RESTRICTED
TAR:CAM 26247

ASIAN DEVELOPMENT BANK

TECHNICAL ASSISTANCE

TO

CAMBODIA

FOR A

TRANSPORT REHABILITATION STUDY
(Financed by UNDP and SIDA)

March 1993

: Mr. P. Daries, Infrastructure Department

For Enquiries

CURRENCY EQUIVALENTS

(as of 30 November 1992)

Currency Unit	=	Riel (R)
R 1	=	$0.0005
$1	=	R 2,000

(a) The foreign exchange rate of the riel is determined on the basis of a floating rate system related to the daily foreign currency transactions in Phnom Penh.

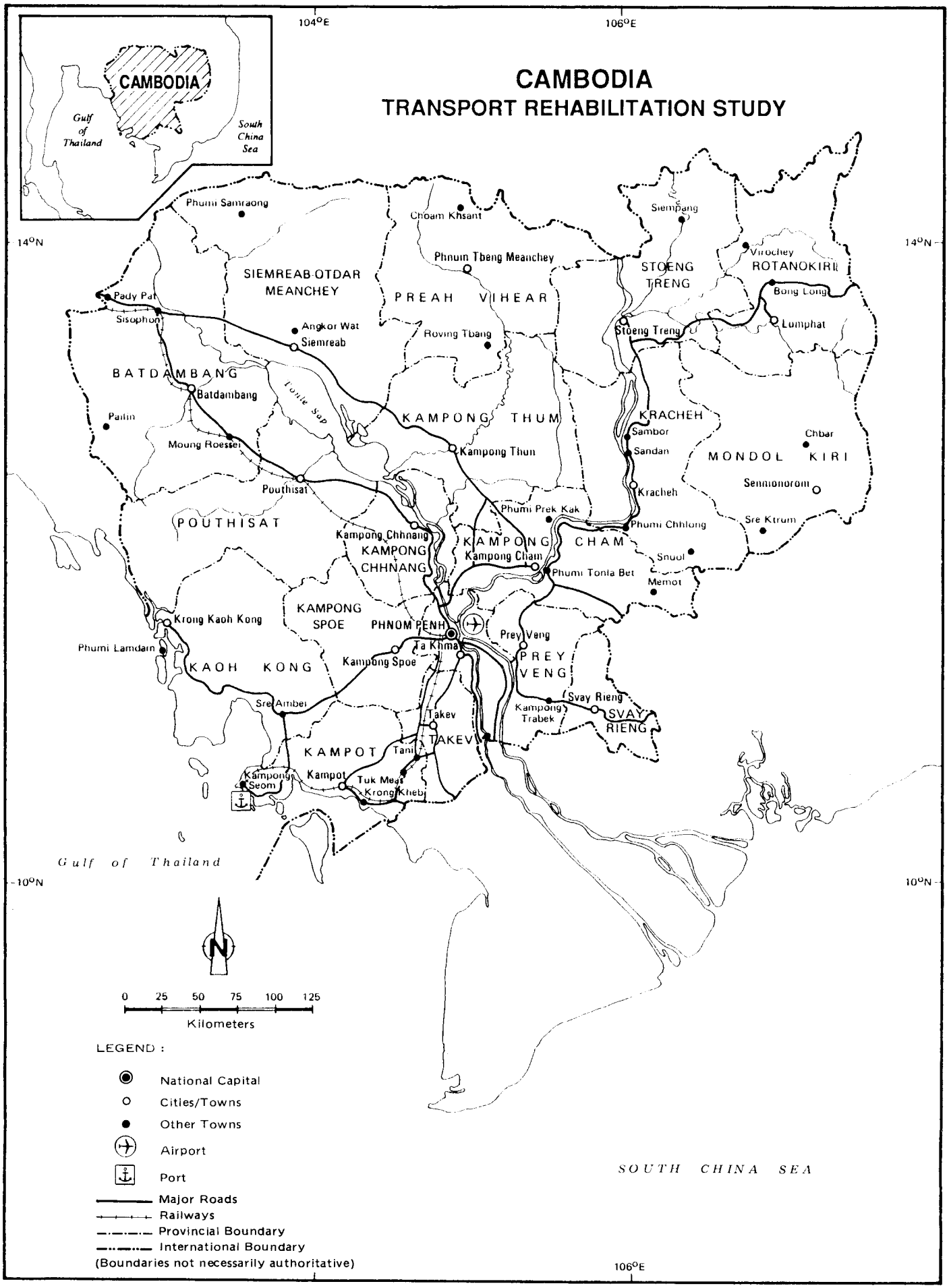
(b) For purposes of calculation in this Report, a rate of $1.00 = R 2,000 has been used.

ABBREVIATIONS

ICAO	-	International Civil Aviation Organization
MCPT	-	Ministry of Communications, Transport and Posts
NGO	-	Non-Governmental Organization
SNC	-	Supreme National Council of Cambodia
SIDA	-	Swedish Development Authority
UN	-	United Nations
UNDP	-	United Nations Development Programme
UNTAC	-	United Nations Transitional Authority in Cambodia
USAID	-	United States Agency for International Development

NOTES

(i) The fiscal year ends on 31 December.
(ii) In this Report, "$" refers to US dollars.


