

付 属 資 料

- 1 . S／W、M／M、T／R
- 2 . 主要面談者リスト
- 3 . Questionnaire
- 4 . 収集資料リスト
- 5 . 協議記録
- 6 . ローカルコンサルタントリスト
- 7 . 事前評価表

1. S/W, M/M, T/R

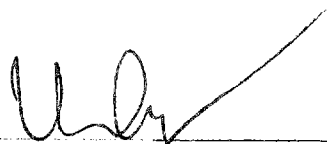
1-① S/W

SCOPE OF WORK
FOR
THE STUDY
ON
THE RED RIVER INLAND WATERWAY TRANSPORT SYSTEM
IN
THE SOCIALIST REPUBLIC OF VIETNAM


AGREED UPON BETWEEN

MINISTRY OF TRANSPORT
THE SOCIALIST REPUBLIC OF VIETNAM
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Hanoi, 10. August, 2001



Mr. TRUONG TAN VIEN
Acting Director General,
Planning & Investment Department,
Ministry of Transport



Mr. Kenji ONO
Leader,
Preparatory Study Team,
Japan International Cooperation Agency



Mr. NGUYEN NGOC HAI
General Director,
Project Management Unit of Waterways,
Ministry of Transport

Witnessed by



Mr. NGUYEN NGOC NHAT
Director General,
Infrastructure Department,
Ministry of Planning and Investment

I. INTRODUCTION

In response to the request of the Government of the Socialist Republic of Vietnam (hereinafter referred to as "GOV"), the Government of Japan (hereinafter referred to as "GOJ") has decided to conduct the Study on the Red River Inland Waterway Transport System in the Socialist Republic of Vietnam (hereinafter referred to as "the Study"), and exchanged the Notes Verbal with GOV concerning implementation of the Study.

Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of GOJ, will undertake the Study in close cooperation with the authorities concerned in GOV.

The present document sets for the scope of work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. to develop a long-term strategy, aiming at the year 2020, for improving, maintaining and operating the Inland Waterway Transport (hereinafter referred to as "IWT") system in the Red River Delta including loading facilities, navigation channels and navigation aids,
2. to formulate a master plan for improving IWT system in the Red River segment through Hanoi, including stabilizing the river navigation channel to maintain a sufficient water depth , providing cargo and passenger loading facilities for the river traffic, and avoiding erosion of the river bank with appropriate consideration of the riverside urban environment;
3. to provide a short-term development plan aiming at the 2010 for improving, operating, maintaining and managing the IWT system in the Red River segment through Hanoi, including resource mobilization and institutional arrangements based on engineering studies, economic and financial analysis, environmental impact assessments and institutional studies, and
4. to undertake relevant technology transfer.



III. STUDY AREA

The study covers the entire Red River Delta for the long-term strategy and the 40 km river segment through Hanoi for the master plan and the short-term development plan.

IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall include the following works:

1. Analysis of the present traffics and natural conditions related to the Red River IWT system:

1-1. to review the existing studies and data, including:

- (1) socio-economic conditions;
- (2) cargo/passenger traffics passing through the major navigation rivers;
- (3) number of ships and boats;
- (4) natural and environmental conditions (of the major navigation rivers); and
- (5) navigation conditions.

The existing studies to be reviewed shall include "*The Study on the National Transport Development Strategy in the Socialist Republic of VIETNAM (VITRANSS)*".

1-2. to conduct necessary natural and environmental surveys for the master plan.

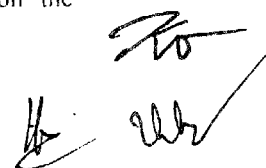
2. The long-term strategy of the IWT system in the Red River Delta for the Year 2020

The long-term strategy for improving the IWT system in the Red River Delta shall be developed based on the future IWT traffic demand, physical constraints of the river channel such as available/maintainable river water depth, channel width, and bridge clearance, and any on-going/expected transport corridor development projects in the context of VITRANSS and other socio-economic development strategies of the region where appropriate. The strategy shall cover the following items:

2-1. to review of the socio-economic conditions and river transport trend in the Red River Delta.

2-2. to identify:

- (1) future cargo traffic until the year 2020;
- (2) future vessel size of the IWT fleet;
- (3) loading and unloading capacity of the major river ports based on the availability of existing facilities and the future port development;

Two handwritten signatures are present in the bottom right corner of the page. The first signature is a stylized, cursive 'H' followed by a horizontal line. The second signature is a more complex, cursive script, possibly reading 'No' or 'UW', followed by a checkmark.

- (4) navigability of the current river channel with the required maintenance dredging, the existing navigation aids and the future reinforcement plan, and the major restrictions of the river navigation such as shallow waters, river bottlenecks and existence of low-clearance bridges; and
 - (5) any other conditions to be considered for estimating future traffic demand and IWT capacity, such as the relevant regional development initiatives, if any.
- 2-3. to recommend the best practice and necessary engineering, financial and institutional considerations for appropriately improving, operating and maintaining the Red River IWT system.

3. A master plan for the IWT system of the Hanoi segment for the year 2020

A master plan shall be formulated, under the long-term strategy, for improving IWT in the area of the 40 km Hanoi segment of the Red River, which shall include maintaining river navigation channel, constructing cargo and passenger loading facilities, and stabilizing riverbanks to avoid land erosion with necessary consideration on improvement of environment and amenity of the riverside area. The master plan shall include the following items:

- 3-1. to identify basic requirements of developing the IWT system in the Hanoi river segment such as the future river traffic, the maximum fleet size, land erosion control, and environmental consideration, based on the long-term IWT strategy, and also taking into account the on-going programs for environmental rehabilitation and tourism facilitation in the Hanoi city area.
- 3-2. to prepare plans for improving the IWT system of the Hanoi segment:
 - (1) a plan of constructing/rehabilitating cargo and passenger terminals with appropriate backup facilities, and providing navigation aids.
 - (2) a plan of stabilizing river navigation channel and improving the least available water depth for river navigation, which shall include a major river bed dredging, bend cuttings, slope protections and river training works, considering rehabilitation of environment and amenity of the riverside urbanized area.
- 3-3. to recommend institutional arrangements for the management, operation and maintenance of the IWT system;
- 3-4. to estimate the initial project costs, and maintenance and operation costs;
- 3-5. to carry out an initial economic analysis; and
- 3-6. to undertake an initial environment examinations.

