torugart road is a significant national and international highway in Kyrgyzstan that connects the southern part of the country with northern region. The road connects with neighbouring countries such as Kazakhstan, China and the Karakoram Highway with Pakistan. The road was constructed in 1930 during the former Soviet Union period. Rehabilitation work has not been carried since that time due to funding constraints. The route includes 48 bridges, nine underpasses and one aqueduct.
4. Rationale and objectives:	This road was a part of the famous “Silk Road” that promoted initial trade relationships between West and East. Trade, livestock and farming has been intensively developed along the road. Today, the road also has top priority. It gives access to Lake Issy-Kul, the main centre of tourism in the country. This provides the opportunity for low-incomes groups to purchase goods along the road. The project will provide employment opportunities to local people.
5. Scope of work:	Rehabilitation or reconstruction of the whole road (539 km), including 48 bridges. The rehabilitated road on the Kyrgyzstan connects with upgraded AH4 and AH5 as well as with AH7, which is being rehabilitated.
6. Expected impacts and benefits:	The road passes through three districts (there are seven districts in the country), Chui, Issyk-Kul and Narun. Rehabilitation of the road will increase passenger and transportation volumes as well as trade turnover, and enhance transit transportation. The road also gives access to the Lake Issy-Kul resort zone. Following rehabilitation, the number of tourists from China, Tajikistan and Uzbekistan will substantially increase, leading to extra investments in tourism. The major part of the road goes through Naryn district, which is rich in minerals and water resources. The development and export of those resources will attract investors and provide employment, thereby improving the living standards of the local population.
7. Estimated cost:	US\$ 1,820 million (according to 1996 prices).
8. Project duration:	Implementation will be in phases. The detailed design has yet to be carried out.
9. Proposed project financing arrangements:	It will be necessary to attract large investments through privilege loans from international financing institutes as well as the World Bank and the Asian Development Bank.
10. Implementation arrangements:	Preparation of a detailed design and drawings. Selection of priority sections and the start of rehabilitation, phase by phase. An appropriate and properly staffed Project Implementation Unit will be the project executing agency. Construction can be implemented by local/international contractors and supervised by local/international consultants depending upon the funding arrangements. The Main Road Department will be the employer.
11. Project status:	Funding is being sought. The feasibility study was carried out in 1995. As the detailed design has yet to be carried out yet, it is difficult to estimate the cost of road rehabilitation.
12. Critical success factors:	Availability of funding. Taking into account country restrictions with regard to external debts, the Ministry of Transport and Communications has to seek alternative techniques of road rehabilitation and grant proceeds etc. Another critical factor is proper road maintenance, which is constrained due to budget restrictions. Therefore, the collection of a toll for using the road is proposed; this revenue would be accounted separately and used for road maintenance.
13. Other project-related information:	An early start of the project would enhance Kyrgyzstan’s economy by increasing the efficiency of internal and international transportation and trade.
14. Contact address:	Main Road Department, Ministry of Transport and Communications, 720017, Room 410, 42 Isanova Street, Bishkek, Kyrgyzstan. Tel: (996-312) 610-984/620-774; Fax: (996-312) 664-781.

1. Project name:	Improvement of the Issyk-Kul Ring Road (Balykchi – Cholpon – Ata – Karakol – Bokonbaev – Balykchi Road).
2. Location:	The road goes east from the Bishkek – Torugart – Kashgar road (AH61) and provides access to the Bishkek – Almaty – Horgos road (AH5) via the Tyup – Kegen road. The Ring Road is located entirely in the Issyk-Kul region (eastern Kyrgyzstan) surrounding Lake Issyk-Kul.
3. Brief outline of the project:	<p>The Ring Road was constructed during the 1950s and 1960s. It is centred in Balykchi town, which is one of the country’s transportation hubs. From there, roads branch off westwards to the Chui valley where the capital, Bishkek is situated with a population of about 1 million, southwards to the Naryn region and eastwards to China (Kashgar) and Pakistan via the Torugart mountain pass.</p> <p>The present road conditions are extremely bad and it cannot take trucks that are heavier than 10 mt. A feasibility study has not yet been carried out. The entire length of the road is 436 km and it passes through many settlements. After Karakol town, the road forms the southern half of the Ring Road to Balykchi town, thus forming a transportation ring around the lake. The length of the southern part is 216 km. Along its entire length the road circles the lake at a distance of 5 km from the shore, at elevations of 1,600 m – 1,700 m above sea level.</p> <p>Terrain along the road can be divided into five sections. The entire road is paved with asphalt pavement, but is in bad condition due to a lack of maintenance funds during the past 12-15 years. The surface has cracks, potholes, rutting and raveling on the carriageway, and the strength the asphalt pavement has been destroyed as it was designed for axel loads of 6 tons. The shoulders, which are between 2 m and 3 m wide, have been subjected extensively to water erosion from rainfall and are deformed. The 30 bridges, 10 m to 60 m in length, along the entire length of the route were constructed between 1960 and 1970. The majority of the bridges are of a capital-type reinforced concrete, but several bridges are on wooden piles. Two of the bridges were constructed with local materials and are in poor shape. Many of the bridges have insufficient width (6.5 m to 7 m) to meet modern standards and it will be necessary to widen and reconstruct them. The design load in many cases will have to be increased in order to withstand the heavy loads carried by large modern trucks and container vehicles. On some sections, the road does not have any sidewalk or the necessary transition curves, which makes it unsafe for pedestrians.</p>
4. Rationale and objectives:	<p>The road is of high economic importance to Kyrgyzstan as it is the main transportation network of the Issyk-Kul region, carrying 100 per cent of cargo and passenger operations by motorized transportation in the region. The road also provides a connection to the Balykchi-Bishkek railway line and the Bishkek – Torugart road (AH61), thus providing transport communications for the Issyk-Kul region. It also connects the capital, Bishkek with the Issyk-Kul region and extends to southern Kazakhstan (AH5) and China (AH61). The road will provide necessary transportation links for the Central Asian countries. Improvement will facilitate Lake Issyk-Kul tourism and thus attract capital investments in the tourism sector. The existing tourism infrastructure such as hotels, summer camps and services at Lake Issyk-Kul so far do not meet international standards. Road improvement will also facilitate the development and improvement of trade relations with the neighbouring States of Uzbekistan, Tajikistan, Kazakhstan and China. It will also help to promote the development of new agricultural areas, the movement of goods and passengers, and enable services to be made available, especially to the remote and inaccessible areas of the country.</p>
5. Scope of work:	Improvement of the Issyk-Kul Ring Road and its bridges, culverts and other road facilities. Since the road connects Kyrgyzstan with Kazakhstan and China, and circles one of the most beautiful lakes in Central Asia, its improvement will promote tourism and development of rural areas to a major extent.

6. Expected impact and benefits:	The traffic capacity of the road will be increased while vehicle operating costs, travel times, maintenance costs and traffic accidents rate will decrease. An airport is being constructed not far from the road, near to Cholpon-Ata town. Once the airport is in operation, it will attract an increasing number of flights to the region for business, tourism and other purposes. This project will induce the growth of agriculture and tourism in the area. The main beneficiaries will be road transport operators, international and local investors, commercial companies, workers in the agricultural, commercial and tourism sectors, and farmers in the project area.
7. Estimated cost:	US\$ 175 million – US\$ 200 million. This estimate is based on the costs of similar road rehabilitation projects implemented in Kyrgyzstan, which amounted to between US\$ 300,000 and US\$ 500,000 per kilometre. This estimate therefore needs to be verified by a feasibility study.
8. Project duration:	Three to four years.
9. Proposed project financing arrangements:	Grant funds for the feasibility study and detailed design works are needed. Substantial multilateral or bilateral grants or loans will be required from international donors such as the Asian Development Bank, the World Bank, the Islamic Development Bank and the Japan Bank for International Cooperation.
10. Implementation arrangements:	Kyrgyzstan, represented by the Ministry of Finance, will be the borrower. The project executing agency will be the Ministry of Transport and Communications of Kyrgyzstan with an appropriate and properly staffed Project Implementation Unit. The civil works and supervisory consulting services can be undertaken by local or/and international firms, depending on the terms of the funding agencies.
11. Project status:	A feasibility study and detailed design works has yet to be carried out.
12. Critical success factors:	Availability of funds, efficient cooperation between donor agencies and the Government, the establishment and effective functioning of a capable project management and implementation team as well as timely and proficient procurement actions.
13. Other project-related information:	
14. Contact address:	Main Road Department, Ministry of Transport and Communications, 42 Isanov Street, 4 th Floor, Bishkek, Kyrgyzstan. Tel: (996-312) 610-984; Fax: (996-312) 611-173; E-mail: mtk@mtk.bishkek.gov.kg.

1. Project name:	Osh – Batken – Isfana Road Rehabilitation Project (construction of missing links [detours around enclaves] on the Osh – Batken – Isfana road).
2. Location:	The road is located in Fergana valley, in the southern region of Kyrgyzstan, extending to the borders with Uzbekistan and Tajikistan.
3. Brief outline of the project:	<p>The road runs south-west from Osh, and then westwards from Kyzyl-Kiya to Koktala village, which is located very close to the border with Uzbekistan. Soon after that, at km 108.6, the first detour around Uzbekistan territory starts.</p> <p>The next 14.7 km is a gravel road, where some construction work has already been carried out. The road then runs south-west and joins the existing road in Pulgon, which is located at km 123. The road passes through the Pulgon and adjacent Frunze village, after which the second detour of Uzbekistan territory (enclave of Sokh) begins at km 125.3.</p> <p>The first section of a new route runs north-west to the existing gravel road. Then, after approximately 50 km, the new route joins the section of Sokh – Rishtan at Burgandy village, located at km 175 of the Osh – Isfana road. The second section of the detour heads west along the existing road up to the Sokh River at km 195.</p> <p>The third section, which runs along the new route, crosses the Sokh River and the Sokh – Rishtan and Batken – Chon – Kara roads, between km 195 and km 200. The final detour stretches to the south-west and joins the existing road at Batken, at km 233.</p> <p>From Batken, the existing road runs west towards the Tortkul reservoir and the border with Tajikistan. After a transit section of 27 km through Tajikistan, the road again turns west towards Isfana city, located at km 359.</p> <p>An alternative route for reducing travel distance through Tajikistan territory runs to the south-east from km 245.5, near the Tortkul reservoir, up to Ak-Tatyr village. This 26-km route passes along the existing narrow earth road, and then crosses the Isfana River, the western and eastern banks of which pass along the border with Tajikistan, to reach Ak-Tatyr.</p> <p>The Osh – Isfana road has, so far, not been given an international identification. One of reasons for this road to be included in the Asian Highway network is that it can form an alternative route to AH7 through the Fergana valley to Tajikistan (Hudjant).</p>
4. Rationale and objectives:	<p>Construction of the links that are missing along the Osh – Batken – Isfana road going round the existing enclaves will improve access to the south-western region of Kyrgyzstan, up to Batken Oblast without crossing the territories of neighbouring countries.</p> <p>As transport movement at border crossings is a serious problem, the possible approaches to improvement within the proposed project could include construction of several sections for detours. In addition, the road could provide an alternative route in order to reduce the extension of the road section that crosses Tajikistan territory.</p> <p>The poverty rate of the south-western region, where the Osh – Batken – Isfana road passes, is the highest in the whole country. These areas suffer from a lack of transportation connections with other regions of Kyrgyzstan, separated by enclaves of Uzbekistan and Tajikistan territories.</p>
5. Scope of work:	<ul style="list-style-type: none"> • Construction of links (detours around enclaves) that are missing along the Osh – Batken – Isfana road and the rehabilitation of the 356-km Osh – Batken – Isfana road. • Financing of a three-to-four year programme of periodic road maintenance and rehabilitation of the major road network. <p>This scope of work was suggested by the World Bank.</p>