CAMBODIA
Gulf of Thailand
South China Sea
104°E
106°E
14°N
10°N
CAMBODIA
TRANSPORT REHABILITATION STUDY
Phumi Samraong
Choam Khsant
Siempang
Virochey
ROTANOKIRI
Phnum Tbeng Meanchey
SIEMREAB-OTDAR MEANCHEY
PREAH VIHEAR
STOENG TRENG
Bong Long
Lumphat
Pady Pat
Sisophon
Angkor Wat
Siemreab
Roving Tbang
Stoeng Treng
BATDAMBANG
Batdambang
Tonle Sap
KAMPONG THUM
KRACHEH
Sambor
Chbar
Pailin
Moung Roessei
Kampong Thun
Sandan
MONDOL KIRI
Pouthisat
Kracheh
Senmonorom
POUTHISAT
Phumi Prek Kak
Phumi Chhlong
Sre Ktrum
Kampong Chhnang
KAMPONG CHHNANG
KAMPONG CHAM
Kampong Cham
Snuol
Phumi Tonla Bet
Memot
KAMPONG SPOE
Krong Kaoh Kong
PHNOM PENH
Prey Veng
Phumi Lamdam
Ta Khma
PREY VENG
KAOH KONG
Kampong Spoe
Svay Rieng
Kampong Trabek
SVAY RIENG
Sre Ambel
Takev
TAKEV
KAMPOT
Tani
Kampong Seom
Kampot
Tuk Meas
Krong Kheb
Gulf of Thailand
SOUTH CHINA SEA
N
0 25 50 75 100 125
Kilometers
LEGEND :
National Capital
Cities/Towns
Other Towns
Airport
Port
Major Roads
Railways
Provincial Boundary
International Boundary
(Boundaries not necessarily authoritative)

I. INTRODUCTION

1. One of the agreements signed on 23 October 1991 at the conclusion of the Paris Conference on Cambodia (the Paris Accord) urges "the international community to provide economic and financial support for the rehabilitation and reconstruction of Cambodia".1/ The Paris Accord also states that "with the achievement of the comprehensive political settlement, it is now possible and desirable to initiate a process of rehabilitation, addressing immediate needs, and to lay the groundwork for the preparation of medium- and long-term reconstruction plans".2/ Recognizing that the availability of essential transport infrastructure facilities is a prerequisite to fulfilling these tasks, the technical assistance (TA) described herein was developed by the Bank together with the United Nations Development Programme (UNDP) and Cambodian authorities.

2. A Country Consultation Mission that visited Cambodia from 24 November to 11 December 1991 was requested by Cambodian authorities to provide TA in grant form to help finance, together with UNDP and the Swedish Development Authority (SIDA), a Transport Rehabilitation Study (the Study). Details regarding scope of work and implementation arrangements were outlined in consultation with the UNDP Resident Representative's office in Phnom Penh in the course of subsequent meetings in February and May 1992. On 20 March 1992, the Supreme National Council of Cambodia made an official request for the TA. Subsequently, the United Nations Transitional Authority in Cambodia (UNTAC), which, among other responsibilities, will coordinate aid during the transitional period, endorsed the proposed TA. The TA first appeared in ADB Business Opportunities in May 1992.

II. BACKGROUND

A. Overview of Economic Situation 3/

3. Despite Cambodia's relative isolation and the hostilities along its borders, as well as the lack of any substantial development inputs, significant progress has been made in the efforts to rebuild the country. Health and education services have been restored. A functioning civil service is in place. Rice production is nearing self-sufficiency. Moreover, wide-ranging economic policy reforms have been instituted since 1985 to transform the economic system from a centrally planned to a market-oriented economy. The prices of most goods and services have been decontrolled. Foreign trade has been liberalized. Private property rights have been restored. The entry of 100 per cent foreign-owned companies has been allowed. Many state enterprises have been privatized.4/ These reforms have had a favorable impact on the economy, with Cambodia's net material product being estimated to have grown by about 6.5 per cent per annum from 1985 to 1989.

1/ Article 24, Agreement on a Comprehensive Political Settlement of the Cambodia Conflict.

2/ Para. 8, Declaration on the Rehabilitation and Reconstruction of Cambodia.

3/ See the Bank's Economic Report on Cambodia, December 1991 (ERC: CAM 91028), for a more detailed discussion of recent economic developments in Cambodia.

4/ Privatization, however, has mainly taken the form of leasing rather than the outright sale of state enterprises to the private sector. Moreover, privatization has been pursued largely on an ad hoc basis, without any clear guidelines and procedures.

4. Cambodia nevertheless remains a poor country, with one of the lowest per capita gross domestic products in the world. The country's human, institutional and physical infrastructure require substantial strengthening. Productive capacity in both agriculture and industry has not yet been restored to the level of the 1960s. The financial system remains underdeveloped. Growing macroeconomic instability is threatening the program of economic reform, with the inflation rate accelerating from less than 10 per cent per annum before 1988 to an estimated 50 per cent in 1989 and 100-150 per cent per annum in 1990 and 1991. Only one fourth to one third of the country's imports can be financed by exports. Following the termination of aid from the former Soviet Union, Cambodia is facing serious shortages of inputs, particularly fuel and fertilizer. The situation was exacerbated by the extensive flooding in the country in September-October 1991, which adversely affected agricultural production and damaged vital infrastructure. No firm estimates are available, but economic growth in 1990 and 1991 is widely believed to have fallen significantly from that in the preceding five years. As with all other economic and social sectors, Cambodia's transportation sector suffers from serious neglect and a lack of trained or experienced personnel. Planning and training, in particular, are urgently required.

B. The Transport Sector

1. Roads

5. The road network consists of about 3,000 kilometers (kms) of national roads, 3,100 km of provincial roads and 28,000 km of local or tertiary roads. Most of the roads have received little or no maintenance over the past 20 years and as a result have seriously deteriorated. It is estimated that more than 50 per cent of the primary road network urgently requires repair, rehabilitation or other strengthening. The situation has been further aggravated by the August 1991 floods which affected many parts of the country. Most roads are unsuited for heavy vehicles and large traffic volumes. Secondary and tertiary roads are frequently flooded in the wet season. Most ferry services are inadequate to cope with transport demand. A significant number of the country's 4,100 bridges have been damaged or destroyed over the past two decades.