4. Short-term development plan for the IWT system of the Hanoi segment for the year 2010

A short-term development plan on IWT through Hanoi for the year 2010 shall be

Handwritten signatures and initials, including a large stylized signature and the initials 'LB' and 'war'.

prepared, taking into account the priority of identified IWT improvement works, availability of financial resources, and other major policy agenda of the GOV. The plan shall cover the following items:

- 4-1. to undertake a detailed traffic forecast for the IWT cargo and passengers for the year 2010 on commodity by commodity and OD basis, and identify maximum fleet size to be accommodated by the system;
- 4-2. to prioritize works needed to meet the identified short-term requirements, from those included in the master plan prepared in the Section 3;
- 4-3. to carry out additional natural and environmental surveys, if necessary, for the detailed study on engineering, economic and financial feasibility of the short-term development plan; and
- 4-4. to prepare a preliminary design, cost estimates, an implementation schedule of the plan, and maintenance programs of navigational channels.

5. Feasibility Study

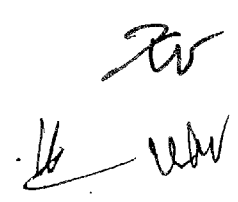
A feasibility study on the short-term development plan shall be undertaken. The study shall include the following items:

- 5-1. an economic analysis on the short term plan;
- 5-2. a financial analysis on the short term plan; and
- 5-3. evaluation of the project from the environmental viewpoints, by undertaking environmental impact analysis of the project.

6. Recommendations on formulation, implementation, operation and management of the project

The recommendations shall include the following items:

- 6-1. to identify project implementation risks and potential institutional bottlenecks, and to recommend the possible mitigation measures for these project risks, including developing needed regulatory and institutional frameworks, and building capacity of the project-executing agencies;
- 6-2. to review the current project implementation system and to provide recommendations for improving the project management;
- 6-3. to recommend IWT operation and management system including introducing management information system, and monitoring systems for IWT performance and river environment with proposing possible benchmark system and identifying baseline data; and
- 6-4. to review IWT tariff system with a recommendation on the appropriate cost recovery measures and enhancement of private sector involvement.

Handwritten signatures and initials in black ink, located in the bottom right corner of the page. There are three distinct marks: a large stylized signature, and two smaller sets of initials or signatures below it.

V. STUDY SCHEDULE

The Study shall be carried out within a 14-month period in accordance with the attached tentative schedule.

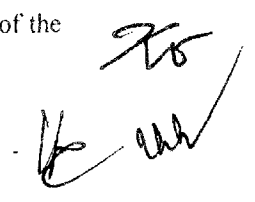
VI. REPORTS

JICA shall prepare and submit the following reports in English to GOV.

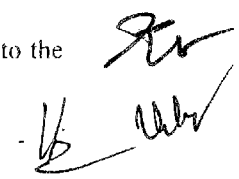
1. Inception Report, which covers the methodology of the Study
Thirty (30) copies at the time of commencement of the Study.
2. Progress Report (1), which covers all the findings during the first works in Vietnam
Thirty (30) copies, within four (4) months after commencement of the Study.
3. Interim Report, which covers a master plan
Thirty (30) copies, within seven (7) months after commencement of the study.
4. Progress Report (2), which covers a short-term development plan
Thirty (30) copies, within ten (10) months after commencement of the Study.
5. Draft Final Report, which covers all the results of the Study
Thirty (30) copies, within twelve (12) months after commencement of the Study.
The written comments in English on the Draft Final Report from GOV shall be delivered within one (1) month after the receipt of the Draft Final Report.
7. Final Report
Fifty (50) copies, within two (2) months after the receipt of the comments on the Draft Final Report.

VII. UNDERTAKINGS OF THE GOVERNMENT OF VIETNAM

1. GOV shall accord privileges, exemptions and other benefits to the Japanese study team (hereinafter referred to as "the Team") in accordance with the Agreement on technical cooperation between the Government of Japan and the Government of the Socialist Republic of Vietnam signed on October 20, 1998.

Handwritten signatures and initials in black ink, located at the bottom right of the page. There are two distinct signatures, one above the other, and some initials to the left.

2. To facilitate smooth conduct of the study, GOV shall take the following necessary measures:
 - (1) to secure the safety of the Team;
 - (2) to permit the members of the Team to enter, leave and stay in Vietnam for the duration of their assignment therein and exempt them from alien registration requirements and consular fees;
 - (3) to exempt the members of the Team from taxes, duties and any other charge on equipment, machinery and other material brought into Vietnam for the conduct of the Study;
 - (4) to exempt the members of the Team from income taxes and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with implementation of the Study;
 - (5) to provide necessary facilities to the Team for remittance as well as utilization of the funds introduced into Vietnam from Japan in connection with the implementation of the Study;
 - (6) to secure permission for entry into private properties or special areas for the implementation of the Study;
 - (7) to secure permission for the Team to take all data and documents, including maps and photographs related to the Study out of Vietnam to Japan; and
 - (8) to provide medical services as needed. Its expenses will be chargeable on the members of the Team.
3. GOV shall bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arises from gross negligence or willful misconduct on the part of the members of the Team.
4. On behalf of Ministry of Transport, Project Management Unit of Waterways (hereinafter referred to as "PMU-Waterways") shall act as the counterpart agency to the Team and also as a coordinating body in relation with other government and non-government organizations concerned for the smooth implementation of the Study.
5. PMU-Waterways shall, at its own expense, provide the Team with the following in cooperation with other agencies concerned:
 - (1) available data (including maps and photographs) and information related to the

Handwritten signatures and initials in black ink, located at the bottom right of the page. There are three distinct marks: a large signature, a smaller signature, and a set of initials.