<p>6. Expected impact and benefits: Construction of the links missing along the Osh – Batken – Isfana road will have a range of positive effects on life of the population in the project area. Various problems related to the crossing of the borders with Uzbekistan and Tajikistan will be resolved. That will improve access to the labour and service markets of such big cities as Osh and Kyzyl-Kiya. The construction of detour roads along the Osh – Batken – Isfana road will contribute tremendous support to Kyrgyzstan Government efforts to address poverty reduction in the country.</p> <p>In addition, the construction of detours along the Osh – Batken – Isfana road will greatly reduce travel times and costs as well as vehicle operation costs. The quality of public passenger transport services and access by poor citizens to these services will be improved. International transportation and traffic volumes will increase.</p> <p>The second component of the proposed project, envisaging the financing of a three-to-four year periodic maintenance programme as well as limited rehabilitation of the core route network, will help to minimize expenses and save the major road network from the further deterioration.</p> <p>The Government of Kyrgyzstan believes that unless urgent action is taken to preserve the remaining maintainable road network, significant additional road length is likely to become subject to rehabilitation, which, in turn, will require huge financial resources.</p>
<p>7. Estimated cost: US\$ 80 million.</p>
<p>8. Project duration: Four to five years.</p>
<p>9. Proposed project financing arrangements: Grant funds for a feasibility study and detailed design works are needed. Substantial multilateral or bilateral grants or loans will be required from international donors such as the Asian Development Bank, the World Bank, the Islamic Development Bank and the Japan Bank for International Cooperation.</p>
<p>10. Implementation arrangements: Kyrgyzstan, represented by the Ministry of Finance, will be the borrower. The project executing agency will be the Ministry of Transport and Communications of Kyrgyzstan with an appropriate and properly staffed Project Implementation Unit. The civil works and supervisory consulting services can be undertaken by local or/and international firms, depending on the terms of the funding agencies.</p>
<p>11. Project status: The feasibility study was carried out in 2001. As financing of this project clearly exceeds the funds likely to be available under a future bank operation, the World Bank has proposed the possibility of lending US\$ 35 million initially for a new road infrastructure project in Kyrgyzstan from July 2006 onwards, in the context of its next Country Assistance Strategy.</p> <p>Co-financing from international banks and bilateral donors would assist in ensuring the early commissioning of the project.</p>
<p>12. Critical success factors: Availability of funds, efficient cooperation between donor agencies and the Government, the establishment and effective functioning of a capable project management and implementation team as well as timely and proficient procurement actions.</p>
<p>13. Other project-related information:</p>
<p>14. Contact address: Urban Transport Project Implementation Unit, Ministry of Transport and Communications, 42 Isanov Street, 5th Floor, Bishkek, Kyrgyzstan. Tel: (996-312) 611-427; Fax: (996-312) 662-152; E-mail: urbanpiu@infotel.kg.</p>

1. Project name:	Taraz – Talas – Suusamyr road rehabilitation project.
2. Location:	Kyrgyzstan. The road runs from the junction at km 197 of the Bishkek – Osh road (AH7) located in the Suusamyr valley, up to the border with Kazakhstan in the Talas valley (AH5).
3. Brief outline of the project:	<p>The Taraz – Talas – Suusamyr road was designed and constructed in different sections at different times, from the 1950s up to the end of the 1980s. As a result, various sections have different technical standards and types of pavements.</p> <p>Kyrgyzstan is located in the north of the Tien Shan mountain range, between 69-80 degrees North and 39-43 degrees East. It is surrounded by China in the east, Kazakhstan in the north, Uzbekistan in the west and Tajikistan in the south. The country is predominantly mountainous with 90 per cent of the area having an elevation of more than 1,500 m. The highest peaks exceed 7,000 m. The whole length the project road passes through the mountainous Talas valley and crosses the Otmek pass at 3,330 m. The Talas valley is located in the north-western part of the country.</p> <p>The length of the Taraz – Talas – Suusamyr road is 199 km. The road runs from km 197 of the Bishkek – Osh road located in the Suusamyr valley, up to the border with Kazakhstan in the Talas valley. It then passes along the right side of the Otmek River valley and crosses a number of streams. All streams up to the Otmek pass enter the basin of the Otmek River, which flows into the Suusamyr River. The Otmek River originates in the ridge zone of the Talas mountain range and flows through its southern slopes. After the Otmek pass, the road passes through the Talas valley to the border with Kazakhstan.</p>
4. Rationale and objectives:	<p>The Taraz – Talas – Suusamyr road is one of the country's main transport roads, and provides an exit from the Talas Oblast region in the north-western region of the country to other Oblasts, mainly in Chu, Jalal-Abad and Osh as well as the neighbouring Kazakhstan – Taraz and Shimkent Oblasts. The road passes through the Talas Oblast. Only at its beginning and end, the road passes through the Chu Oblast of Kyrgyzstan and Taraz Oblast of Kazakhstan. The general direction of the road is from east to west.</p> <p>The road passes through the central part of the fertile Talas valley and its populated areas of Taldy-Bulak, Kara-Oy, Chat-Bazar, Talas (the administrative centre of the Talas Oblast), Ozgorush, Boo-Terege and Kyzyl-Adyr. It ends in Jambyl (Kazakhstan).</p> <p>According to the classification and numbering of roads in Kyrgyzstan, the Taraz – Talas – Suusamyr road is of the international importance and has an index number, EM-14. It connects the agricultural regions of the Talas Oblast with the capital of Bishkek and the industrially developed Oblasts of Chu, Jalal-Abad and Osh. The exit from these Oblasts is by the main Bishkek – Osh road, which the Taraz – Talas – Suusamyr road joins at km 197, and provides transportation connections to neighbouring Kazakhstan at Taraz. Rehabilitation will promote trade between Kazakhstan, Kyrgyzstan and Uzbekistan (the latter bordering Jalal-Abad Oblast).</p> <p>The road needs to be improved in order to enhance international trade between Kyrgyzstan and its neighbouring countries. This will provide economic opportunities for the local population. Following improvement of the road, the distance from Talas to Bishkek will be 90 km shorter as it will pass completely through Kyrgyzstan territory.</p>
5. Scope of work:	Rehabilitation of the 199-km Taraz – Talas – Suusamyr road, which has 15 bridges, one aqueduct, and 262 culverts. New asphalt concrete (6 cm) will be applied to 37 km of the road. Two-ply asphalt concrete (9-12 cm) will applied to the remaining 162 km.

6. Expected impacts and benefits:	<p>Increased savings in terms of travel distance and times, lower costs to road users and enhanced comfort and convenience of road travel. As a result, some traffic will shift from other routes and transportation modes to the improved road. The volume and composition of such traffic can be estimated by analysing origin-destination surveys of traffic on alternate routes, and the benefits determined based on the difference in costs between the existing routes/transport modes and the improved road.</p> <p>Goods transportation and services will become less expensive, and demand will increase. The resulting increased traffic is generated traffic; the benefits of such traffic are valued at half the rate of normal traffic.</p> <p>The magnitude of generated traffic depends upon the extent of savings in terms of transportation costs and elasticity of demand. In the absence of detailed studies on demand elasticity, generated traffic has been estimated at between 5 and 20 per cent for various road sections of normal traffic.</p>
7. Estimated cost:	US\$ 50 million.
8. Project duration:	Three years (per section [0-52 km]).
9. Proposed project financing arrangements:	Substantial multilateral or bilateral grants or loans from international donors such as the Islamic Development Bank.
10. Implementation arrangements:	Kyrgyzstan, represented by the Ministry of Finance, will be the borrower. The project executing agency will be the Ministry of Transport and Communications of Kyrgyzstan with an appropriate and properly staffed Project Implementation Unit. The civil works and supervisory consulting services can be undertaken by local or/and international firms, depending on the terms of the funding agencies.
11. Current status:	The feasibility study has been completed. In 2004, a contract was signed for constructing the first section (0-52 km) of the Taraz – Talas – Suusamyr road.
12. Critical success factors:	Availability of funds, efficient cooperation between donor agencies and the Government, the establishment and effective functioning of a capable project management and implementation team as well as timely and proficient procurement actions.
13. Other project-related information:	
14. Contact address:	Main Road Department, Ministry of Transport and Communications, 42 Isanov Street, 4 th Floor, Bishkek, Kyrgyzstan. Tel: (996-312) 610984; Fax: (996-312) 611-173; E-mail: mtk@mtk.bishkek.gov.kg.

N. Lao People's Democratic Republic

1. Project name:	Khaek – Ngom Ma Lad Road Section in the Lao People's Democratic Republic.
2. Location:	Tha Khaek city, Kham Muan province – Ngommamad, Khammuan province, Lao People's Democratic Republic.
3. Brief outline of the project:	The 55-km road section between Tha Khaek and Ngommamad of National Road No. 12 is a part of an East-West corridor connecting Nakhon Phanom province, Thailand with Viet Nam via the Lao People's Democratic Republic. This road section is an important transit route that facilitates trade and economic activities between the Lao People's Democratic Republic, Thailand and Viet Nam.
4. Rationale and objectives:	The road, which passes through rolling terrain, is in poor condition and undergoes frequent flooding during the monsoon season. The objective is to reconstruct the road to enhance transportation of people and freight.
5. Scope of work:	Survey and detail design work, and construction.
6. Expected impacts and benefits:	Reconstruction will enable a more efficient flow of in the transportation of people and freight. This will greatly speed up integration among the countries concerned (the Lao People's Democratic Republic, Thailand and Viet Nam). In addition, it will provide a road link to the Nam Theun II hydropower dam.
7. Estimated cost:	US\$ 16 million.
8. Project duration:	Three years.
9. Proposed project financing arrangements:	The Ministry of Communications, Transport, Post and Construction is seeking funding by the Government or by bilateral assistance and funding from international financing institutions.
10. Implementation arrangements:	The Ministry of Communications, Transport, Post and Construction will be responsible for the project.
11. Project status:	Survey and detailed design work have not yet been done.
12. Critical success factors:	Adequate funding.
13. Other project-related information:	Construction of the Ngommamad – border with Viet Nam section (part of AH131) was scheduled to be completed by the end of 2005.
14. Contact address:	Department of Roads, Ministry of Communications, Transport, Post and Construction, Lane Xang Avenue, Vientiane, Lao People's Democratic Republic, P.O. Box 2158. Tel: (85-6 21) 412-277; Fax: (85-6 21) 424-232.

1. Project name:	Phiafai – Attapeu Road Section of National Road No. 18A in the Lao People's Democratic Republic.
2. Location:	Phiafai, Chamsak province – Attapeu City, Attapeu province, the Lao People's Democratic Republic.
3. Brief outline of the project:	This 114-km road section between Phiafai and Attapeu on AH132 is a part of an East-West corridor connecting Ubon Rachathani in Thailand to Da Nang in Viet Nam. Sixty per cent of the Attapeu road section runs through rolling terrain. Upgrading this road section will ensure a more efficient flow of transportation for people and freight. This will, in turn, greatly speed up integration among the countries concerned (the Lao People's Democratic Republic, Thailand and Viet Nam).
4. Rationale and objectives:	National Road No. 18A is currently in very poor condition and can only be used during the dry season. The objectives are to reconstruct the road and use it as a transit route.
5. Scope of work:	Feasibility study, survey and detailed design work, and construction.
6. Expected impacts and benefits:	Upgrading this road section will enable a more efficient flow in the transportation of people and freight. This will greatly speed up integration among the countries concerned (the Lao People's Democratic Republic, Thailand and Viet Nam).
7. Estimated cost:	US\$ 24.5 million.
8. Project duration:	Three years.
9. Proposed project financing arrangements:	The Ministry of Communications, Transport, Post and Construction is seeking funding from international financial institutions.
10. Implementation arrangements:	The Ministry of Communications, Transport, Post and Construction will be responsible for the project.
11. Project status:	The feasibility study, survey and detailed design works have not yet been carried out.
12. Critical success factors:	Adequate funding.
13. Other project-related information:	The road section from Attapeu to the border with Viet Nam (part of AH132) is under construction and is expected to be completed by April 2006.
14. Contact address:	Department of Roads, Ministry of Communications, Transport, Post and Construction, Lane Xang Avenue, Vientiane, Lao People's Democratic Republic, P.O. Box 2158. Tel: (856-21) 412-277; Fax: (856-21) 424-232.

1. Project name:	Oudomxai – Taichang Road Section in the Lao People’s Democratic Republic.
2. Location:	Oudomxai city Oudomxai Province – Taichang, Phongsaly province (border with Viet Nam).
3. Brief outline of the project:	The 202-km road section between Oudomxai and Taichang (part of National Road No. 2E) is a part of an East-West corridor (AH13) connecting Loei province in Thailand and Viet Nam via the Lao People’s Democratic Republic (Muang Ngeun – Oudomxai city). The Oudomxai – Taichang road section, which passes through rolling terrain, is in very poor condition and can only be used during the dry season. This section used to be a part of AH13, but it was removed when the Asian Highway network were modified. After upgrading, this section could be reinstated into the Asian Highway network.
4. Rationale and objectives:	Reconstruction of the road section to enhance transportation of people and freight.
5. Scope of work:	A feasibility study, survey and detailed design works, and construction.
6. Expected impacts and benefits:	Reconstruction of the Oudomxai – Taichang road section will ensure a more efficient flow in the transportation of people and freight. This will greatly speed up integration among the countries concerned (the Lao People’s Democratic Republic, Thailand and Viet Nam).
7. Estimated cost:	US\$ 40.4 million.
8. Project duration:	Three years.
9. Proposed project financing arrangements:	The Ministry of Communications, Transport, Post and Construction is seeking bilateral assistance or funding from international financial institutions.
10. Implementation arrangements:	The Ministry of Communications, Transport, Post and Construction will be responsible for the project.
11. Project status:	The feasibility study, survey and detailed design works have yet to be carried out.
12. Critical success factors:	Adequate funding.
13. Other project-related information:	
14. Contact address:	Department of Roads, Ministry of Communications, Transport, Post and Construction, Lane Xang Avenue, Vientiane, Lao People’s Democratic Republic, P.O. Box 2158. Tel: (856-21) 412-277; Fax: (856-21) 424-232.