2. Railways

6. The railway system provides a key transportation route through Cambodia's most densely populated areas. It consists of two single line tracks. The first links Phnom Penh with Pipet at the Thai border. Because the section between Sisophon and Pipet has largely been destroyed, there is currently no link with the Thai rail network. The second line connects Phnom Penh with Kompong Som, Cambodia's main sea port on the Gulf of Thailand. The condition of rail bedding, track and other permanent way material as well as rolling stock is very poor. Many railway bridges that were destroyed have been repaired or replaced with temporary structures that limit axle loads and train speeds. Repair facilities are less than adequate and maintenance activities are severely constrained by a lack of financial resources and supply of electrical power.

3. Civil Aviation

7. Air traffic, both domestic and international, is expected to increase dramatically in the course of the normalization process. The country's civil aviation system will not be able to cope with this development. Landing strips and terminal facilities are in need of repair or rehabilitation and there is a lack of navigational aids and other essential equipment. As a result, air traffic in Cambodia currently does not meet internationally-accepted standards of safety.

4. Ports and Inland Waterways

8. The navigable inland waterway system extends to 1,750 km, of which 580 km are navigable all year round. There is great potential for increasing the navigability of rivers. This is particularly true for Tonle Sap Lake, which can be opened up to enable navigation to its tributaries in the northwestern part of the country. The most important river port is the port of Phnom Penh, which can accommodate vessels of 2,000-4,000 tons, but which needs urgent rehabilitation. Most of the country's river ports do not have dedicated port facilities, and all operations are carried out along the riverbanks or by lighterage. Kompong Som Port, the country's only deep-water maritime port, can accommodate vessels up to 13,000 tons fully loaded. Its cargo handling equipment is old and its workshop ill-equipped. Siltation could jeopardize the port's one-way access channel and inner harbor if no dredging is carried out in due course. Phnom Penh and Kompong Som ports show low productivity, largely because they lack proper equipment.

5. External Assistance to the Sector

9. External support to the transport sector has been very limited in the past and has been confined to assistance from countries belonging to the former Eastern Bloc. In the recent past, this assistance has come to a complete standstill. In 1990 UNDP fielded a two-month reconnaissance mission that assessed the physical condition of the country's transport infrastructure. The mission proposed a $124 million rehabilitation program to address the immediate needs of the transportation sector over a two-year period. With the notable exception of the civil aviation subsector1/, action to follow up on UNDP's reconnaissance has been limited and is mainly related to the repatriation operation for Cambodians on the Thai/Cambodian border. As a result, most of the projects identified are in need of screening and ranking, design work as well as specification and costing (a description of these projects is in Appendix 1).

C. Need for the Technical Assistance

10. The rehabilitation and upgrading of Cambodia's transportation sector is a prerequisite for the country's reconstruction and development. At present, the supply and distribution of commodities critical for the reconstruction of Cambodia are seriously hampered by the poor state of the transport infrastructure. In view of the magnitude of the reconstruction and rehabilitation task and the multitude of project proposals to accomplish this task, a systematic approach must be adopted for the planning, coordination2/ and financing of future transport investments. As Cambodia's human resource base is still inadequate to address these issues, external assistance is needed to undertake the planning work and to train Cambodian counterparts in the process.

1/ A $2.4 million UNDP-financed project carried out by ICAO aims at upgrading of air traffic control services, including provision of navigational aids and other equipment as well as training of air traffic control personnel.

2/ During the transitional period, the SNC/UNTAC Technical Advisory Committee chaired by the Director for Rehabilitation of UNTAC will screen proposals and coordinate activities in this regard.

11. With the envisaged normalization of political and economic relations, external assistance programs and economic activities within Cambodia and its trade with the outside world are expected to grow rapidly. To ensure a smooth normalization process, key transportation infrastructure needs to be rehabilitated. To this end, the TA will identify and prepare a program of urgently needed transport projects for which financing may be considered under the Special Rehabilitation Assistance Project. Moreover, Cambodia's sustained economic recovery will require joint and coordinated efforts of all agencies involved in rehabilitation assistance. To this end, the TA will produce the required sectoral information and will provide a basis to coordinate rehabilitation activities among the agencies concerned with Cambodia's transport sector.

12. More specifically, there is an urgent need to establish a set of basic sector information enabling determination of investment requirements. Projects identified for rehabilitation will have to be prioritized and to be grouped according to their urgency. There is also a need to examine TA requirements for training, and the scope for institutional and other sectoral reforms so the requirements are available for discussions upon completion of the transitional period.

III. THE PROPOSED TECHNICAL ASSISTANCE

A. Objectives

13. The overall objective of the proposed Transport Rehabilitation Study is to help rebuild the economic, social and physical systems disrupted or destroyed during the past two decades. Specifically, the Study will address Cambodia's most urgent transport rehabilitation needs, ensuing from ongoing and planned assistance programs, refugee repatriation as well as general economic recovery. A further objective of the TA is to enhance Cambodia's capacity and capability required for planning of transport infrastructure investments.

B. Scope

14. The proposed TA will cover essential rehabilitation requirements in the transport sector in all regions of Cambodia. As a first priority, transportation bottlenecks considered critical for the rehabilitation of the country's economic and social sectors, would be translated into firm short-term emergency projects for immediate implementation. Such projects may be considered for financing under external financing schemes that are currently available. Projects ensuing from the Study will be screened and ranked according to their perceived significance for Cambodia's economic and social recovery.