- Study;
- (2) counterpart personnel;
 - (3) suitable office space with necessary equipment in Hanoi; and
 - (4) credentials or identification cards.

VIII. UNDERTAKING OF GOJ

For the implementation of the Study, JICA shall take the following measures:

1. to dispatch, at its own expense, the Team to Vietnam; and
2. to pursue technology transfer to the counterpart personnel in the course of the Study.

IX. CONSULTATION

JICA, MOT and PMU-Waterways shall consult with each other in respect of any matter that may arise from or in connection with the Study.

A handwritten signature in black ink, appearing to be 'Ker' or similar, with a large flourish extending from the end.

TENTATIVE SCHEDULE

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Work in Vietnam	Work in Vietnam 1 [shaded]					Work in Vietnam 2 [shaded]					Work in Vietnam 3 [shaded]			
Work in Japan	Work in Japan 1 [shaded]			Work in Japan 2 [shaded]					Work in Japan 3 [shaded]			Work in Japan 4 [shaded]		
Report	△ IC/R			△ P/R(1)			△ IT/R			△ P/R(2)		△ DF/R		△ F/R

Legend

IC/R

Inception Report

P/R

Progress Report

IT/R

Interim Report

DF/R


Draft Final Report

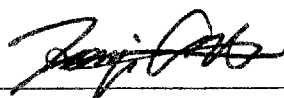
F/R

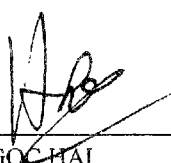
Final Report

MINUTES OF MEETING
ON
SCOPE OF WORK
FOR
THE STUDY
ON
THE RED RIVER INLAND WATERWAY TRANSPORT SYSTEM
IN
THE SOCIALIST REPUBLIC OF VIETNAM
AGREED UPON BETWEEN
MINISTRY OF TRANSPORT
THE SOCIALIST REPUBLIC OF VIETNAM
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

HANOI, 10, AUGUST, 2001

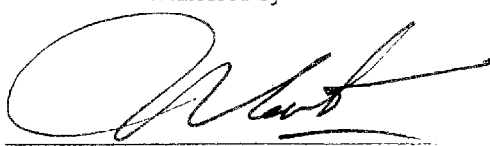


Mr. TRUONG TAN VIEN
Acting Director General,
Planning & Investment Department,
Ministry of Transport

Mr. Kenji ONO
Leader,
Preparatory Study Team,
Japan International Cooperation Agency

Mr. NGUYEN NGOC HAI
General Director,
Project Management Unit of Waterways,
Ministry of Transport

Witnessed by



Mr. NGUYEN NGOC NHAT
Director General,
Infrastructure Department,
Ministry of Planning and Investment

The Preparatory Study Team, organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Kenji ONO, visited Hanoi to discuss the Scope of Work for "The Study on the Red River Inland Waterway Transport System in the Socialist Republic of Vietnam" (hereinafter referred to as "the Study")

During the stay of the Preparatory Study Team in Hanoi, a series of meeting on the Study were held among the Preparatory Study Team, Ministry of Transport (hereinafter referred to as "MOT") and Project Management Unit of Waterways (hereinafter referred to as "PMU-Waterways"), and both sides agreed and signed the Scope of Work for the Study. The list of attendants at the meetings is shown in the Appendix 1.

The discussion between the Preparatory Study Team and MOT is summarized as followings:

1. The title of the Study

The title of the Study was confirmed as "The Study on the Red River Inland Waterway Transport System in the Socialist Republic of Vietnam".

2. Commencement of the Study

MOT requested that the Study would be commenced in October 2001. The Preparatory Study Team envisaged it in December 2001 at the earliest and so explained to MOT. The Preparatory Study Team promised MOT to convey the request to JICA Headquarters.

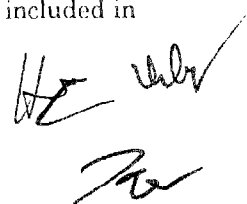
3. Study Area

The both sides confirmed that: (i) the study area in terms of the long-term strategy should be the Red River Delta, and (ii) the 40km Hanoi segment should be the Red River segment from Dong Lai (10km upstream from Thang Long Bridge) to Yen My (2km downstream of Khuyen Luong Port), as shown in Appendix 2.

4. Scope of the Study

The both sides agreed the following items to be paid a particular attention as appropriate for implementing the Study:

- (i) As a part of the long-term strategy, the large potential of a possible future development of navigational channel from Ninh Binh to Gulf of Bac Bo through Day river mouth, considering the large potential economic benefit of short-cutting the water surface traffic between the South and North-west of Vietnam by developing the Day River mouth channel; and
- (ii) Mobilization of local experience and expertise of river training techniques in the Red River reflected in a pre-feasibility study report undertaken by MOT, namely "Project of the Red River Improvement in the Segment through Hanoi". The Preparatory Study Team and MOT agreed that further mathematical model analysis for assessing the possible morphological change of the river to be caused by the proposed channel stabilization works be needed, thus shall be included in the Study.



5. Steering Committee

The both sides agreed that MOT should establish a Steering Committee headed by Vice Minister of MOT with participation of the related agencies. An indicative list of the Steering Committee is shown in Appendix 3. MOT agreed to set up the Steering Committee before field mobilization of the full-scale study team.