O. Mongolia

1. Project name:	AH4, Altai Zam Project (Improvement of vertical arterial road in the western region).
2. Location:	Ulaanbaishint (border with the Russian Federation) – Olgy – Khovd – Yarant (border with China) in Bayan – Olgy and Khovd provinces.
3. Brief outline of the project:	<p>Since 1991, the Government of Mongolia has been participating in the Asian Highway network project and cooperating with ESCAP. It has been recommended that Mongolia be connected to the Russian Federation and China by developing the following Asian Highway routes:</p> <ul style="list-style-type: none"> • AH3 – Altanbulag (border with Russian Federation) – Sukhbaatar – Darkhan – Ulaanbaatar – Nalaikh – Choir – Sainshand – Zamiin Uud (border with China) as a major vertical arterial road. • AH32 – Sumber (border with China) – Choibalsan – Undurkhaan – Ulaanbaatar Uliastai – Khovd as the horizontal arterial road of the Millennium Road. • AH4 – Ulaanbaishint – Olgy–Khovd – Yarant (border with China) as the western vertical arterial road. <p>The Intergovernmental Agreement on the Asian Highway Network, 2003 includes these three routes for linking Mongolia with the Russian Federation and China.</p> <p>The vertical arterial road in western region in Mongolia includes the Ulaanbaishint (border with Russian Federation) – Olgy – Khovd – Bulgan Soum – Yarant (border with China) route and has a total length of 725 km.</p> <p>Due to economic growth and development in North-East Asia, trade between Mongolia, the Russian Federation and China is expected to increase. Western Mongolia has the potential for providing transit transportation for international freight and passenger services between the Russian Federation and China; this will also improve transportation within the region.</p> <p>The proposed AH routes would also provide further connections to the Novosibirsk – Biisk – Gornii Altai route of the Russian Federation and the motorway of Xianjiang in China. The development of AH4 would boost economic development of western Mongolia.</p>
4. Rational and objectives:	<p>The project will reduce vehicle operation costs and travel times, and thus increase efficiency in the movement of passengers and goods within Mongolia and between the Russian Federation and China.</p> <p>The project will support rural development and increase earnings among low-income groups by providing reliable access to the area, which has not been available until now. The project will contribute towards poverty alleviation and provide employment opportunities for the indigenous people, including women, along the route as well as promote tourism.</p>
5. Scope of work:	Improvement and upgrading of the 725-km vertical arterial road to a double-lane, paved road to the Asian Highway standards (AH4, Ulaanbaishint – Olgy – Khovd – Yarant [Altai Zam project], as part of regional development efforts).

6.	<p>Expected impacts and benefits: A research institute of the Ministry of Transportation of the Russian Federation conducted a special study on the feasibility of establishing a direct road connection between western regions of Siberia and the Xinjiang Uygur Autonomous Region of China through the western region of Mongolia. The importance of trade, infrastructure, transportation and development of the western region of Mongolia, the Xinjiang Uygur region of China and the western region of Siberia in the Russian Federation was outlined. The Novosibirsk – Novoaltaysk – Gorno – Altay – Barnaul – Tashanta (border with Mongolia) road in the Russian Federation can be connected with Ertai-Urumqi of China through Tsagaannuur (border with Russia) – Khovd – Bulgan – Yarant (border with China) in Mongolia.</p> <p>The total length of the Novosibirsk – Novoaltaysk – Gorno – Altai – Barnaul – Tashanta – Tsagaannuur (Ulaanbaishint) – Khovd – Bulgan Soum – Yarant – Ertai – Urumqi road is 2,098 km, of which 963 km is through the Russian Federation, 725 km through Mongolia and 410 km through the territory of China. The preliminary cost estimation for improvement of the above roads is US\$ 490 million for construction and rehabilitation.</p> <p>If the total length of the western vertical arterial road is paved, it will provide the opportunity for freight transportation to increase between the Russian Federation and China.</p>
7.	<p>Estimated cost: US\$ 92 million (the exact cost will be known after the completion of the feasibility study).</p>
8.	<p>Project duration: Five to six years.</p>
9.	<p>Proposed project financing arrangements: The Government of Mongolia plans to implement the project with an ADB loan, following the completion of the feasibility study. Some project costs will be financed through local budget resources.</p>
10.	<p>Implementation arrangements: The Ministry of Road, Transport and Tourism (MOTTT) and Road Supervision and Research Center under (MOTTT) are the responsible for project execution and implementation. Project management team will be established as required during feasibility study, preliminary design and construction phase of the road project.</p>
11.	<p>Project status: A prefeasibility study has been completed with ADB support. The Terms of Reference for the project have been prepared and submitted by the Road Policy and Coordination Department, Ministry of Roads, Transport and Tourism to ADB. ADB has provided technical assistance to conduct feasibility study and preliminary design of the road project. Depending on the outcome ADB would support development of the road.</p>
12.	<p>Critical success factors: Availability of funding, efficient cooperation between the donor and the Government, the establishment of a capable project management team as well as the timely selection of consultants and contractors.</p>
13.	<p>Other project-related information:</p>
14.	<p>Contact address: Road Policy and Coordination Department, Ministry of Roads, Transport and Tourism, Ulaanbaatar, Mongolia. Tel: (976-11) 310-612, (976-11) 326-439; Fax: (976-11) 327-828.</p>

1. Project name:	AH32, Tsatsuukh – Yruu Soum road section (horizontal arterial road of the Millennium Road project).
2. Location:	Tsatsuukh – Yruu Soum in Zavkhan Aimag.
3. Brief outline of the project:	<p>In 1994, the Master Plan for road development in Mongolia was approved. In 2001, Parliament and the Government made a significant resolution to develop the “Millennium Road” project. The project involves the creation of the State horizontal arterial road for national development, and vertical arterial roads for infrastructure development.</p> <p>The present objective of the Ministry of Roads, Transport and Tourism is to implement the Millennium Road project as approved by the Parliament and the Government as a part of the plan for the road development of Mongolia.</p> <p>The Millennium Road is the shortest route connecting the eastern and western regions of Mongolia. It will provide greater opportunity to increase transit transportation of neighbouring countries through Mongolia as well as improve relations with foreign markets connected to the international road network and seaports.</p> <p>In order to implement the Millennium Road project, the construction of a new paved road is proposed between Tsatsuukh and Yruu Soum on the western section of the Asian Highway (AH32). The length of the road section under this project is 239 km, passing through Sumber (border with China) – Undurkhaan – Ulaanbaatar – Kharkhorin – Tsetserleg – Tosontsengel – Uliastai – Khovd.</p>
4. Rational and objectives:	The project will reduce vehicle operation costs and travel times, and thus increase efficiency in the movement of passengers and goods within Mongolia and between the Russian Federation and China. The project will support rural development and increase earnings among low-income groups by providing reliable access to the area, which has not been available until now. The project will support poverty alleviation and provide employment opportunities for the indigenous people, including women, along the route as well as promote tourism.
5. Scope of work:	Construction of a new paved road, with 7-m wide asphalt concrete pavement and 10-m wide embankment.
6. Expected impacts and benefits:	Development of the Millennium Road will improve the efficiency of road network in the country as a whole and will thus have a beneficial cascade effect on the overall economy. The project will directly help in generating employment, reducing the growth of rural-urban migration, improving access to mineral resources and in the development of the tourism sector. It will also make industries competitive in international markets due to reduced transport costs. Construction of the Millennium Road can also play a role in developing prospective international traffic routes in the region.
7. Estimated cost:	US\$ 36 million (preliminary feasibility study of the Millennium Road).
8. Project duration:	Two to three years.
9. Proposed project financing arrangements:	The Government of Mongolia considers construction of the “Millennium Road” to be a crucial project for the entire nation. It will implement construction in phases by utilizing domestic financial resources as well as, assistance from donor countries, international banks and financial institutions.
10. Implementation arrangements:	The feasibility study for Tsatsuukh – Yruu Soum was carried out in 2002 under the preliminary feasibility study of the horizontal arterial link of the Millennium Road. The detailed design works were completed in 2004 with local budget resources.
11. Project status:	The Millennium Road preliminary feasibility study was completed in 2002. The detailed design works were completed in 2004.
12. Critical success factors:	Availability of domestic financial resources and assistance from donor countries, international banks and financial institutions.
13. Other project-related information:	
14. Contact address:	Road Policy and Coordination Department, Ministry of Roads, Transport and Tourism, Ulaanbaatar, Mongolia. Tel: (976-11) 310-612, (976-11) 326-439; Fax: (976-11) 327-828.

1. Project name:	AH32, Undurkhaan – Sumber – Nomrog (border with China) road section of the eastern horizontal arterial road of the Millennium Road project.
2. Location:	Undurkhaan – Sumber – Nomrog (border with China), in the eastern region, Dornod Aimag.
3. Brief outline of the project:	<p>In 1994, the Master Plan for road development in Mongolia was approved. In 2001, Parliament and the Government made a significant resolution to develop the Millennium Road project. The project involves the creation of the State horizontal arterial road for national development, and vertical arterial roads for infrastructure development.</p> <p>The present objective of the Ministry of Roads, Transport and Tourism is to implement the Millennium Road project, as approved by the Parliament and the Government as a part of the plan for the road development of Mongolia.</p> <p>The Millennium Road is the shortest route connecting the eastern and western regions of Mongolia. It will provide greater opportunity to increase transit transportation of neighbouring countries through Mongolia as well as improve relations with foreign markets connected to the international road network and seaports.</p> <p>In order to implement the Millennium Road project, the construction of a new paved road is proposed between Undurkhaan and Sumber-Nomrog (border with China) along the eastern section of the Asian Highway (AH32). The length of the project is 340 km, located along the eastern part of the Millennium Road and passing through Sumber (border with China) – Undurkhaan – Ulaanbaatar – Kharkhorin – Tsetserleg – Tosontsengel – Uliastai – Khovd.</p>
4. Rational and objectives:	<p>The project will reduce vehicle operation costs and travel times, and thus increase efficiency in the movement of passengers and goods within Mongolia and between the Russian Federation and China.</p> <p>The project will support rural development and increase earnings among low-income groups by providing reliable access to the area, which has not been available until now. The project will contribute towards poverty alleviation and provide employment opportunities for the indigenous people, including women, along the route as well as promote tourism.</p>
5. Scope of work:	Construction of a new 7-m wide paved road with asphalt concrete pavement and 10-m wide embankment.
6. Expected impacts and benefits:	Development of the Millennium Road will improve the efficiency of road network in the country as a whole and will thus have a beneficial cascade effect on the overall economy. The project will directly help in generating employment, reducing the growth of rural-urban migration, improving access to mineral resources and in the development of the tourism sector. It will also make industries competitive in international markets due to reduced transport costs. Construction of the Millennium Road can also play a role in developing prospective international traffic routes in the region.
7. Estimated cost:	US\$ 51 million (preliminary feasibility study of the Millennium Road).
8. Project duration:	Four to five years.

9. Proposed project financing arrangements:	The Government of Mongolia considers construction of the “Millennium Road” to be a crucial project for the entire nation. It will implement construction in phases by utilizing domestic financial resources as well as, assistance from donor countries, international banks and financial institutions.
10. Implementation arrangements:	The preliminary feasibility study of the Undurkhaan – Sumber – Nomrog (border with China) road was carried out in 2002.
11. Project status:	The preliminary feasibility study was carried out as part of the Millennium Road preliminary feasibility study, which was completed in 2002. It is planned to conduct the detailed design works using local budget resources. Following completion of the detailed design works, co-financing with donor countries will be sought.
12. Critical success factors:	Availability of domestic financial resources and assistance from donor countries, international banks and financial institutions.
13. Other project-related information:	
14. Contact address:	Road Policy and Coordination Department, Ministry of Roads, Transport and Tourism, Ulaanbaatar, Mongolia. Tel: (976-11) 310-612, (976-11) 326-439; Fax: (976-11) 327-828.