15. The Study will commence with a review of available transport-related information and selected field visits to key transport facilities. State of repair, capacity utilization and traffic loads will be assessed in this connection. A list of candidate rehabilitation projects will ensue from this exercise. The list will be screened and projects will be sorted according to the perceived degree of urgency for rehabilitation in relation to utilization factors and the envisaged design standard for the respective facility.

16. Considering the likely trade-off between temporary designs for emergency rehabilitation and the pertinent cost, two groups of projects are expected to emerge. The first group, comprising "emergency" projects, urgently require rehabilitation, and the adoption of

patch-up designs is warranted considering cost-efficiency criteria. The second group contains projects of less urgency, which do not lend themselves to temporary design standards and, as a consequence, require more in-depth analysis in both engineering and economic terms. The first group will provide the basis for selecting activities for the Bank's Special Rehabilitation Assistance Project, which is designed as this loan is designed for quick implementation and disbursement. The second group of projects, which require a longer lead-time for preparation, will be available for detailed engineering and implementation after the completion of the transitional period. Based on these considerations, the Study will produce a number of high-priority rehabilitation projects, which are considered critical to initiate and to uphold the rehabilitation process. The scope of the Study will thus be consistent with the objectives envisaged under the Paris Accord.1/

17. The Study will encompass all modes of domestic mechanized transport, excluding civil aviation.2/ Its focus will be on arterial movements of passengers and goods in all regions of Cambodia, including the primary road network, inland waterways and the respective terminals. The main activities under the Study will include the following:

(i) review of the institutional framework and policy environment surrounding transport operations and recommend related reforms;

(ii) identification of constraints that infrastructure facilities present to the distribution of essential commodities, the peace keeping operations, the immediate efforts for rehabilitation and the continued economic recovery;

(iii) review and consolidation of available information on the transport system; preparation of an inventory of the main infrastructure facilities, fleets and equipment and their physical condition; and assessment of existing facilities in the light of their adequacy to meet expected logistic requirements;

(iv) definition and prioritization of the transportation requirements considered essential for the initiation of the recovery process, and assessment of the growth prospects of the principal sectors of the economy and that of major traffic generating sources;

(v) examination of alternative design options with particular regard to the adoption of temporary (emergency) designs to be applied to high priority infrastructure facilities; and recommendation and preparation of conceptual and, if feasible, temporary designs for such projects;

(vi) assessment of available implementation capacities and capabilities and formulation of cost-effective solutions for an expeditious implementation of civil works;

(vii) application of relevant economic criteria and analyses to justify projects proposed, and assessment of the environmental impact of projects to be financed as part of the Bank's Special Rehabilitation Assistance Loan; and

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1/ Para. 8, Declaration on the Rehabilitation and Reconstruction of Cambodia.
2/ International Civil Aviation Organization will conduct a separate study on civil aviation.

me to a complete standstill. In 1990 UNDP fielded a two-month past, this assistance has co

(viii) training of Cambodian counterparts in the application of planning techniques and determination of the need for future training, advisory TA and further pre-investment studies of proposed projects; and outline the objectives and scope of the proposed activities.

C. Output

18. The Study will provide cost-effective rehabilitation schemes for key infrastructure facilities as well as institutional strengthening programs. In addition, the Study will produce the following specific output:

(i) assessments of existing key facilities, current traffic volumes and forecasts of future traffic requirements;

(ii) a program of emergency projects that will include both capital investment and TA components; and

(iii) two donor co-ordination meetings, i.e., one after three to four months to present and discuss the interim findings, and one upon completion of the Study to present and discuss its overall results.

D. Implementation Arrangements

1. Institutional Setting

19. Under the Paris Accord, the Supreme National Council (SNC) shall "represent Cambodia externally and occupy the seat of Cambodia at the United Nations, in the United Nations specialized agencies and in other international institutions and international conferences" during the transitional period prior to the establishment of an elected government. As the embodiment of Cambodia's independence, sovereignty and unity during such period, the SNC in March 1992 has requested TA for a Transport Rehabilitation Study. Close collaboration will be ensured and maintained with relevant United Nations (UN) agencies, other international and non-government organizations (NGOs), and with local authorities, as designated by SNC, at various levels and in different regions of Cambodia.

2. Implementation Arrangements

20. The SNC, in consultation with UNTAC and assisted by the SNC- designated national implementing agency, will assign a National Project Director who will act as principal counterpart to the Project Manager of the team of consultants as well as provide a sufficient number of qualified technical counterparts to work with the consultants who will carry out the Study. The SNC will appoint the Ministry of Communications, Transport and Posts (MCTP) as the Bank's counterpart agency. MCTP will provide logistic support, mainly secretarial help, office space, basic office furniture and specific equipment such as drawing tables, etc., to the consultants. The office of the UNDP Resident Representative in Phnom Penh will make available to the experts whatever technical and background documents are available for their reference. Vehicles and equipment needed for the implementation of the TA will be procured according to the Bank's Guidelines on Procurement.

21. The SNC/UNTAC Technical Advisory Committee chaired by the Director for Rehabilitation of UNTAC as well as the office of the UNDP Resident Representative in Phnom Penh will be regularly briefed on the progress of the Study. It is proposed that the work under the Study be jointly reviewed by the SNC, UNTAC, UNDP, SIDA and the Bank at an interim meeting and upon completion of the Study (see para. 26). The SNC in collaboration with MCTP will ensure appropriate coordination of the work between the transport sector line agencies. The Bank will administer the TA which is financed by UNDP and SIDA. In this regard, the Bank will ensure that the team of consultants:

(i) adheres to the agreed upon scope of work, covering all regions of Cambodia;

(ii) uses recognized methodological standards in the analyses applied; and

(iii) consults regularly with SNC.