6. Reports

MOT requested and the Preparatory Study Team agreed that the Final Report would consist of separate volumes for: (i) the master plan, (ii) the short-term development plan, and (iii) the feasibility study including the preliminary design, cost estimate, implementation schedule, etc. The both sides confirmed that the Final Report to be open to the public.

MOT also requested summaries of the Interim Report, Draft Final Report and Final Report to be prepared in Vietnamese as well as English. The Preparatory Study Team promised to convey the request to JICA Headquarters for their consideration.

7. Presentation Meeting

The both sides confirmed that the full-scale study team should hold the presentation meetings when the reports of IT/R and DF/R are submitted.

8. Counterpart Personnel

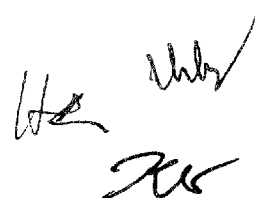
The both sides confirmed that PMU-Waterways would assign counterpart personnel before field mobilization of the full-scale study team.

9. Technology Transfer

MOT requested that the Vietnamese counterpart personnel should take an advantage of joining the related training course in Japan.

10. Undertaking of Government of Vietnam

PMU-Waterways expressed its difficulties to provide the Japanese study team with: (i) the relevant data beyond MOT's jurisdiction, and (ii) suitable office space. PMU-Waterways explained and the Preparatory Study Team understood the potential risks of PMU-Waterways fulfilling the undertakings because of difficulties in getting information from other agencies of the Government, and the budget constraint and severe shortage of available office space of PMU-Waterways. The both sides agreed that the limited availability of the data and office space may harm quality of the Study, therefore, PMU-Waterways vowed to make every effort in this regard and so hoped by the Preparatory Study Team. The Preparatory Study Team will convey the current situation of PMU-Waterways to JICA Headquarters for their consideration.



Attendant List

Vietnamese Side

Ministry of Transport (MOT)

Mr. NGUYEN VIET TIEN	Vice Minister
Mr. TRUONG TAN VIEN	Acting Director General, Planning & Investment Dept.
Ms. NGUYEN THANH HANG	Expert, Planning & Investment Dept.
Ms. NGUYEN NGUYET NGA	Expert, International Relations Dept.

Project Management Unit of Waterways (PMU-Waterways)

Mr. NGUYEN NGOC HAI	General Director
Mr. LE HUY THANG	Project Officer

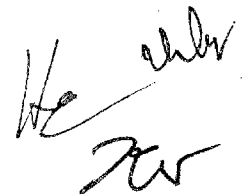
Japanese Side

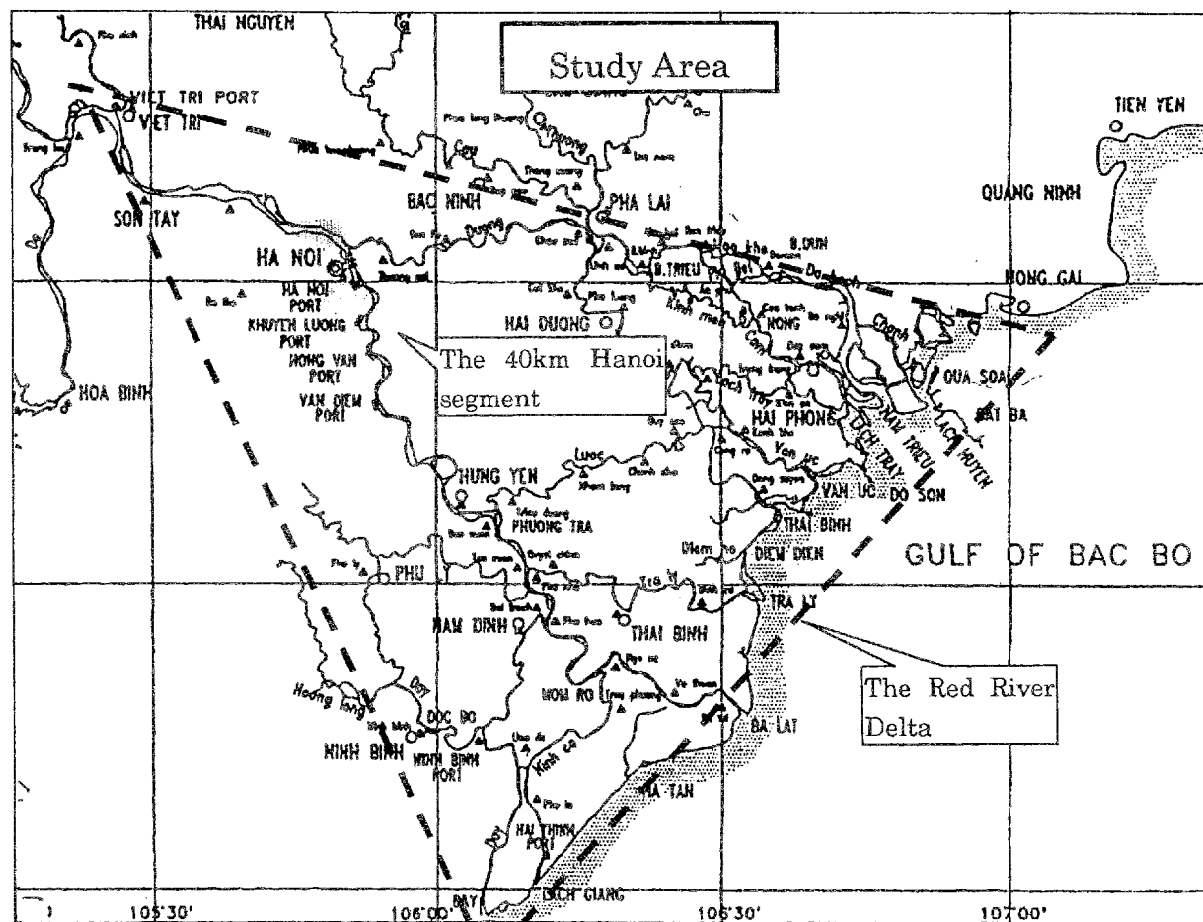
JICA Study Team

Mr. Kenji ONO	Team Leader
Mr. Takashi NEGI	Member
Dr. Yasuhiro AKAKURA	Member
Mr. Shuya OOKA	Member
Mr. Tatsuyuki KATSUKI	Member
Mr. Ryu MIZUKOSHI	Member