1. Project name:	AH32, Tsatsuukh – Tosontsengel – Uliastai – Khovd road section, horizontal arterial road, Millennium Road project.
2. Location:	Tsatsuukh – Tosontsengel – Uliastai – Khovd in Zavkhan and Khovd Aimag.
3. Brief outline of the project:	<p>In 1994, the Master Plan for road development in Mongolia was approved. In 2001, Parliament and the Government made a significant resolution to develop the Millennium Road project. The project involves the creation of the State horizontal arterial road for national development, and vertical arterial roads for infrastructure development.</p> <p>The present objective of the Ministry of Roads, Transport and Tourism is to implement the Millennium Road project, as approved by the Parliament and the Government as a part of the plan for the road development of Mongolia.</p> <p>The Millennium Road is the shortest route connecting the eastern and western regions of Mongolia. It will provide greater opportunity to increase transit transportation of neighbouring countries through Mongolia as well as improve relations with foreign markets connected to the international road network and seaports.</p> <p>In order to implement the Millennium Road project, the construction of a new paved road is proposed between Tsatsuukh Soum and Khovd city along the western section of the Asian Highway (AH32). The length of the project is 533 km, located along the western part of the Millennium Road and passing through Sumber (border with China) – Undurkhaan – Ulaanbaatar – Kharkhorin – Tsetserleg – Tosontsengel – Uliastai – Khovd.</p>
4. Rational and objectives:	<p>The project will reduce vehicle operation costs and travel times, and thus increase efficiency in the movement of passengers and goods within Mongolia and between the Russian Federation and China.</p> <p>The project will support rural development and increase earnings among low-income groups by providing reliable access to the area, which has not been available until now. The project will contribute towards poverty alleviation and provide employment opportunities for the indigenous people, including women, along the route as well as promote tourism.</p>
5. Scope of work:	Construction of a new paved road with 7-m wide asphalt concrete pavement and 10-m wide embankment.
6. Expected impacts and benefits:	Development of the Millennium Road will improve the efficiency of road network in the country as a whole and will thus have a beneficial cascade effect on the overall economy. The project will directly help in generating employment, reducing the growth of rural-urban migration, improving access to mineral resources and in the development of the tourism sector. It will also make industries competitive in international markets due to reduced transport costs. Construction of the Millennium Road can also play a role in developing prospective international traffic routes in the region.
7. Estimated cost:	US\$ 80 million (preliminary feasibility study of the Millennium Road).
8. Project duration:	Four to five years.

9. Proposed project financing arrangements:	The Government of Mongolia considers construction of the “Millennium Road” to be a crucial project for the entire nation. It will implement construction in phases by utilizing domestic financial resources as well as, assistance from donor countries, international banks and financial institutions.
10. Implementation arrangements:	The Ministry of Roads, Transport and Tourism is planning to carry out the detailed design works using local budget resources.
11. Project status:	The feasibility study on the Tsetsuukh – Tosontsengel – Uliastai – Khovd road section was carried out under the preliminary feasibility study of the horizontal arterial link of the Millennium Road, which was completed in 2002.
12. Critical success factors:	Availability of domestic financial resources and assistance from donor countries, international banks and financial institutions.
13. Other project-related information:	
14. Contact address:	Road Policy and Coordination Department, Ministry of Road, Transport and Tourism, Ulaanbaatar, Mongolia. Tel: (976-11) 310-612, (976-112) 326-439; Fax: (976-11) 327-828.

P. Myanmar

1. Project name:	AH1, Upgrading of the Myawady – Kawkareik road section.
2. Location:	Near the Thai-Myanmar border on AH1, Thingannyinaung village.
3. Brief outline of the project:	The existing 40-km road is single lane in mountainous terrain bounded by cliffs. It is difficult to widen it to a double lane road, for which advanced construction technology will be required. It is proposed to upgrade the existing single-lane road to a standard double-lane highway possibly through realignment.
4. Rationale and objectives:	The improvement of the road will reduce transportation costs, increase the efficiency of passenger and goods transportation by providing an uninterrupted two-way traffic flow within Myanmar and between Thailand, Myanmar and India.
5. Scope of work:	Improvement of a 40-km section of the highway up to a two-lane road that meets Asian Highway design standards. As the terrain is mountainous with steep gradients and high cliffs, realignment of the highway should be considered. The scope of work includes rock cutting, the construction of the road and pavements, side drains, cross-drainage works and slope stabilization measures.
6. Expected impacts and benefits:	The improved highway will provide a good, uninterrupted connection between Thailand, Myanmar and India, leading to considerable reductions in travel time and costs.
7. Estimated cost:	US\$ 19 million.
8. Project duration:	Two to three years.
9. Proposed project financing arrangements:	Project finance to be sought from international and bilateral donors or interested private sector investors.
10. Implementation arrangements:	The Public Works Department, Ministry of Construction will be responsible for project implementation. A project management organization could be established depending on the availability of funding and requirements.
11. Project status:	Thailand has offered a grant for carrying out the feasibility study.
12. Critical success factors:	Availability of funds and the outcome of feasibility study.
13. Other project-related information:	The road section covered by this project is a bottleneck on Asian Highway route AH1. Therefore, it is important to improve this section in order to provide a good connection between South-East Asia and South Asia.
14. Contact address:	Managing Director, Public Works Department, Ministry of Construction, No. 60, Shwedagon Pagoda Road, 11191 Yangon, Myanmar. Tel: (95-1) 382-713, (95-1) 379-354; Fax: (95-1) 289-531, (95-1) 380-072.

1. Project name:	AH1, upgrading of the Kalay – Kalewa – Monywa section.
2. Location:	The project starts from Kalay (about 100 km from the Myanmar-India border) and ends at Monywa.
3. Brief outline of the project:	As part of India-Myanmar-Thailand Trilateral Highway Project, a 184-km intermediate lane (5.5 m) road was constructed between Monywa and Kalewa in mountainous terrain. It is proposed to upgrade the existing road to a standard double-lane road.
4. Rationale and objectives:	The improvement of the road will reduce transportation costs, increase the efficiency of passenger and goods transportation by providing an uninterrupted two-way traffic flow within Myanmar and between Thailand, Myanmar and India. This road will be about 140 km shorter than the existing AH1 in Myanmar.
5. Scope of work:	Upgrading of a 184-km section of the Trilateral Highway (AH1) to a two-lane road that meets Asian Highway design standards. The scope of work includes construction of the road and pavements, side drains, cross-drainage works and slope stabilization measures.
6. Expected impacts and benefits:	The improved highway will provide a good, uninterrupted connection between Thailand, Myanmar and India, leading to considerable reductions in travel time and costs.
7. Estimated cost:	US\$ 40 million.
8. Project duration:	Three to four years.
9. Proposed project financing arrangements:	Project finance to be sought from international and bilateral donors or interested private sector investors.
10. Implementation arrangements:	The Public Works Department, Ministry of Construction will be responsible for project implementation. A project management organization could be established depending on the availability of funding and requirements.
11. Project status:	
12. Critical success factors:	Availability of funds.
13. Other project-related information:	As the proposed section will provide shorter road links within Myanmar and between Thailand, Myanmar and India, early improvement will bring considerable benefits by providing a good connection between South-East Asia and South Asia. This section of the road is opened to public in 2002, which is about 100 km shorter than the existing Asian Highway passing through the city Gangaw. Myanmar has planned to shift the existing Asian Highway to this shorter section after upgrading. This road section is also part of India-Myanmar-Thailand trilateral road link.
14. Contact address:	Managing Director, Public Works Department, Ministry of Construction, No. 60, Shwedagon Pagoda Road, 11191 Yangon, Myanmar. Tel: (95-1) 382-713, (95-1) 379-354; Fax: (95-1) 289-531, (95-1) 380-072.

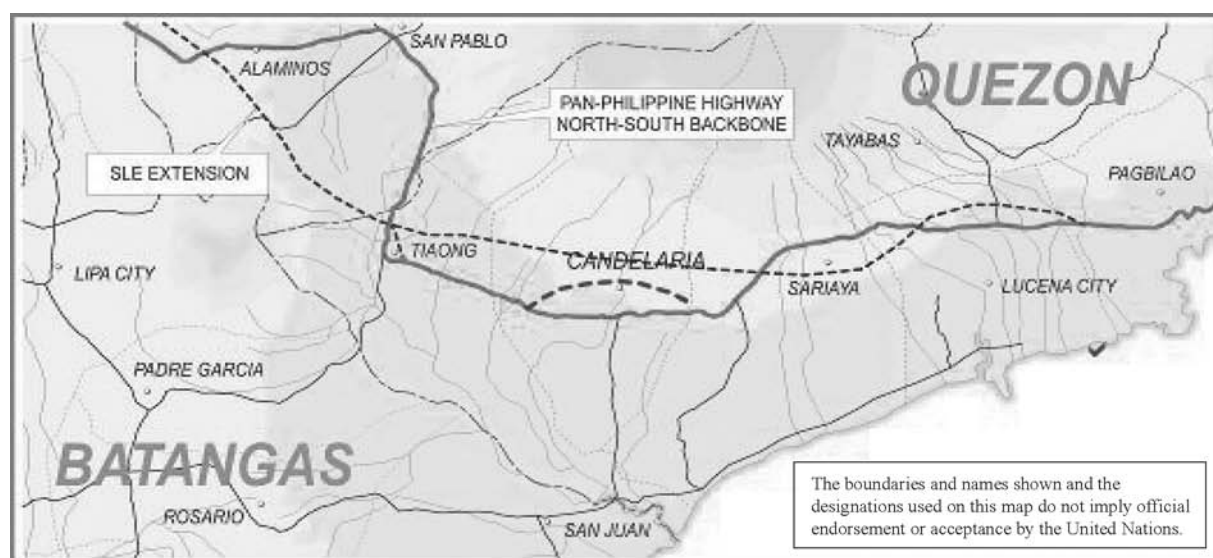
1. Project name:	AH2, upgrading of the Kyaington – Taunggyi section.
2. Location:	Part of AH2 in the Wa State, starting from the junction of AH2/AH3 (Kyaington to Taunggyi) in Myanmar.
3. Brief outline of the project:	This 450-km section of the road is being upgraded. It is proposed to continue the upgrading up to a standard double-lane road that meets Asian Highway standards.
4. Rationale and objectives:	The improvement of this road will provide a good connection with the remote region of the Wa State where other social programmes such as drug eradication are ongoing. The improvement of this road will also provide good connections between Myanmar and northern Thailand, China and the Lao People's Democratic Republic.
5. Scope of work:	<p>Improvement of this 450-km section of the highway up to a two-lane road meeting Asian Highway design standards. The scope of work includes rock cutting, construction of the road and pavements, side drains, cross-drainage works and slope stabilization measures.</p> <p>As the Government of Myanmar is currently upgrading part of the road, assistance is proposed for the foreign exchange component that covers importing the diesel fuel and bitumen required for the project. The estimated diesel requirement is 10 million gallons while 43,000 tons of bitumen will be required. The Government will mobilize the other necessary project resources from domestic sources.</p>
6. Expected impacts and benefits:	The improved highway will provide a good, uninterrupted connection between northern Thailand, Myanmar, China and the Lao People's Democratic Republic. This will result in considerable reductions in travel time and costs.
7. Estimated cost:	US\$ 23 million.
8. Project duration:	Four to five years.
9. Proposed project financing arrangements:	Project finance to be sought from international and bilateral donors or interested private sector investors.
10. Implementation arrangements:	The Public Works Department, Ministry of Construction will be responsible for project implementation. A project management organization could be established depending on the availability of funding and requirements.
11. Project status:	Upgrading of parts of the road is ongoing.
12. Critical success factors:	Availability of funds.
13. Other project-related information:	The road section covered by this project is a bottleneck on Asian Highway route AH2. Therefore, it is important to improve this section in order to provide a good connection between South Asia, South-East Asia and China.
14. Contact address:	Managing Director, Public Works Department, Ministry of Construction, No. 60, Shwedagon Pagoda Road, 11191 Yangon, Myanmar. Tel: (95-1) 382-713, (95-1) 379-354; Fax: (95-1) 289-531, (95-1) 380-072.