3. Consultants

22. The Study will be conducted by a team of consultants selected in accordance with the Bank's Guidelines on the Use of Consultants. The terms of reference for the consultants are in Appendix 2. The team of consultants will consist of the following experts:

(i) A senior transport economist (for a period of 12 months) acting as team leader and having extensive experience in all modes of transport;

(ii) a transport economist (for a period of 11 months) having experience in road and water transport, including ports;

(iii) a senior highway engineer (for a period of 12 months) experienced in a variety of pavement designs and the implementation of civil works through both force account and contracts;

(iv) a mechanical engineer (for a period of 10 months) experienced in the assessment of road construction equipment, rolling stock and motorized river craft;

(v) a bridge engineer (for a period of 6 months);

(vi) two railway specialists (for a period of 4 months each) with experience in railway civil engineering (track and bridges), mechanical engineering (rolling stock) and railway operations;

(vii) a port engineer (for a period of 3 months) experienced in the assessment of port structures and port operations; and

(viii) an environment specialist (for a period of one month).

23. Over the entire Study period the consultants will be supported by a team of ten Cambodian counterparts to act as research assistants and interpreters.

4. Implementation Schedule

24. Implementation of the Study is envisaged to begin in March/April 1993 and to be completed 12 months later. During the first three to four months of the consultants' field work, emergency rehabilitation projects will be identified and prepared for design, in addition to tendering and financing under the Bank's Special Rehabilitation Assistance Project. After this phase, an interim coordination meeting of funding agencies may be convened at which the first batch of rehabilitation projects could be presented and discussed. A similar meeting for presenting and discussing the Study's overall results is proposed to be held upon completion of the Study. The implementation schedule is shown in Appendix 3.

5. Reporting

25. The consultants will be required to submit an interim report summarizing the emergency rehabilitation projects, including the type of work envisaged and related cost estimates, within three to four months after the starting date and a draft final report within ten months after the starting date.

26. The progress of work will be subject to joint review by representatives of Cambodia, the Bank, UNDP, SIDA and the consultants six months after the start of the Study. To ensure project monitoring and coordination among funding agencies, two milestone events have been scheduled during the Study period. The Bank, through the team of consultants, shall prepare and submit to the tripartite review meeting an interim report. A final report will be prepared for consideration at the tripartite review meeting upon completion of the Study. It shall be prepared in draft by the consultants at least three months prior to the termination of the Study.

6. Coordination Arrangements

27. The consulting team will work in Phnom Penh and in the field, as appropriate, and will liaise with UNTAC, UN High Commission for Refugees, other UN agencies, the Cambodian authorities, and where appropriate the NGO community. The consultant team may, as appropriate, liaise with donor agencies or multilateral funding agencies, in order to discuss possible areas of interest for financing, as well as to be kept informed of proposed external assistance programs.1/

E. Cost Estimates and Financing

28. The total cost of the proposed TA is estimated at $1,344,400 equivalent, of which $1,223,400 is the foreign exchange cost and $121,000 equivalent is the local currency cost. The foreign exchange cost and $96,000 local currency cost of the TA will be financed on a grant basis by UNDP and SIDA. UNDP will finance $719,400 equivalent and SIDA will finance $600,000 equivalent. Cambodia's contribution, estimated at $25,000 equivalent, will be in kind, mainly in the form of providing office space and secretarial assistance. The cost estimates include 63 man-months of services of internationally recruited consultants, international and domestic travel and major elements of logistic support, such as vehicles, fuel and computers. Details of the cost estimates and financing arrangements are in Appendix 4.

1/ A description of previous and ongoing assistance to the transport sector is in Appendix 1.

IV. THE PRESIDENT'S RECOMMENDATION

29. It is considered that the proposed technical assistance to Cambodia in an amount not exceeding the equivalent of $1,319,400 is necessary to undertake a Transport Rehabilitation Study. The cost of the technical assistance will be financed partly by UNDP, in an amount of up to $719,400 equivalent, and partly by SIDA, in an amount of up to $600,000 equivalent.

30. The portion of the technical assistance to be financed by UNDP and the portion of the technical assistance to be financed by SIDA will be provided on a grant basis and are to be administered by the Bank. The proposal for the Bank to administer such assistance is considered appropriate. I recommend that the Board approve the Bank's acting as administrator of the portion of the technical assistance to be financed by UNDP, in an amount not exceeding the equivalent of $719,400.

31. If the Board approves the Bank's acting as administrator of the assistance to be provided by UNDP, I shall, acting under the authority delegated to me by the Board, approve the Bank's acting as administrator of the portion of the technical assistance to be financed by SIDA, in an amount not exceeding the equivalent of $600,000.

KIMIMASA TARUMIZU
President

s) experienced in the (iv) a mechanical engineer (for a period of 10 months

PRIOR AND ONGOING ASSISTANCE TO THE TRANSPORT SECTOR

1. External support to the transport sector has been very limited in the past and has been confined to assistance from countries belonging to the former Eastern Bloc. In the recent past, this assistance has come to a complete standstill. In 1990 UNDP fielded a 2-month reconnaissance mission which assessed the physical condition of the country's transport infrastructure. The mission proposed a $124 million rehabilitation program to address the immediate needs of the transportation sector over a two year period. With the notable exception of the civil aviation subsector for which UNDP approved a $2.4 million project, action to follow up on UNDP's reconnaissance is related to a great extent to the repatriation operation for Cambodians on the Thai/Cambodian border. As a result, most of the projects identified by the 1990 UNDP Study are in need of screening and ranking, design work as well as specification and costing. The signing of the Comprehensive Peace Agreement for Cambodia in October 1991 has permitted the preparation of a number of specific transportation infrastructure project proposals.