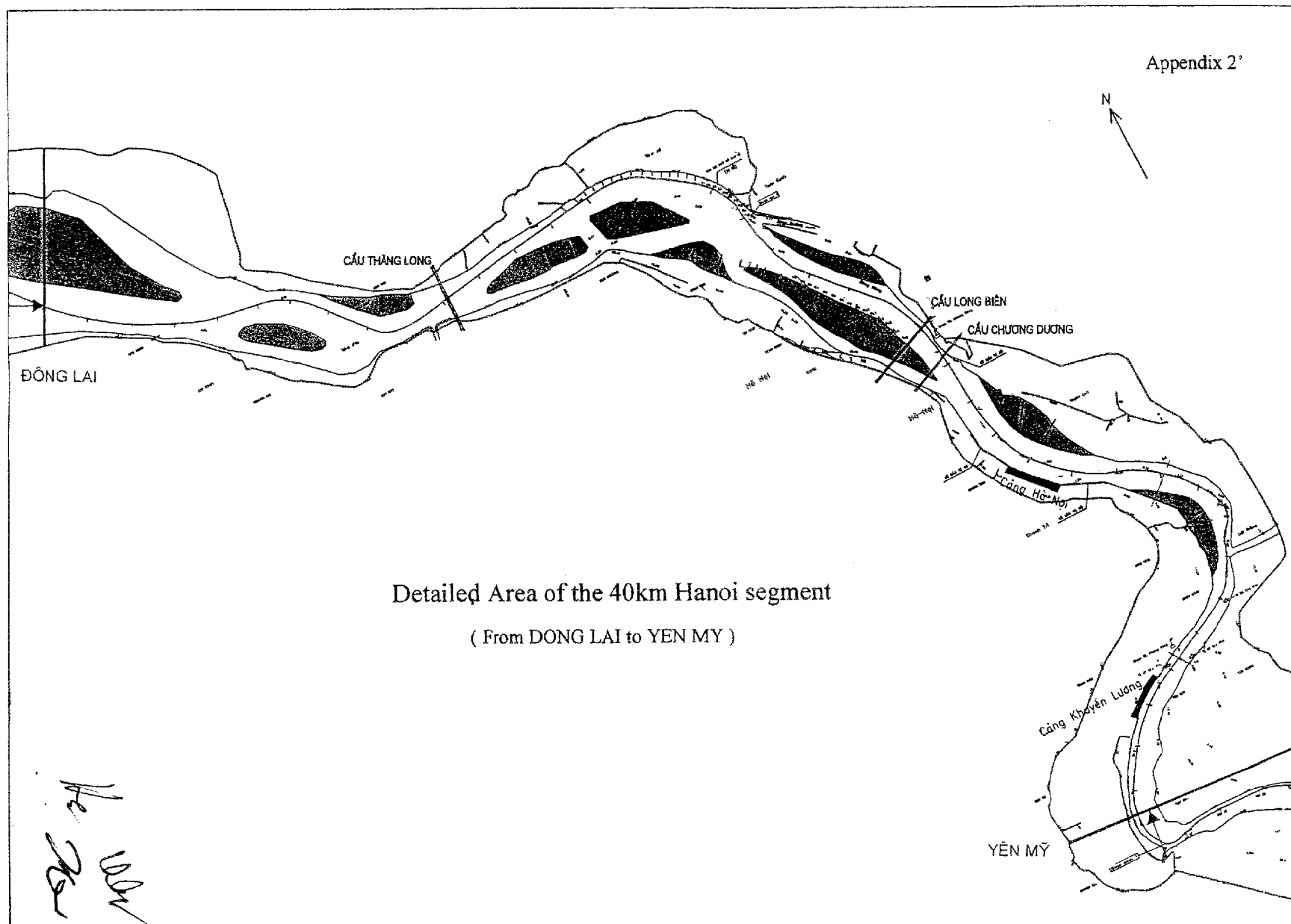
Embassy of Japan

Mr. Satoshi UOTANI	Second secretary
--------------------	------------------





Handwritten signature: *W. H. K.*



INDICATIVE LIST
OF
THE STEERING COMMITTEE MEMBER

1. Ministry of Transport
2. Ministry of Planning and Investment
3. Ministry of Agriculture and Rural Development
4. Ministry of Construction
5. Ministry of Science, Technology and Environment
6. Hanoi People's Committee
7. PMU-Waterways

A handwritten signature in black ink, consisting of stylized, cursive letters, located in the bottom right corner of the page.

TENTATIVE STUDY SCHEDULE

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Work in Vietnam	Work in Vietnam 1 [shaded bar]					Work in Vietnam 2 [shaded bar]					Work in Vietnam 3 [shaded bar]			
Work in Japan	Work in Japan 1 [shaded bar]			Work in Japan 2 [shaded bar]					Work in Japan 3 [shaded bar]			Work in Japan 4 [shaded bar]		
Report	△ IC/R			△ P/R(1)			△ IT/R			△ P/R(2)		△ DF/R		△ F/R

Legend

IC/R	Inception Report	P/R	Progress Report
IT/R	Interim Report	DF/R	Draft Final Report
F/R	Final Report		

Work in Japan 1	To prepare an inception report.
Work in Vietnam 1	To analyze the IWT traffics and the natural conditions, and formulate the long-term strategy.
Work in Japan 2	To formulate the master plan.
Work in Vietnam 2	To formulate the short-term development plan.
Work in Japan 3	To carry out feasibility study.
Work in Vietnam 3	To present the draft final report.
Work in Japan 4	To finalize the final report (the master plan, short-term plan and feasibility study to be separately summarized).