Q. Nepal

1. Project name:	Bagmati Corridor Road (Kathmandu – Terai [Birgunj] Road).
2. Location:	Kathmandu (AH42) to AH2 near Pathlaiya, and Birgunj (AH42) in Nepal.
3. Brief outline of the project:	<p>The Bagmati Corridor Road (Kathmandu – Terai [Birgunj] Road) was first proposed about 50 years ago to connect Birgunj to Kathmandu. However, it was not implemented at that time because the traffic volume was too low to justify construction. A low-cost road, the Tribhuvan Highway, was built in 1956 instead of the Bagmati Corridor to serve the same purpose.</p> <p>The distance to Pathnlaiya via the Tribhuvan Highway (TRP) is roughly 160 km. The road has steep gradients and sharp bends, and the journey takes seven hours. The road is not used by buses and trucks but only by smaller vehicles during normal times. The other road to Pathlaiya and Birgunj is AH42, which is now used for the movement of passenger and freight between Kathmandu, Pathlaiya and Birgunj. On the other hand, if the Bagmati Corridor is implemented, the distance to Birgunj will be only 110 km. The Bagmati Corridor will only have low gradients, so it will be possible to traverse the route within two hours.</p> <p>The only dry port in Nepal is at Birgunj, which will be connected with this road. Therefore, the transportation scenario of the country will experience a very positive change. Because the Bagmati Corridor will carry more than 80 per cent of export-import goods, it is expected to boost the national economy by increasing efficiency in the country's external and internal trade. In addition, the construction of an international airport is planned near this route at Nijgarh, and it will play an important role as a transit airport for international east-west flights in this region of Asia.</p>
4. Rationale and objectives:	The project is expected to reduce transportation costs between Birgunj and Kathmandu by up to 50 per cent as well as increase the efficiency in the movement of passengers and goods within Nepal and between China, Nepal and India. The project will support rural development initiatives and increase the earnings of low-income by providing reliable access to the area, which has not been available until now. The project will therefore contribute to poverty alleviation and provide employment opportunities for the indigenous people, including women, along the route. It will also promote tourism.
5. Scope of work:	The 110-km road connects AH42 at Kathmandu to AH2 at Pathlaiya in Nepal. Although this project is located in Nepal, it will greatly facilitate trade and tourism between China, Nepal and India. Construction is expected to be double lane with an extra lane on either side to make it a fast track.
6. Expected impacts and benefits:	<p>The project The distance from Kathmandu (AH42) to the country's only dry port at Birgunj (also AH42) is currently 284 km. This project will reduce that distance to at least 114 km. Thus, the main quantifiable benefit will be a reduction of passenger and freight transportation costs by up to 50 per cent on the AH42 section between Kathmandu and Birgunj.</p> <p>The construction of a 22-km link road from Hetauda, of the same standard as the existing AH42 between Narayanghat – Hetauda, will be able to divert all traffic on AH2 going north to Kathmandu and Lhasa because of the shorter distance and lower travel time. The reduction in distance and travel time will be 170 km and five hours (currently, travel time is seven hours). This will greatly facilitate the development of trade and tourism between China, Nepal and India. The feasibility study shows that the direct economic benefits will be reduced vehicle operating costs, shorter travel times and reduced maintenance costs.</p> <p>Based on the feasibility study carried out by the Department of Roads, the project has been determined as economically viable with a 23.38 per cent project economic rate of return. The project will encourage accelerated industrial and agricultural growth in the area traversed by the road. The main beneficiaries will be road transport operators, international and domestic business entrepreneurs and workers engaged in agro-industry, manufacturing, commercial and tourism activities, and farmers in the project area.</p>

7. Estimated cost:	Approximately US\$ 80 million (2003 prices) (prefeasibility study).
8. Project duration:	Three to four years.
9. Proposed project financing arrangements:	Substantial multilateral or bilateral grants or loans will be required. Candidate donors, based on their involvement in the road subsector in Nepal include the Governments of Japan, India, China, Germany, Switzerland, and multilateral agencies such as the Asian Development Bank and the World Bank.
10. Implementation arrangements:	The Department of Roads, Ministry of Physical Planning and Works, Kathmandu, will undertake construction. A fully staffed Project Management Office will be established in Kathmandu. Construction can be implemented by national/international contractors and supervised by national/international consultants, depending upon the funding arrangements.
11. Project status:	The feasibility study was completed in 2003.
12. Critical success factors:	Availability of funding, efficient cooperation between the donor(s) and the Government, the establishment of a capable project management team, and the timely selection of a consultant and contractors.
13. Other project-related information:	As the project has a high economic rate of return of 23.38 per cent, early implementation of the project will boost the economy of Nepal by increasing efficiency in internal and international transportation and trade.
14. Contact address:	Department of Roads, Ministry of Physical Planning and Works, Babarmahal, Kathmandu, Nepal. Tel: (977-1) 4227-657, Fax: (977-1) 4226-500; E-mail: dgdor@mos.com.np.

R. Philippines



1. Project name: Candelaria Bypass.

2. Location: Quezon province.

3. Brief outline of the project: The project road, which is about 8.50 km in length, is located in Candelaria, Quezon province, along the Pan-Philippine Highway (PPH) that forms part of the north-south backbone of the arterial road network. It is situated within the Calabarzon Growth Area.

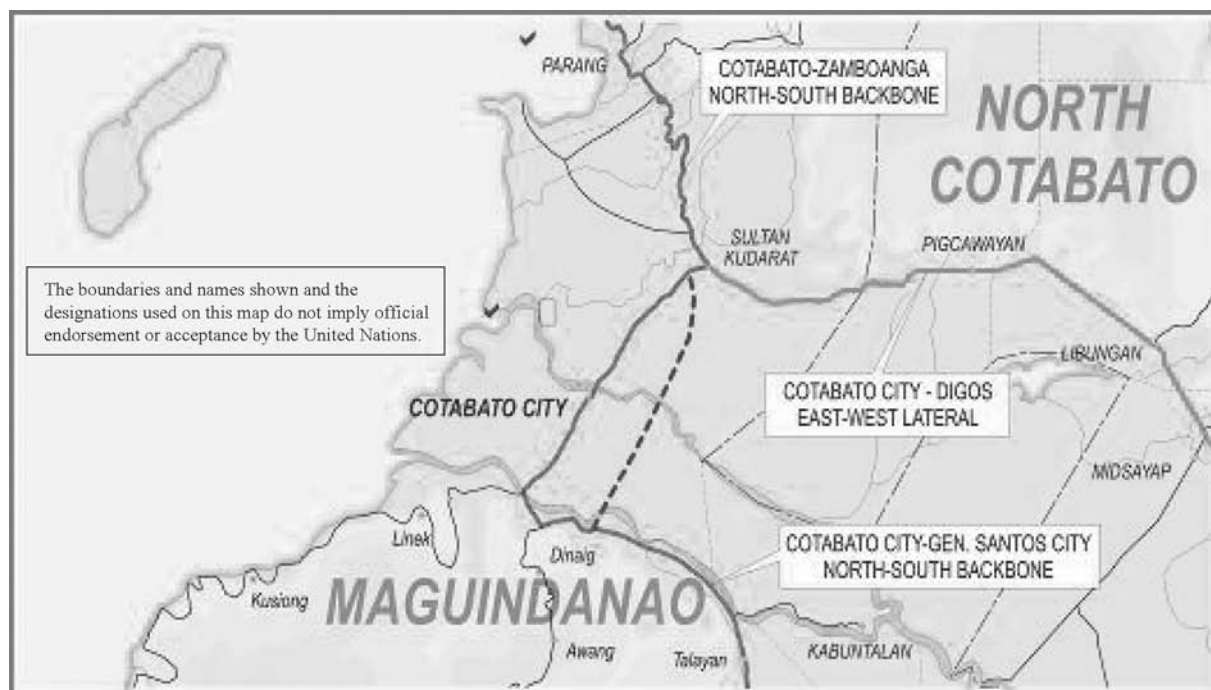
(Note: Calabarzon is the acronym for Cavite – Laguna – Batangas – Rizal – Quezon provinces.)

It is one of the trade and commercial centres of the province and is classified as a first-class municipality. The project area experienced a population growth rate of 2.74 per cent per annum from 1995 to 2000. The 2000 census recorded a population of 92,429 and an urban population of 29,300 or 31.7 per cent.

4. Rationale and objectives: The proposed project will ease current traffic congestion along the PPH in the town of Candelaria, which has heavy roadside development due to the presence of commercial, residential, recreational and social establishments. The project will support rural development and poverty alleviation, provide employment opportunities, increase incomes of farmers and promote eco-tourism in the area. The Sariaya and Tiaong Sections of the PPH have also been considered as they are close to the bypass project and are experiencing a traffic congestion problem on what could be considered for an inter-urban highway system.

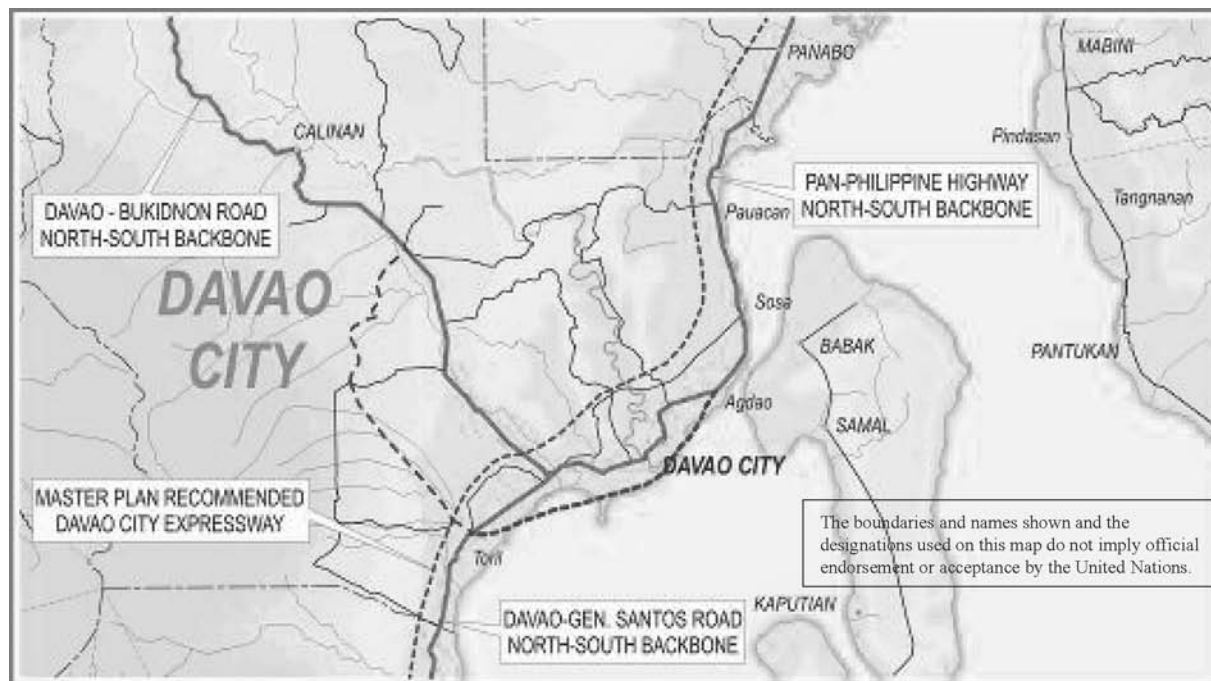
5. Scope of work: The present characteristics of the road network relevant to the proposed bypass project were a vital input to the study's economic and traffic analysis. The Candelaria Bypass, as the main road to be intersected by the project bypass, has been subjected to verification as to its technical characteristics. A 45-m proposed road right-of-way requirement has been adopted in anticipation of future road expansion and, initially, the two-lane stage of construction has been considered for project costing. The proposed pavement type is PCC on the 7-m wide roadway with 2 x 2.5 m gravel shoulders. The pavement and sub-base thickness will be 250 mm and 300 mm, respectively. The five identified river crossings will be provided by reinforced concrete deck girder (RCDG) structures. In addition, the four local roads that will intersect the bypass route will be provided with RCDG structures to ensure uninterrupted traffic flow.

6. Expected impacts and benefits:	The impact of the proposed Candelaria Bypass will not be confined to the immediate zones or the vicinity of the project; it will also be beneficial to traffic passing through the area or along the PPH. It is expected to enhance the improvement and expansion of businesses and commercial activities in the area in terms of land-use compared to the present set-up in which development is concentrated only along the main road. As such, its broad zone of influence will cover the whole of the Bicol Region and reach as far as Visayas and Mindanao.
7. Estimated cost:	US\$ 5.22 million (P 291.6 million). <i>Note:</i> Exchange rate – P 55.880 = US\$ 1.00 (as of 15 July 2005).
8. Project duration:	Three years, Programme I.
9. Proposed project financing arrangements:	Official development assistance by a donor country or organization such as the Japan International Cooperation Agency, International Bank for Reconstruction and Development, Asian Development Bank, United Nations Development Programme or other financiers. The project will be undertaken jointly by the Government of the Philippines and the donor country/organization through their respective representatives.
10. Implementation arrangements:	The Government of the Philippines, through the Department of Public Works and Highways, and the donor's representative will set up their respective Project Management Offices in order to coordinate and monitor the smooth and efficient implementation of the project.
11. Project status:	<ul style="list-style-type: none"> • The feasibility study was completed in 2003. • The detailed engineering survey, road right-of-way acquisition and related aspects were completed in 2004.
12. Critical success factors:	Availability of funds, close coordination and cooperation between the donor and the Government, an effective and capable project management team, and the timely selection of a consultant and contractors.
13. Other project-related information:	The results of the feasibility assessment showed favourable economic indicators as well as improvement in road capacity due to a significant traffic split. Therefore, the study recommended the implementation of the project, which includes the construction of nine permanent bridge structures. The proposed bypass yielded an EIRR of 94.8 per cent where the proposed South Luzon Expressway Extension up to Pagbilao, Quezon province, does not exist, and an EIRR of 59.3 per cent where the South Luzon Expressway Extension is in place.
14. Contact address:	Republic of the Philippines, Department of Public Works and Highways, Project Management Office – Feasibility Studies, DPWH, Region IV Compound, EDSA, Quezon City. Tel: (63-2) 926-5768, (63-2) 928-5658, (63-2) 9285615; Fax: (63-2) 928-5615.