2. Follow-up technical missions by an International Civil Aviation Organization (ICAO) expert have resulted in the preparation of a $2.4 million UNDP-financed project directed to the immediate upgrading of air traffic control services, including the provision of navigational aids and other equipment as well as the training of air traffic control personnel. The project, with ICAO as executing agency, is expected to result in the preparation of follow-up projects for bilateral funding.

3. From the Mekong Committee's 1992 Work Program, reflecting various project proposals for bilateral funding and related to water transport specifically for Cambodia or in a wider subregional context, the following projects have received funding so far:

(i) a $97,000 project for undertaking an Integrated Maritime and In-land Waterborne Transport Study for the lower Mekong basin covering Vietnam and Cambodia up to Phnom Penh, funded by the Government of France; and

(ii) a $6,000,000 project for upgrading of ferry facilities at four important river crossings in Cambodia, i.e, at Neak Leung, Prek Kdam, Kompong Cham and Stung Treng, funded by the Government of Denmark.

4. UNDP has prepared an action plan for rehabilitating the 48 km of railway between the Thai border (Pipet) and Sisophon, with a view to enable railway traffic between Cambodia and Thailand. UNDP will finance the feasibility and design study as well as the supervision component for rehabilitation works. UNDP is also considering to fund de-mining operations necessary to allow the start of studies and rehabilitation works. An appeal for the rehabilitation component (totaling some $12 million) to the international donor community was launched by the end of 1991.

(Reference in text: pages 3 and 8, paras. 9 and 27)

5. The Thai Government has committed Baht 144 million ($5.6 million) for the rehabilitation of Road No 5 between Pipet and Sisophon, for which works started in February 1992. The British Government has contributed the funds required to construct two major bridges along this road stretch.

6. The Japanese Government is about to approve several major transportation infrastructure projects:

(i) rehabilitation of Phnom Penh Port ($8-10 million);

(ii) reconstruction of the Chroy Changvar bridge in Phnom Penh ($18 million); and

(iii) rehabilitation of 42 km of Road 6A from Chroy Changvar bridge to the junction with Road 6 ($30 million).

7. With the financial support of the Swedish Government (totaling $5 million), UNDP has developed and started to implement a road rehabilitation program for roads deemed essential for the UN High Commission for Refugees repatriation operation. Through funding supervision of rehabilitation as well as providing operational budgets to national/provincial, private, and UNTAC road brigades, works are underway for the worst stretches of Road 5 between Sisophon and Phnom Penh, as well as secondary roads in Pursat Province. In addition, UNDP is funding and supervising bridge repair works for Road 5 undertaken by the national authorities, as well as is collaborating with the Australian bridge program for this road.

8. UNDP is collaborating with the Australian Government which is funding some 200 m of permanent steel bridges at 5-6 locations along road 5. Furthermore, Australia has funded and delivered some 500 m of Bailey bridges, to be used for roads affected by the August 1991 floods (i.e., Roads 2 and 3) as well as roads deemed essential for the repatriation operations (Roads 5 and 6).

9. The United States Agency for International Development (USAID) is financing and implementing (through a private contractor) de-mining and rehabilitation works for road 69 between Sisophon and Banteay Chhmar. In addition, USAID is considering funding de-mining and rehabilitation works for the remainder of road 69 to Samrong as well as road 68 from Samrong to the junction with Road 6.

10. UNTAC has fielded two fully equipped engineering battalions for which operational budgets are expected soon. Following UNTAC's priorities and considering road works already being covered, these brigades will most likely focus on the rehabilitation of Road 6 (Sisophon - Siem Reap, Ferry site Prek Dham - Kompong Thom) and Road 4 to Kompong Som. The proposed road works aim at providing temporary relief to the transport of repatriates and are thus envisaged to provide nonpermanent, laterite road surfaces.

(iv) a mechanical engineer (for a period of 10 months) experienced in the equipment at $719,400

CAMBODIA: TRANSPORT REHABILITATION STUDY

Broad Terms of Reference

1. Under the Study a prioritization of rehabilitation projects will be undertaken based on (i) the state of repair of the facilities; (ii) their perceived economic and social significance; (iii) humanitarian assistance delivery requirements; (iv) various UN operations needs; and (v) overall rehabilitation assistance priorities and commodity distribution requirements;

2. The Study will be conducted by a qualified consulting firm which will be engaged in accordance with the Bank's Guidelines on the Use of Consultants. It is envisaged that the team will consist of the following experts:

(i) a senior transport economist (for a period of 12 months) acting as team leader and having extensive experience in all modes of transport;

(ii) a transport economist (for a period of 11 months) having experience in road and water transport including ports;

(iii) a senior highway engineer (for a period of 12 months) with extensive experience in pavement designs and civil works contract management;

(iv) a mechanical engineer (for a period of 10 months) experienced in the assessment of road construction and road maintenance equipment as well as other transport equipment;

(v) a bridge engineer (for a period of 6 months) with experience in road and rail bridges;

(vi) a railway specialist (for a period of 4 months) with experience in railway civil engineering and rolling stock;

(vii) a railway management expert experienced in railway planning, management and operations (4 months);

(viii) a port engineer (for a period of 3 months) experienced in the assessment of port structures and port operations; and

(ix) an environment specialist (for a period of 1 month) experienced in environmental assessments of infrastructure projects.