Handwritten signatures and initials:

1-③ T/R

MINISTRY OF TRANSPORT
PROJECT MANAGEMENT UNIT OF WATERWAYS

THE RED RIVER NAVIGATION
IMPROVEMENT
(THE SEGMENT THROUGH HANOI)

Hanoi 10/1999

1. INTRODUCTION

1. Sector Description

In many parts of the world inland waterway transport (IWT) is the traditional means of inland communication and transport and has been essential, not only for the economic development of specific areas, but also for the welfare of people living in isolated communities and remote areas. Recently IWT has been recognized as energy saving as well as cost effective mode of transport, especially for bulk cargo.

Viet Nam has been undergoing major economic changes in recent years and its transition from a centrally planned economic system to a more market orientated economy. Since the formal adoption of "Doi Moi" in the mid-eighties, deregulation policies towards a market economy has greatly strengthened the economy. During the last five years the growth in the Vietnamese economy has placed increased demands on the transport sector. If the current economic growth and future development of Viet Nam is to be sustained into the next century, the efficiency and the capacity of the transport sector will have to be increased in-line with the demand.

The strategy presented by the Ministry of Transport and Communication (MOTC) in 1997 (based on the report "Projects of Building Ports & Waterways in Viet Nam by the year 2010" which was prepared by the Ministry of Planning in 1996) with respect to the development of the IWT sector up to the year 2010 aims at:

- creation of adequate waterways linking cities with rural, coastal as well as mountainous areas and economic centers with seaports; development of river ports to attract cargo and to serve as nodal points in inter-modal transportation;
- modernization of the fleet, aiming at efficient (high velocity), safe and environmentally acceptable navigation;
- Establishment of safe, stable and environmentally acceptable waterway conditions in densely populated areas.

Recent signed loans and TA-programs related to the sector are listed below:

- ADB loan for improvement of Saigon Port amounting to 30 million US\$;
- Improvement of Hai phong port and Cai lan port;
- WB loan for the development of the inland waterways development in the Mekong amounting 85 million US\$;
- Linked to the project in the Mekong Delta Danida granted a TA for training for a value of 150,000 US\$;

- Canada assists the MOT in an investment of 6.7 US\$ in enhancing VIWA's capabilities including training, equipment and a pilot project;
- Belgium granted assistance to study the access channel to and through the Bassac River for an amount of 1.7 million US\$;
- Finida assists in hydrographic surveying which is part of a Regional Program with Cambodia for surveying the Mekong river for an amount of 2.5 million US\$;
- Upgrading of Inland Waterway School No.1 in Hai Duong financed by the Ministry of Foreign Affairs, The Hague, The Netherlands for an amount of 1.3 million US\$.
- ADB TA program: Red River Waterways Project: development of the inland waterways in the Red River Delta in North Viet Nam.

2. Rational

Vietnam has two IWT systems, one in the Mekong Delta (South) and the other in the Red River Delta (North). Both IWT systems serve Viet Nam's two main economic zones and its two main population centers.

The development of IWT in the Mekong (financed by a WB loan) is an example of a recent TA-programme carried out in Viet Nam. The project concerned the rehabilitation and improvement of two main inland waterway routes between Ho Chi Minh City and the Mekong Delta. This project is in the process of implementation.

The Red River system is one of the greatest rivers in Vietnam that covers 71,000 km². It originates from Yunan province of China with the total length of 1121 km, 529 km of which flows through Vietnam. From Lao cai to Balat estuary, the river shifts towards north-west/south-east, merges the Thai binh river, forms a main IWT network in the North of Vietnam.

The strategic location of the Red River system plays an important role in socio-economic development in the future. Typically, the segment which flows through Hanoi from upstream of Thanglong bridge to down stream of Khuyen luong port, approximately 40 km, is the most important to Hanoi development plan in the 21st century as well as to economic activities in term of river operation from now on. Its essential role is reflected in the following points.

a. The Hanoi segment is the nodal point of IWT within the North:

- it is the transshipment of IWT from North West to the Red river and Thai binh delta;
- it is the middle point and the confluence as well of 2 IWT corridors: North West - North East and North West - the East sea (via the Lach giang and the Day river mouths);

- Along the segment, there are berths of Hanoi port, Khuyen luong, Gia lam, Chem and some passenger stations, cargo berths...that are under operation.
 - Above the segment, there are important crossing structures such as Thang long, Chuong duong, Long bien and Thanh tri bridge and the last one is in the design stage.
- b. The Hanoi segment is the water supply resource for households and agriculture and is the drainage system for Ha noi capital and surrounding areas.
- the segment to be studied has many water supplying works, typically are Lien mac drain, Ap bac water pumping station, Xuan quan drain;
 - the Duong river (the tributary of the Red river) is an important branch to agriculture development of local areas along the river. This branch is also a connection between the Red river and the Thai binh river is the flood drainage corridor from the Red river to the Bach dang, Van uc, Thai binh river mouths.
- c. The segment to be studied naturally flows along the administrative boundary i.e Tay ho, Hoan kiem, Hai ba Trung, Thanh tri districts on the right bank and Dong anh, Gia lam on the other one. Therefore in the coming century, the planning of land use and development of Hanoi capital has taken into account the stabilizing the riverbanks and lands nearby existing dykes. The dykes along riverbanks are concerned and protected because of its important role in security and safety of the capital.
- d. The Red River segment through Hanoi is value of nature for the capital. Its eco-geographical, historical and cultural position is the paid attention in development of the capital. However, deforming configuration, shifting current and bars of the segment, especially in the flooding period, make it difficult for economic activities in term of waterway, threaten the safety and security of the capital, limit the operation of IWT, tourism and culture potentials
- e. Up to now this segment has had many small improvement projects of separate components, serving IWT or flood drainage or dyke protection. For the purpose of IWT, since early 20th century, there have been many river training works and they were mainly carried out in the 30s, 40s by French engineers (now, there are some evidences that can be seen, others are covered under sedimentation). In the period 1986 - 1996, Ministry of Transport carried out the siltation prevention plan for Ha noi port by building 3 river training works group at Tam xa - Phu gia, Tu lien - Trung ha and Thach cau. Recently, in 1997, this matter was addressed in the study "Red River Waterways Project" performed by Haskoning B.V. Consultants. Furthermore, the Ministry of Agriculture and Rural