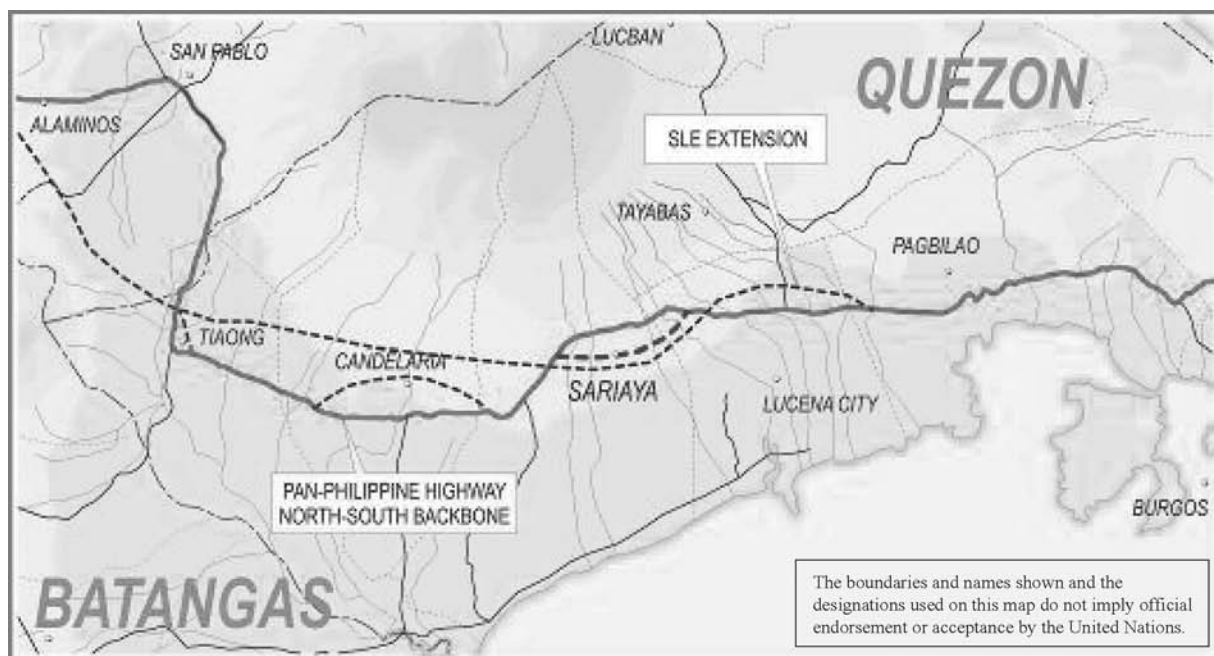
1. Project name: Cotabato City Bypass
2. Location: Cotabato City.
3. Brief outline of the project: The project comprises a bypass in Cotabato City along the Cotabato General Santos City Road and Cotabato City-Zambonga City Road, which form part of the north-south backbone of the arterial road network. Cotabato is a major city that is administered as part of Region XII, which used to form part of Maguindanao and still functions as the regional centre of the Autonomous Region for Muslim Mindanao. It is classified as a first-class city and it is situated within the Metro Cotabato Regional Agri-Industrial Growth Area. The project area experienced a population growth rate of 2.22 per cent per annum between 1995 and 2000. The 2000 census recorded 163,869 inhabitants and an urban population of 19,498 or 11.9 per cent.
4. Rationale and objectives: The proposed project will ease the traffic congestion problem being encountered within the section along the arterial road network. It will form a backbone transport axis and provide highway and waterway linkages, and will interconnect with most primary centres. In addition, it will improve access to the major regional economic, industrial and tourism centres.
5. Scope of work: The proposed project starts at km 1841 + 400 along the Marbel-Allah Cotabato Road, then passes through eight Barangays and terminates at km 1853 + 100 along the Cotabato Lanao Road. The proposed route has an approximate length of 11.8 km, of which 1 km is gravel and the rest is non-existent. The carriageway width will be 6 m. Four creek crossings with an average width of 8 m and four rivers crossings are along the proposed route.
6. Expected impacts and benefits: The project will provide new or improved access in the area and will function as a support infrastructure to complement development growth. It has also significance in terms of economic, agro-industrial and tourism activities. The benefits from the road project will be reduced transportation and road user costs. This may be in the form of new travellers, changes in marketing and travel patterns and increased agricultural and industrial production due to improved transportation services and subsequent cost reductions.

7. Estimated cost:	US\$ 7.24 million (Peso 404.7 million). <i>Note:</i> Exchange rate – P 55.880 = US\$ 1.00 (as of 15 July 2005).
8. Project duration:	Four years, Programme I.
9. Proposed project financing arrangements:	Official development assistance by a donor country or organization such as the Japan International Cooperation Agency, International Bank for Reconstruction and Development, Asian Development Bank, United Nations Development Programme or other financiers. The project will be undertaken jointly by the Government of the Philippines and the donor country/organization through their respective representatives.
10. Implementation arrangements:	The Government of the Philippines, through the Department of Public Works and Highways, and the donor's representative will set up their respective Project Management Offices in order to coordinate and monitor the smooth and efficient implementation of the project.
11. Project status:	Prefeasibility studies completed in 2001.
12. Critical success factors:	Availability of funding, close coordination and cooperation between the donor and the Government, an effective and capable project management team, and the timely selection of a consultant and contractors.
13. Other project-related information:	The result of the prefeasibility assessments showed favourable economic indicators. The recommendations also include, where necessary, the improvement and construction of permanent bridges.
14. Contact address:	Republic of the Philippines, Department of Public Works and Highways, Project Management Office – Feasibility Studies, DPWH, Region IV Compound, EDSA, Quezon City. Tel: (63-2) 926-5768, (63-2) 928-5658, (63-2) 9285615; Fax: (63-2) 928-5615.



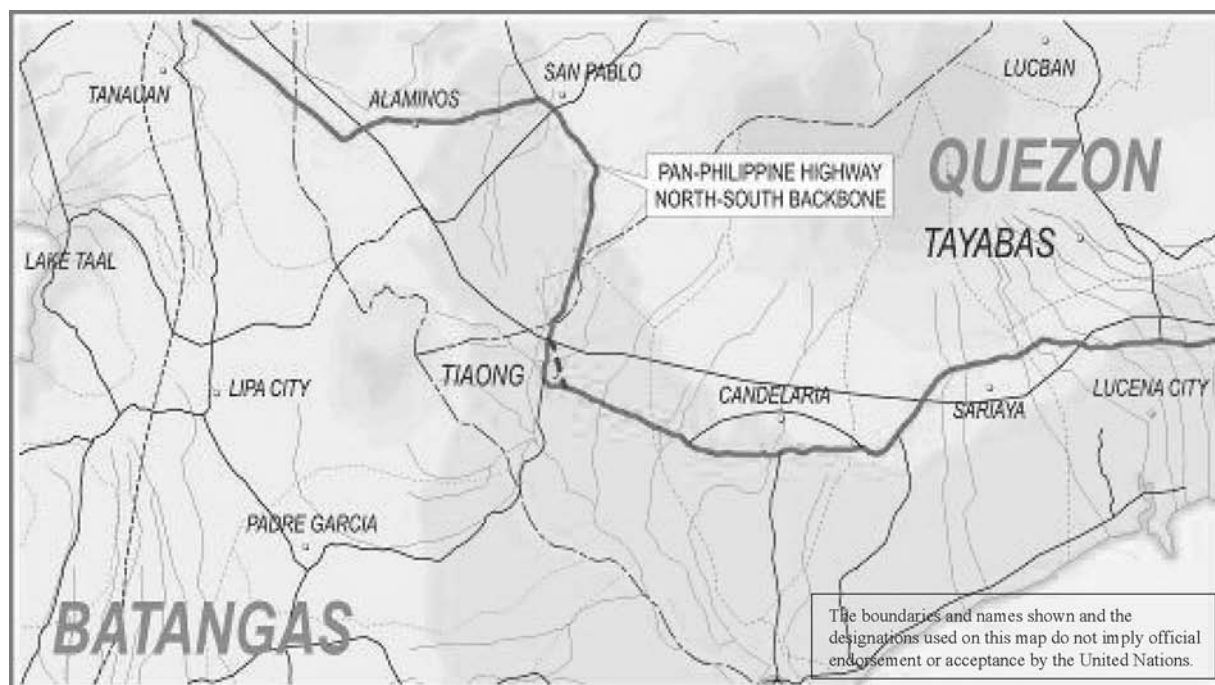
1. Project name: Davao City Coastal Road.
2. Location: Davao City.
3. Brief outline of the project: The project area is located in Davao City along the Pan-Philippine Highway (PPH), which forms part of the north-south backbone of the arterial road network. It is the regional centre for Region XI and classified as a first-class city. The project area is also within the Davao regional agro-industrial area. The project area experienced an annual population growth rate of 2.64 per cent during 1995-2000. The 2000 census recorded 1,147,116 inhabitants and an urban population of 843,130 or 73.5 per cent.
4. Rationale and objectives: The proposed road will provide highway and waterway linkages, interconnect with most primary centres as well as provide access to growth centres. The project is aimed at addressing traffic congestion within major urban centres in order to provide a more efficient transportation system.
5. Scope of work: Construction of the Davao City Express System from Digos to Tagum with an estimated total length of 10 km.
6. Expected impacts and benefits: The road will provide a higher quality of service with faster, safer and more comfortable means of transportation. It will also result in improved living and environmental conditions along the route, which will contribute to the orderly and systematic development of the roadside area. The project is also significant in terms of expected increased economic, agro-industrial and tourism activities. Accessibility will stimulate tourism investment by private sector.
7. Estimated cost: US\$ 6.16 million (Peso 343.0 million).
Note: Exchange rate – P 55.880 = US\$ 1.00 (as of 15 July 2005).
8. Project duration: Four years (2007-2010), Programme I.

9. Proposed project financing arrangements:	Official development assistance by a donor country or organization such as the Japan International Cooperation Agency, International Bank for Reconstruction and Development, Asian Development Bank, United Nations Development Programme or other financiers. The project will be undertaken jointly by the Government of the Philippines and the donor country/organization through their respective representatives.
10. Implementation arrangements:	
11. Project status:	The feasibility study has not yet been carried out.
12. Critical success factors:	Availability of funding, efficient cooperation between the donor and the Government, the establishment of a capable project management team, and the timely selection of the consultant and contractors.
13. Other project-related information:	The master plan study identified a 98.56 km Davao City Expressway System from Digos to Tagum, passing through the interior of the city. In lieu of this, the Department of Public Works and Highways Regional Office has recommended the route along the coast, the Davao City Coastal Road, which runs parallel to the PPH from Toril district to Agdao.
14. Contact address:	Republic of the Philippines, Department of Public Works and Highways, Project Management Office – Feasibility Studies, DPWH, Region IV Compound, EDSA, Quezon City. Tel: (63-2) 926-5768, (63-2) 928-5658, (63-2) 9285615; Fax: (63-2) 928-5615.



1. Project name: Sariaya Bypass.
2. Location: Quezon province.
3. Brief outline of the project: The project road, the total length of which is approximately 7.5 km, is located in Sariaya, Quezon province along the Pan-Philippine Highway (PPH), which forms part of the north-south backbone of the arterial road network. It is one of the Quezon province municipalities in Region IV-A or Southern Tagalog Region and is classified as a first-class city. It is also situated within the Calabarzon Growth Area
(Note: Calabarzon is the acronym for Cavite – Laguna – Batangas – Rizal – Quezon provinces).
4. Rationale and objectives: The project is expected to ease current traffic congestion along the PPH in the town proper of Sariaya. Heavy roadside development exists due to the presence of commercial, residential, recreational and social establishments. The project will support rural development, increase the incomes of farmers and promote eco-tourism of the area, thus contributing to poverty alleviation and the generation of employment opportunities.
5. Scope of work: The proposed project is a bypass road in the municipal centre of Sariaya along the PPH. A 45-m road right-of-way requirement has been adopted in anticipation of future road expansion. Initially, two-lane construction has been considered for project costing. The proposed pavement type is plain cement concrete on the 7-m wide roadway with 2 x 2.5m gravel shoulders. The pavement type and sub-base thickness will be 250 mm and 300 mm, respectively. At least seven river/creek crossings have been identified; the bridges will be constructed using reinforced concrete deck girder structures to cater for uninterrupted traffic flow.
6. Expected impacts and benefits: The impact of the opening of the proposed Sariaya Bypass will not be confined to the immediate zones along the route or the vicinity of the project. Benefits will also accrue to traffic passing through the area or along the PPH. The project is expected to enhance the improvement and expansion of business and commercial activities in the area in terms of land use compared to the present situation in which development has concentrated only along main road. As such, the project's zone of influence will cover the whole of the Bicol Region and reach as far as Visayas and Mindanao.