3. The Study will cover all modes of domestic mechanized transport, including roads, bridges and ferries; railways, inland waterways and ports, but excluding civil aviation. The Study will focus on arterial movements of passengers and goods and in this regard will address key infrastructure facilities that are considered critical for the initiation of the rehabilitation process and the upkeep of economic recovery.

(Reference in text: page 7, para. 22)

4. Specifically, the consultants will perform the tasks enumerated below:

1. The Senior Transport Economist (Team Leader) will:

(i) coordinate all activities of the consulting team and liaise with all parties concerned with the Study;

(ii) define and prioritize logistic requirements as foreseen for the duration of the transitional period;

(iii) develop in collaboration with the team members project proposals addressing the most urgent rehabilitation needs and justify such proposals on the basis of appropriate economic analysis;

(iv) rank according to their economic and social significance rehabilitation projects and schedule their implementation according to their priority, implementation capacities of agencies and contractors as well as assumed capital budgets;

(v) review the institutional framework and policy environment surrounding transport operations and recommend related reforms;

(vi) train Cambodian counterparts in the application of planning techniques, recommend further pre-investment studies of proposed projects, outline objectives and scope in this regard and identify areas for further technical assistance and training;

(vii) coordinate and supervise the production of the Study reports; and

(viii) organize a workshop/conference at which the main findings and priorities for rehabilitations programs will be presented and discussed.

2. The Transport Economist will:

(i) perform tasks (ii) through (v);

(ii) assess the growth prospects of the principal sectors of the economy and that of major traffic generating sources; based on this, prepare annual forecasts of traffic flows that the country's transport system will have to accommodate;

(iii) analyze the economic cost of transport by mode and type of traffic and its effect on the desirable modal split;

(iv) conduct field visits, study available reports and liaise with relevant international agencies and the Cambodian authorities; and

(v) define and prioritize logistical requirements as foreseen for the duration of the transitional period.

3. The Senior Highway Engineer will:

(i) assess the physical condition of the primary road network and translate the logistic requirements into infrastructure requirements for roads;

(ii) assess the road network's adequacy to meet the envisaged logistic requirements and the rise in transport demand during the economic recovery;

(iii) develop rehabilitation proposals for roads, including cost estimates based on preliminary designs;

(iv) differentiate the type of work, work methods and the designs proposed in line with the degree of urgency of the rehabilitation work;

(v) draw up implementation schedules for the rehabilitation works;

(vi) train Cambodian counterparts in the application of planning techniques for road projects, assess the local capacities and capabilities to implement the proposed rehabilitation works; and

(vii) based on the assessment under (vi) above, formulate cost-effective solutions to expeditiously carry out the proposed civil works and develop contract arrangements for the recommended implementation method.

4. The Mechanical Engineer will:

(i) assess the availability and state of repair of construction equipment as well as other rolling stock;

(ii) determine the local availability of spare parts and assess the reliability of supply for spare parts for the dominant makes of locally existing machinery, equipment and rolling stock;

(iii) assess the Cambodian counterparts' capacities and capabilities to operate and maintain the equipment; and

(iv) prepare a list of equipment that is urgently needed and provide cost estimates for the proposed equipment.

5. The Bridge Engineer will:

(i) survey the state of repair of the main bridges;

(ii) develop suitable design options for temporary structures to meet the emergency needs;

(iii) asses the need for future bridge projects based on existing and anticipated future traffic volumes; and

(iv) prepare cost estimates based on preliminary designs.

6. The Railway Engineer will:

(i) assess the state of repair and present capacity of all main components of the railway system;

(ii) determine the most urgent rehabilitation and procurement needs;

(iii) on the basis of (ii) above, prepare project proposals for railway rehabilitation; and

(iv) provide cost estimates for all projects proposed.

7. The Railway Management Expert will:

(i) determine the main types of railway traffic;

(ii) assess traffic demand vis-a-vis available capacities;

(iii) draw up an investment program for rolling stock and rehabilitation of fixed structures;

(iv) assess the institutional, organizational and financial framework and formulate recommendations for related reforms; and

(v) assess the scope for training and other technical assistance to the railway organization.

7. The Port Engineer will:

(i) survey the existing port infrastructure and assess the state of repair of cargo handling equipment;

(ii) determine the most urgent rehabilitation and procurement needs;

(iii) based on (ii) above, prepare proposals for rehabilitation projects;

(iv) provide cost estimates for all projects proposed; and

(v) assess the operational performance of the ports and, based on this, determine the scope for training and other technical assistance of the port organizations.