Development has done many projects to strengthen riverbanks of this segment.

The segment involves economic, tourism, cultural and sport activities, however, due to limitation of investment capital, there has not been any big project that meets development requirements of all sectors (i.e. IWT, flood prevention, tourism and rural development) and capital environment. A rehabilitation project for the Red river segment through Ha noi that has comprehensive objectives must be formulated and implemented soon to meet the reality demands and create space for cultural, sport, tourism activities of Ha noi capital in the coming century.

3. Executing agency

Ministry of Transport in collaboration with Ministry of Agriculture and Rural Development and Hanoi People's Committee.

II. PROJECT OBJECTIVES

- To stabilize the alignment for the purposes of IWT and irrigation with river training works.
- To stabilize the riverbanks with groynes and embankments serving for the demands of construction, entertainment of the city along the river.
- To plan and improve the existing cargo and passenger ports in respond to the demands of cargo and passenger transport, tourism, etc.
- To plan and use the land outside the banks serving for the development of the capital in term of security, safety, environment and image of Hanoi in the coming years.

III. PROJECT AREA

The segment to be carried out is from upstream of Thang long bridge to downstream of Khuyen luong, with the total length of approximate 40 km.

IV. SCOPE OF WORK

1. Channel stabilization

It is necessary to take into account the configuration characters, deformation rule, hydrology and sedimentation movement of the river segment to be studied in order to define the navigation alignment for sea-cum river going vessels of 1,000DWT and maintain the least available depth to be suitable with its natural conditions and comply with other relating economic sectors.

This study will be based on topographic, hydrographic and historical documents to identify shifting rules of the channel and synthesize results of previous studies on configuration, hydrology of the river and the effects of structures built in previous period (1986 - 1996). 2-dimension mathematical model of water flow in typical cases is intended to be applied to verify the selection of navigation channel. The result of this study is to propose alternative to improve the segment, suitable with rule and natural condition of the river. With the support of river training works, the river itself can maintain its stable condition. The alternative to be done must comply with other transport economic, irrigation, and environmental protection.

2. River training works to stabilize the channel

The next step after selecting navigation channel is to review improvement possibility whether single channel or split one and the requirements of distributaries, river mouth. The study will propose a plan of river training works and structures to be done in long term and in periods.

Up to now, on this segment, there have been some structures at Phu gia - Tam xa, Tu lien - Trung ha and Thach cau constructed by Ministry of Transport, Ministry of Agriculture and Rural development, Ha noi People's Committee in recent years to strengthen banks and prevent erosion for Ha noi port. The study includes evaluation of effects and improvement of these structures complies with long-term plan.

The results of study is a proposal that stabilizes the channel and satisfies the following requirements:

- step by step channelizes the improved route;
- divides in periods in compliance with the development of the city, the rounding areas and tourism of this segment and in line with investment capital;
- Stabilizes and controls optimal discharge into the Duong river;
- Meets the requirements of flood drainage, environment protection of the river in future;
- Periodically plans the construction site, specifications and types of structures
- Estimates drafty amount of works and investment according to proposed alternative and intended construction periods.

3. Ports systems planning along the segment

Besides ports handle general cargo (Ha noi, Khuyen luong), berth systems handle building materials (Chem, Gia lam), in the study, it is

intended to be include tourism stations, city and inter-provinces passenger stations.

Study will prepare a position master plan of berths and port system along the segment. Improvement and investment approach to rehabilitate and upgrade existing ports, build new ports at the demand of city in period after 2000 are included in the study. Some development plans for key ports are intended to finalize in the study, including estimation of works cost in the first period.

4. Planning and land use proposal

Based on the master plan for city development in the coming time that was approved by the Government, in components (1), (2) (3) above, planning of land use for tourism, cultural and sport activities, industrial development, living areas... will be included. Results of this component will lead to construction alternatives for bank protection.

5. Embankments

In the master plan of the new city, the Red River is selected to be the center. Location, scope of work, structure and tentative construction schedule of the embankment will be considered in periods and the image rehabilitation of the capital should be taken into account. Analyzing for scope of work, structure and efficient of existing groynes are included in this component. The results of the study must address the following points:

- The intended locations for the embankments and the priority locations should be given;
- the intended structure comply with their operating function;
- Quantities and investment cost estimate.

6. Environment Assessment

Provide an environmental impact assessment, to address the potential environmental impact of the Project and influence the Project design accordingly. The specific task as follow:

- to review the environmental information and condition of the project sites, undertake site visits to identify the potential adverse environmental impacts of the project, and prepare recommendations for mitigation measure and activities to be included into the design of the project;
- To assess environmental costs and benefits of technical alternatives of the project, and evaluate their environmental feasibility.

7. Project benefit

Project benefits will be estimated using the approach of “without” and “with” project case. Project benefits will include all form of economic benefits, such as transport cost reductions due to the big vessel of 1000DWT can approach Hanoi and from Hanoi to other area of the country, flood prevention benefits, allowable timesaving due to LAD navigation channel stable.

Social benefits: to undertake social analysis to verify that Project design correspond with the needs and capacities of target beneficiaries, to assess the Project’s social sustainability, and to identify the social benefits that the Project will provide:

- identify social benefits that might arise from the Project, including opportunities for employment, business development, improvements to community life, improvements to agriculture, better flood control, and better irrigation; and indicate measures to be taken during Project design to ensure the benefits are maximized to the target population;
- Identify individuals and groups that may have to be involuntarily resettled, and if resettlement is required, establish the criteria and procedures for preparing a resettlement plan.

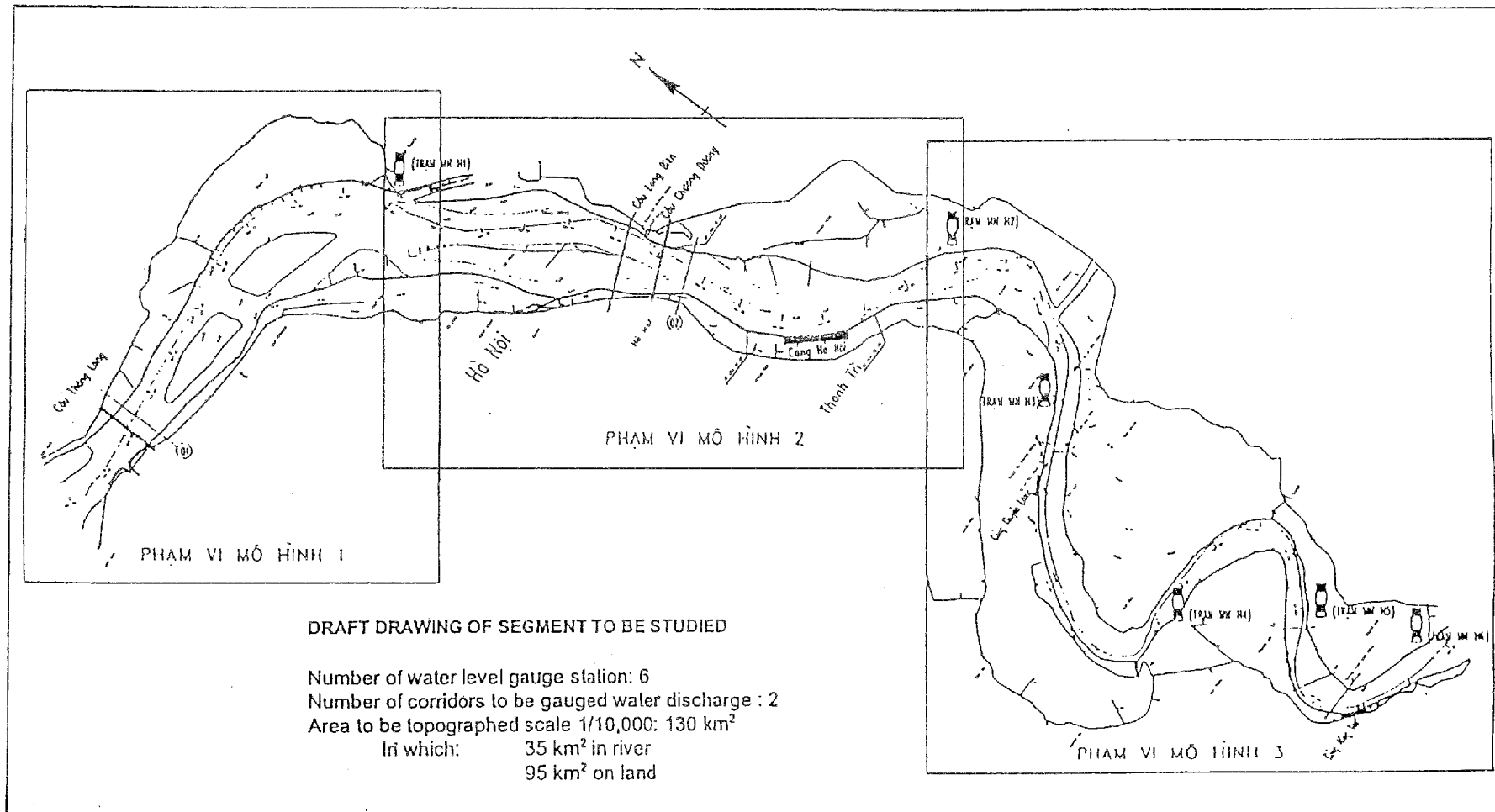
V. IMPLEMENTATION SCHEDULE AND REPORTING REQUIREMENTS

All reports as well as all correspondence, notes, memos, etc will be in English. The following reports will be provided:

- (i) Inception Report: to be provided within one month after the starting date. The report will summarize the initial findings, the survey of navigation routes, and alternatives to be considered. It will present the work plan for the consultancy, including a staffing plan and schedule.
- (ii) Monthly Progress Reports: to be provided monthly, these reports will provide a statement of activities and progress during the reporting period, difficulties encountered, and measures taken to overcome them. Planning of activities for the subsequent month will be included.
- (iii) Draft Feasibility Report: to be submitted four months after the starting date. It will report on the outputs of the consultant’s work as described in the terms of reference, including recommendations, modeling, and analysis. The report will define a project, suitable for financial plan, including cost estimates and implementation schedule. It will also include the consultant’s view on various issues and potential problems in implementing the Project.
- (iv) Final Feasibility Report: to be submitted after incorporating comments from Vietnamese and from the Donor, possibly provided

through a workshop held specifically to review the draft feasibility report. This is expected approximately six months after the starting date.

(Prepared by Project Management Unit of Waterways)



[illegible]