7. Estimated cost: US\$ 4.61 million (P 257.2 million).
<i>Note:</i> Exchange rate – P 55.880 = US\$ 1.00 (as of 15 July 2005).
8. Project duration: Three years (2008 to 2010), Programme I.
9. Proposed project financing arrangements: Official development assistance by a donor country or organization such as the Japan International Cooperation Agency, International Bank for Reconstruction and Development, Asian Development Bank, United Nations Development Programme or other financiers. The project will be undertaken jointly by the Government of the Philippines and the donor country/organization through their respective representatives.
10. Implementation arrangements: The Government of the Philippines, through the Department of Public Works and Highways, and the donor's representative will set up their respective Project Management Offices in order to coordinate and monitor the smooth and efficient implementation of the project.
11. Project status: The feasibility study was completed in 2003.
12. Critical success factors: Availability of funds, close coordination and cooperation between the donor and the Government; an effective and capable project management team; and the timely selection of the consultant and contractors.
13. Other project-related information: The results of the feasibility assessment show favourable economic indicators as well as improvement in road capacity due to significant traffic diversion. As such, the study recommends the implementation of the project, including the reconstruction of all temporary and/or dilapidated bridges as permanent bridges (RCDG Type). The proposed bypass yields an EIRR of 102.9 per cent.
14. Contact address: Republic of the Philippines, Department of Public Works and Highways, Project Management Office – Feasibility Studies, DPWH, Region IV Compound, EDSA, Quezon City. Tel: (63-2) 926-5768, (63-2) 928-5658, (63-2) 9285615; Fax: (63-2) 928-5615.



1. Project name: Tiaong Bypass.
2. Location: Quezon.
3. Brief outline of the project: The project area is located in Tiaong along the Pan-Philippine Highway (PPH), which forms part of the north-south backbone of the arterial road network. It is the gateway and trade and commerce centre in Quezon province for Region IV or the Southern Tagalog Region and is classified as a second-class municipality. It is situated within the Calabarzon Growth Area.
(Note: Calabarzon is the acronym for Cavite – Laguna – Batangas – Rizal – Quezon provinces.)
The project area experienced a population growth rate of 2.30 per cent per annum between 1995 and 2000. The 2000 census recorded 75,498 inhabitants and an urban population of 16,534 or 21.9 per cent.
4. Rationale and objectives: The proposed project is expected to ease current traffic congestion along the PPH in the town proper of Tiaong. The construction of the above bypass is aimed at restoring the function of the PPH as mainly an arterial road and with the co-function of an urban road to the existing route. The project will support rural development and poverty alleviation, provide employment opportunities, increase incomes of farmers and promote eco-tourism in the area.
5. Scope of work: This road section starts at the proposed Tiaong Diversion Road in Barangay Lalg passing through Tiaong town proper and terminate at the end of the proposed Tiaong Diversion Road (Junction PPH) in Barangay Laniogan. The section is in fair condition and has a total length of 3.80 km. It consists of PCC pavement with AC overlay on some stretches. It is 6.7-m wide with shoulders ranging from 1 m to 3 m.
The 15-m Lalg Bridge, a reinforced concrete deck bridge that is situated along this road section, is in fair condition. It has a carriageway width of 7.4 m and a posted capacity of 15 tons.
6. Expected impacts and benefits: The proposed bypass project will enhance the improvement and expansion of business and commercial activities in the area in terms of land use compared to the present set-up in which development converges and concentrates only along the main road. It will be more beneficial to the traffic passing through the area along the PPH. As such, its broad zone of influence will cover the whole of the Bicol Region and reach as far as Visayas and Mindanao.

7. Estimated cost:	US\$ 1.8 million (P 102.9 million). <i>Note:</i> Exchange rate – P 55.880 = US\$ 1.00 (as of 15 July 2005).
8. Project duration:	Two years.
9. Proposed project financing arrangements:	Official development assistance by a donor country or organization such as the Japan International Cooperation Agency, International Bank for Reconstruction and Development, Asian Development Bank, United Nations Development Programme or other financiers. The project will be undertaken jointly by the Government of the Philippines and the donor country/organization through their respective representatives.
10. Implementation arrangements:	The Government of the Philippines, through the Department of Public Works and Highways, and the donor's representative will set up their respective Project Management Offices in order to coordinate and monitor the smooth and efficient implementation of the project.
11. Project status:	The feasibility study was completed in July 2003.
12. Critical success factors:	Close coordination and cooperation between the donor and the Government, an effective and capable project management team, the timely selection of a consultant and contractors, and availability of funds.
13. Other project-related information:	The proposed bypass can be considered as an inter-urban system considering its proximity and the traffic congestion in the area.
14. Contact address:	Republic of the Philippines, Department of Public Works and Highways, Project Management Office – Feasibility Studies, DPWH, Region IV Compound, EDSA, Quezon City. Tel: (63-2) 926-5768, (63-2) 928-5658, (63-2) 9285615; Fax: (63-2) 928-5615.

S. Sri Lanka

1. Project name:	Upgrading the Thalaimannar – Medawachchiya Road (AH43) to Asian Highway Standards.
2. Location:	North and North Central provinces of Sri Lanka.
3. Brief outline of the project:	Medawachchiya – Mannar – Thalaimannar Road (MMT Road) is a National Highway (A0014). It is 113.84 km in length and includes a 3.6-km causeway and 125-m bridge that connects Thalaimannar Island to the mainland.
4. Rationale and objectives:	Specifically this road will provide the access to other Asian countries through a land bridge or some other means. International transportation of passengers and goods via land routes will improve efficiency of movement. In general, once upgraded, this road will provide better access to Thalaimannar island together with improved mobility. The main objective is to facilitate efficient, economical and safe mode of transport between the Asian countries.
5. Scope of work:	<ul style="list-style-type: none"> Upgrading the entire road from Medawachchiya to Thalaimannar, including all structures except the Mannar Bridge Reconstruction of the causeway or construction of bridges to replace the causeway Reconstruction of Mannar Bridge (Bridge No. 85/1 on the MMT Road).
6. Expected impacts and benefits:	Improved mobility and economic activities between Sri Lanka and the rest of Asia.
7. Estimated cost:	US\$ 150 million.
8. Project duration:	Approximately four years.
9. Proposed project financing arrangements:	Funds not available.
10. Implementation arrangements:	Project has not yet formulated.
11. Project status:	
12. Critical success factors:	Availability of funds.
13. Other project-related information:	An application for funding has been forwarded to the Japan International Cooperation Agency for the reconstruction of Bridge No. 85/1 on MMT road.
14. Contact address:	Secretary, Ministry of Highways, Ninth Floor, Sethsiripaya, Battaramulla, Sri Lanka.

T. Tajikistan

1. Project name:	AH7, Rehabilitation and Upgrading of the Dushanbe – Khujand and Korog – border with Kyrgyzstan sections.
2. Location:	The Khujand – Dushanbe section is the main road linking the capital, Dushanbe with Khujand city and the onward connection to Uzbekistan via Chavast. The Korog – border with Kyrgyzstan (Sary Tash) section provides a link to Kyrgyzstan in addition to AH65 (Dushanbe – Garm – Jirgatal – Tursunzade).
3. Brief outline of the project:	<p>The Asian Highway routes AH7, AH65 and AH66 connect Dushanbe with Uzbekistan, Afghanistan, Kyrgyzstan and China. They are important transport corridors in Tajikistan.</p> <p>The total length of the two sections is 708 km. The Khujand – Dushanbe section is 258 km and the Korog – border with Kyrgyzstan section is 450 km.</p> <p>The Government of Tajikistan is giving priority to the rehabilitation of all Asian Highway corridors in Tajikistan. When improved, these corridors will also develop transit transportation through Tajikistan by neighbouring Central Asian countries.</p> <p>The Government recently completed the rehabilitation of the AH7 Dushanbe – Dusti section. The Asian Development Bank is providing support for the rehabilitation of roads in various phases, Japan is funding the rehabilitation of the Kurgan Tube – Nizhiny Panj section, and the United States of America is providing support for construction of a bridge over the Amou River on the border between Tajikistan and Afghanistan.</p> <p>Additional financial resources are required to complete the modernization of the Tajikistan road network. The Government is seeking additional financing from international and bilateral institutions and private sector investors.</p>
4. Rationale and objectives:	The rehabilitation and upgrading of the Asian Highway and other roads in Tajikistan will enhance the efficiency of domestic transportation provide transit transportation opportunities. The development of the road infrastructure will directly contribute to economic development and poverty alleviation by creating employment opportunities. The proposed improvement will provide safe and permanent transport link from Gorno-Badakhshan Autonomous Region, China and South Asian countries to the capital and central part of Tajikistan.
5. Scope of work:	Rehabilitation and upgrading of AH7 Khujand – Dushanbe and Korog – border with Kyrgyzstan sections to international standards.
6. Expected impacts and benefits:	The projects will provide benefits to the population of Tajikistan, improve transportation and mobility within Tajikistan, reduce transport costs and travel times, create employment opportunities and contribute towards poverty alleviation by increasing household income.
7. Estimated cost:	US\$ 90 million (US\$ 23 million for Khujand – Dushanbe and US\$ 67 million for Korog-Sary Tash).
8. Project duration:	Three to four years.

9. Proposed project financing arrangements:	The World Bank, Asian Development Bank or other international and bilateral financing organizations.
10. Implementation arrangements:	The Ministry of Transport of Tajikistan will be the implementing agency. Project implementation arrangements will be established as required.
11. Project status:	Rehabilitation and feasibility studies of some sections of the road are ongoing. It is planned to modernize and rehabilitate all Asian Highway corridors in Tajikistan in order to facilitate and improve efficiency of internal as well as international transportation.
12. Critical success factors:	Availability of financing, efficient cooperation between donors and the Government, the timely selection of consultants and contractors, and the establishment of a project management office.
13. Other project-related information:	Implementation of the projects will enhance domestic transportation as well as transit transportation from Tajikistan to neighbouring countries.
14. Contact address:	Ministry of Transport, 14 Ayni Street, Dushanbe, Tajikistan. Fax: (992-372) 212 003.

1. Project name:	AH66, Dushanbe – Dangara – Kulyab – Kalaikhumb – Kulma highway.
2. Location:	The Dushanbe – Kulyab – Kalaikhumb – Kulma highway is the main road linking the capital, Dushanbe with the Pamirs and onward connection to Afghanistan and China.
3. Brief outline of the project:	<p>The Asian Highway route AH66 connects capital Dushanbe with Afghanistan and China. This is one of important transport corridor in Tajikistan.</p> <p>The total length of above road is about 290 km. The Dushanbe-Dangara section is 120 km, Skev-Zigar section is 38 km, Shagon-Zigar section is 35 km and other section of the highway is 100 km.</p> <p>The Government of Tajikistan is giving priority to the rehabilitation of all Asian Highway corridors in Tajikistan. When improved, this AH66 corridor will also develop transit transportation through Tajikistan by its neighbouring Central Asian countries.</p> <p>Additional financial resources are required to complete the modernization of the Tajikistan road network. Government of Tajikistan is seeking additional financing from international and bilateral institutions and private sector investors.</p>
4. Rationale and objectives:	The rehabilitation and upgrading of the Asian Highways and roads in Tajikistan will enhance the efficiency of domestic transportation and provide transit transportation opportunities. The development of road infrastructure will directly contribute to economic development and poverty alleviation by creating employment opportunities. The proposed improvements of the highway will provide uninterrupted transportation from the Gorno-Badakhshan Autonomous Region, China and other neighbouring countries to the capital and central part of Tajikistan.
5. Scope of work:	It is proposed to rehabilitate and upgrade the above road to the international standards.
6. Expected impacts and benefits:	The project will greatly enhance domestic transportation and transit transportation from Tajikistan to neighbouring countries. The improvement of entire highway will provide uninterrupted connectivity between eastern and western parts of the country and enhance local economy through creation of tourism opportunities and other business. The project will provide benefit to the people of Tajikistan, improve transportation and mobility within Tajikistan, reduce transport costs and travel times. The implementation of project will create employment opportunities and contribute towards poverty alleviation by increasing household income.
7. Estimated cost:	US\$ 131 million.
8. Project duration:	Five to six years.
9. Proposed project financing arrangements:	World Bank, Asian Development Bank or other international and bilateral financing organizations.
10. Implementation arrangements:	Ministry of Transport of Tajikistan will be the implementing agency. Project implementation arrangements will be established as required.
11. Project status:	Rehabilitation of some sections of the road section is ongoing. It is proposed to modernize and rehabilitate all Asian Highway corridors in Tajikistan to facilitate and improve efficiency of internal as well as international transport.
12. Critical success factors:	Availability of financing, efficient cooperation of donors and government, timely selection of consultants and contractors, establishment of project management office.
13. Other project-related information:	The implementation of projects will enhance domestic transportation and transit transportation from Tajikistan to neighbouring countries.
14. Contact address:	Ministry of Transport, 14 Ayni Street, Dushanbe, Tajikistan. Fax: (992-372) 212003.

U. Turkey

1. Project name:	AH5, Gerede – Merzifon State Road Project.
2. Location:	Gerede – Merzifon State Road located in the North Anatolian region of Turkey.
3. Brief outline of the project:	<p>The international road network in Turkey serves as the main national network for inland transportation. In Turkey, the project is along the route designated as AH5 in the Asian Highway network, stretching from Turkey, via Georgia, Azerbaijan and Turkmenistan, up to Kazakhstan and China. It substantially crosses more than one subregion.</p> <p>The Gerede – Merzifon State Road is a part of the main national and international road network of Turkey. The road connects the Caucasus and Asia to Europe via the border with Bulgaria. To date, no multi-lane construction work has been carried out on this 300-km road. Therefore, in order to provide a seamless road transportation infrastructure, construction of the Gerede – Merzifon State Road as a dual carriageway is crucial.</p> <p>The project has also been proposed for the Transport Infrastructure Needs Assessment (TINA) Programme implemented by the European Union for candidate countries. The objective of TINA is to assist such countries to easily integrate into the Trans European Road Network as well as determine the routes and infrastructure needs of those routes that will become part of the Trans European Road Network in the future.</p>
4. Rationale and objectives:	<ul style="list-style-type: none"> • With the advent of globalization, more efficient and effective international road transportation corridors are urgently needed. International transport corridors, which are essential to the existence of modern and sustainable transportation networks, also provide tremendous contributions to socio-economic development in the regions concerned. • The Gerede – Merzifon State Road Project is located in the area that is easily accessed both from Anatolia and from the Black Sea region. • The project is on the main international route of not only the Asian Highway route but also the Trans European Road Network. On completion, the project will also meet increasing local and international travel demands efficiently and effectively. <p>The project will provide better international connections with the international routes located in the Black Sea region, the Caucasus and North, Central and South-West Asia. The main objective is to provide road users with infrastructure quality and safety that meets international standards along international routes in Turkish territory.</p>
5. Scope of work:	The Gerede – Merzifon State Road Project comprises the transformation of 300 km of a two-lane road into four-lane highway paved with asphalt concrete.
6. Expected impacts and benefits:	<ul style="list-style-type: none"> • The improved quality of the international road infrastructure and provision of better road transportation for all road users will encourage an increase in the volume of passenger and goods traffic. • Reductions in travel times, vehicle operation costs and accidents. • A major contribution to facilitating social and economic activities in the region.
7. Estimated cost:	US\$ 350 million.
8. Contact address:	General Directorate of Highways, Ministry of Public Works and Settlement, Karayollari Genel Muduriugu, 06100 Yucetepe, Ankara, Turkey. Tel: (90-312) 415 7000, Fax: (90-312) 417 2851, 425 4738.

V. Viet Nam

1. Project name:	AH14, Hanoi – Hai Phong Expressway.
2. Location:	Hanoi City to Hai Phong city.
3. Brief outline of the project:	Construction of a new expressway from Hanoi to Hai Phong.
4. Rationale and objectives:	Development of expressway network, completion of the Kunming – Hai Phong corridor in order to facilitate transportation, trade and tourism in the Greater Mekong Subregion (GMS).
5. Scope of work:	Construction of 100 km with four-six lanes.
6. Expected impacts and benefits:	Improved transportation, trade and tourism in Viet Nam and the GMS.
7. Estimated cost:	US\$ 410 million.
8. Project duration:	2008-2011.
9. Proposed project financing arrangements:	Public-private partnership.
10. Implementation arrangements:	Ministry of Transport, Viet Nam.
11. Project status:	Project proposal.
12. Critical success factors:	Availability of funds.
13. Other project-related information:	
14. Contact address:	Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 9424-260; Fax: (84-4) 942-3291.

1. Project name:	AH16, Da Nang – Quang Ngai Expressway.
2. Location:	Da Nang city and Quang Ngai province.
3. Brief outline of the project:	Construction of a new expressway from Da Nang to Quang Ngai.
4. Rationale and objectives:	Development of an expressway network, completion of the north-south expressway in order to facilitate transportation, trade and tourism in Viet Nam and the Greater Mekong Subregion (GMS).
5. Scope of work:	Construction of a 140-km highway with four lanes.
6. Expected impacts and benefits:	Improved transportation, trade and tourism in Viet Nam and the GMS.
7. Estimated cost:	US\$ 700 million.
8. Project duration:	2009-2012.
9. Proposed project financing arrangements:	Public-private partnership.
10. Implementation arrangements:	Ministry of Transport, Viet Nam.
11. Project status:	Project proposal.
12. Critical success factors:	Availability of funds.
13. Other project-related information:	
14. Contact address:	Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 942-4260; Fax: (84-4) 942-3291.

1. Project name:	AH1, Bien Hoa – Vung Tau Expressway.
2. Location:	Dong Nai and Vung Tau Province.
3. Brief outline of the project:	Construction of a new expressway from Bien Hoa to Vung Tau.
4. Rationale and objectives:	Development of an expressway network, completion of the north-south expressway in order to facilitate transportation, trade and tourism in Viet Nam and the Greater Mekong Subregion (GMS).
5. Scope of work:	Construction of a 90-km highway with four to six lanes.
6. Expected impacts and benefits:	Improved transportation, trade and tourism in Viet Nam and the GMS.
7. Estimated cost:	US\$ 600 million.
8. Project duration:	2007-2010.
9. Proposed project financing arrangements:	Public-private partnership.
10. Implementation arrangements:	Ministry of Transport, Viet Nam.
11. Project status:	Project proposal.
12. Critical success factors:	Availability of funds.
13. Other project-related information:	
14. Contact address:	Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 942-4260; Fax: (84-4) 942-3291.

1. Project name:	AH1, Sai Gon – Long Thanh – Dau Day Expressway.
2. Location:	Ho Chi Minh City and Lam Dong province.
3. Brief outline of the project:	Construction of a new expressway from Bien Hoa to Vung Tau.
4. Rationale and objectives:	Development of an expressway network, completion of the north-south expressway in order to facilitate transport, trade and tourism in Viet Nam and the Greater Mekong Subregion (GMS).
5. Scope of work:	Construction of a 55-km highway with four to six lanes.
6. Expected impacts and benefits:	Improving transportation, trade and tourism in Viet Nam and the GMS.
7. Estimated cost:	US\$ 350 million.
8. Project duration:	2009-2012.
9. Proposed project financing arrangements:	Public-private partnership.
10. Implementation arrangements:	Ministry of Transport, Viet Nam.
11. Project status:	Project proposal.
12. Critical success factors:	Availability of funds.
13. Other project-related information:	
14. Contact address:	Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 942-4260; Fax: (84-4) 942-3291.

1. Project name:	AH14, Ha Noi – Lao Cai Expressway.
2. Location:	Ha Noi City and Lao Cai Province.
3. Brief outline of the project:	Construction of a new expressway from Ha Noi to Lao Cai.
4. Rationale and objectives:	Development of an expressway network, completion of the Kunming – Hai Phong corridor in order to facilitate transportation, trade and tourism in Viet Nam and the Greater Mekong Subregion (GMS).
5. Scope of works:	Construction of a 290-km highway with four to six lanes.
6. Expected impacts and benefits:	Improved transportation, trade and tourism in Viet Nam and the GMS.
7. Estimated cost:	US\$ 600 million.
8. Project duration:	2007-2011.
9. Proposed project financing arrangements:	Loans from the Asian Development Bank and other financial institutions.
10. Implementation arrangements:	Ministry of Transport, Viet Nam.
11. Project status:	Project preparation.
12. Critical success factors:	Availability of funds.
13. Other project-related information:	
14. Contact address:	Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 942-4260; Fax: (84-4) 942-3291.

1. Project name:	AH1/AH14, Hanoi Ring Road.
2. Location:	Hanoi City.
3. Brief outline of the project:	Construction of a new ring road.
4. Rationale and objectives:	Development of an expressway network, completion of the north-south expressway in order to facilitate transportation, trade and tourism in Viet Nam and the Greater Mekong Subregion (GMS).
5. Scope of work:	Construction of a 65-km road with four to six lanes and a new Thanh Tri Bridge.
6. Expected impacts and benefits:	Improved transportation, trade and tourism in Viet Nam and the GMS.
7. Estimated cost:	US\$ 600 million.
8. Project duration:	2004-2008.
9. Proposed project financing arrangements:	Public-private partnership and official development assistance.
10. Implementation arrangements:	Ministry of Transport, Viet Nam.
11. Project status:	Part of the project is being implemented.
12. Critical success factors:	Availability of funds.
13. Other project-related information:	
14. Contact address:	Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 942-4260; Fax: (84-4) 942-3291.

1. Project name: Van Phong Transshipment Hub port.
2. Location: Khanh Hoa province.
3. Brief outline of the project: Construction of a new transshipment hub port.
4. Rationale and objectives: Development of international transshipments.
5. Scope of work: Construction of a new transshipment hub port (two terminals, 500,000 TEU/year).
6. Expected impacts and benefits: Improved international transshipments for Viet Nam and the Greater Mekong Subregion (GMS).
7. Estimated cost: US\$ 200 million.
8. Project duration: 2008-2011.
9. Proposed project financing arrangements: Public-private partnership.
10. Implementation arrangements: Ministry of Transport, Viet Nam
11. Project status: Project proposal.
12. Critical success factors: Availability of funds.
13. Other project-related information:
14. Contact address: Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 942-4260; Fax: (84-4) 942-3291.

1. Project name: Vinh – Cau Treo Road Rehabilitation.
2. Location: Nghe An province.
3. Brief outline of the project: Improving the road from Vinh to Cau Treo (border with the Lao People's Democratic Republic).
4. Rationale and objectives: Facilitating transportation, trade and tourism in Viet Nam and the Lao People's Democratic Republic.
5. Scope of works: Upgrading of an 85-km road to Class III.
6. Expected impacts and benefits: Improved transportation trade and tourism in Viet Nam and the Lao People's Democratic Republic.
7. Estimated cost: U\$ 44 million.
8. Project duration: 2008-2011.
9. Proposed project financing arrangements: Public.
10. Implementation arrangements: Ministry of Transport, Viet Nam.
11. Project status: Project proposal.
12. Critical success factors: Availability of funds.
13. Other project-related information:
14. Contact address: Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 942-4260; Fax: (84-4) 942-3291.

1. Project name:	Rehabilitation of the Soai Rap Access Channel in Ho Chi Minh City.
2. Location:	Ho Chi Minh City.
3. Brief outline of the project:	Improvement of the Soai Rap access channel.
4. Rationale and objectives:	Facilitating transport, trade, tourism in Viet Nam and the Greater Mekong Subregion (GMS) by inland waterway.
5. Scope of works:	Dredging, training of channels (30km) for ships up to 30,000 DWT.
6. Expected impacts and benefits:	Development of transportation, trade and tourism in Viet Nam and the GMS via inland waterways.
7. Estimated cost:	US\$ 120 million.
8. Project duration:	2008-2011.
9. Proposed project financing arrangements:	Public-private partnership.
10. Implementation arrangements:	Ministry of Transport, Viet Nam.
11. Project status:	
12. Critical success factors:	Availability of funds.
13. Other project-related information:	
14. Contact address:	Ministry of Transport, 80 Tran Hung Dao Street, Hanoi, Viet Nam. Tel: (84-4) 942-4260; Fax: (84-4) 942-3291.



United Nations
ESCAP

United Nations
Economic and Social Commission for Asia and the Pacific
Transport and Tourism Division
United Nations Building, Rajadamnern Nok Avenue
Bangkok 10200, Thailand
Fax: (66 2) 288-3050
E-mail: escap-ttd@un.org
escap-publicationsoffice@un.org
Website: <http://www.unescap.org/>