8. The Environment Specialist will:

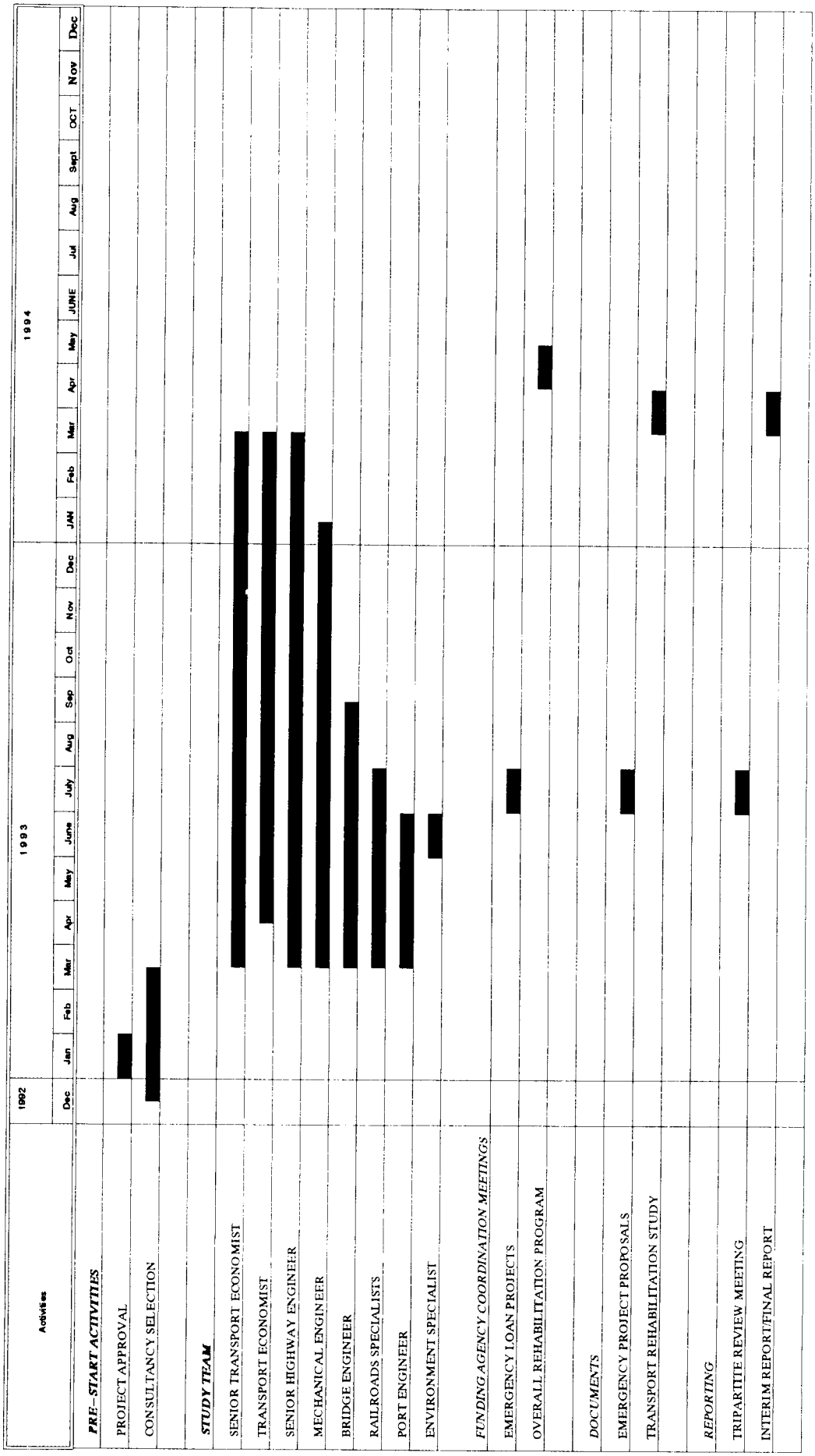
(i) assess the environmental impacts of projects to be funded as part of the Bank's Special Rehabilitation Assistance Loan;

(ii) prepare an initial environmental examination and, if necessary, the terms of reference for environmental impact assessment of such projects;

(iii) develop recommendations with regard to transport project selection/screening criteria for environmental impact assessment and environmental monitoring guidelines for transport projects; and

(iv) train Cambodian counterparts in environmental impact assessment and environmental management monitoring, and evaluate the need for further training in this regard.

TRANSPORT REHABILITATION STUDY
PROJECT WORK PLAN



(Reference in text: page 8 . para. 24)

the institutional, organizational and financial framework and (iv) assess

Appendix 4

COST ESTIMATES AND FINANCING ARRANGEMENTS

		COSTS
I.	**UNDP & SIDA Financing**	
	Foreign Exchange Costs	US$
	Consultants' Remuneration	891,000
	Subsistence and Per Diem	141,400
	International Travel	40,000
	Cars	70,000
	Computers + Stabilizers	25,000
	Photo Copiers + Aircons	12,000
	Office Supplies	5,000
	Report Production	5,000
	Misc. Operating Costs	34,000
	Subtotal	*1,223,400*
	Local Currency Cost	
	Local Counterparts	60,000
	Administrative Support Staff	16,000
	Domestic Travel	20,000
	Subtotal	*96,000*
	Total UNDP & SIDA Financing	**1,319,400**
II.	GOVERNMENT CONTRIBUTION (IN KIND)	
	Office Space	15,000
	Secretarial Assistance	10,000
	Subtotal	*25,000*
	TOTAL COST	***1,344,400***

Note: Due to UNDP budgetary rules, no contingencies have been provided.

(Reference in text: page 8 , para. 28)

5. The Bridge Engineer will:

(i) survey the state of repair of the main bridges;

(ii) develop suitable design options for temporary structures to meet the emergency needs;

(iii) asses the need for future bridge projects based on existing and anticipated future traffic volumes; and

(iv) prepare cost estimates based on preliminary designs.

6. The Railway Engineer will:

(i) assess the state of repair and present capacity of all main components of the railway system;

(ii) determine the most urgent rehabilitation and procurement needs;

(iii) on the basis of (ii) above, prepare project proposals for railway rehabilitation; and

(iv) provide cost estimates for all projects proposed.

7. The Railway Management Expert will:

(i) determine the main types of railway traffic;

(ii) assess traffic demand vis-a-vis available capacities;

(iii) draw up an investment program for rolling stock and rehabilitation of fixed structures;

(iv) assess the institutional, organizational and financial framework and formulate recommendations for related reforms; and

(v) assess the scope for training and other technical assistance to the railway organization.

7. The Port Engineer will:

(i) survey the existing port infrastructure and assess the state of repair of cargo handling equipment;

(ii) determine the most urgent rehabilitation and procurement needs;

(iii) based on (ii) above, prepare proposals for rehabilitation projects;

assistance and training: