第９章　国際機関、先進国等他援助機関の動向

９－１　ハロン湾及びその周辺地域の環境に対する援助動向

９－１－１　援助動向の概要

ハロン湾周辺地域の環境に関しては、この地域がハノイ、ハイフォンとともにヴィエトナム国北部開発の３戦略拠点の一つとして位置づけられてきたことから、生産重視の政策により労働環境の面のみが注目されてきた。それに対し、自然環境、都市環境に注意が払われるようになったのは、1994年にハロン湾のUNESCOの世界自然遺産への登録が広く知られるようになってからのことであるといえる。特に、同年12月にタイのブーケットで開かれたUNESCOの世界会議においてハロン湾が世界自然遺産に指定されてからは、ハロン湾周辺地域はヴィエトナム国の政府機関、国際機関及び各ドナー国の間で“クァンニン省が開発と環境保全の両立をめざし、持続可能な発展をするうえで重要な地域”としての位置づけが確立したといえる。

このような状況のもと、本地域においては多くの援助機関がさまざまな協力活動を行っているので、JICA調査を実施する際には、それらの協力活動との重複を避け、かつ使用可能なデータ、知見は可能な限り活用することが望ましい（図９－１－１のプロジェクト実施状況図参照）。ちなみに、JICA調査を行ううえで有用であると思われるプロジェクトは次のとおりである。

① 世銀の資金によりCIDA（ESSA）がVCEPの一環としてDOSTEの対処能力を向上させる案件を実施中である。このVietNam Canada Environment Projectでは、ハノイ、ハイフォン、ダナン、ビンドンのラボラトリーの分析能力向上をめざしており、その協力手法はJICA調査に有用である。なお、その詳細は「Operational Frame-work for Laboratory Development, ASL Ltd, Sep. 5, 1996」を参照

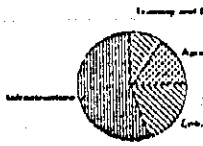
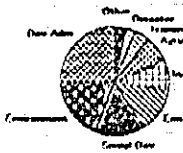
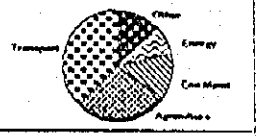
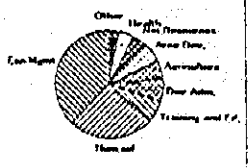
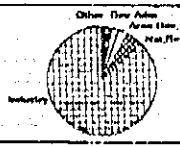
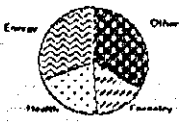
② SIDAがSensitivity Mapping Projectを行っており、現在その最終段階であるが、陸域の環境資源を把握するために有用となる

③ UNIDOが石炭産業の環境配慮に関する案件を実施中である

④ DANIDAが給水関連の案件を実施中であり、意見交換ができる

なお、表９－１－１は今回の調査で個別協議を持った国際機関及びドナーから得られた情報を整理したものである。

表9－1－1　国際機関及び各国ドナー等との個別協議結果の概要

協力国		ヴィエトナムへのODA（100万US$）及びその内容	ハロン湾に関連するプロジェクトの内容（現状状況）		本協議団への関連情報
国際機関	WB	Grant 6.433 Loan 166.100 (FY1995) 	1) The Ha Long Bay Environmental Pollution Study 2) Vietnam Water Supply Project 3) Vietnam Sanitation Project 4) Quang Ninh Pilot Project	•調査は ESSA Technologies Ltd. が受注。 •現地調査（FS、デザイン、EIA）はDANIDAが行い、レポートを作成している。 •プロジェクトはDANISAX Int'l A/S（デンマーク）が受注。 •World Village がプロポーザルを提出した（97年8月）ところ。	•The Ha Long Bay Environmental Pollution Study では、ハロン湾の汚染レベルと浄化能力について、水質モデルを使用して、汚染コンター図を描くこととしている。なお、汚染指標は TN（全窒素）、DO（溶存酸素）、TSS（全浮遊物質）、metals（金属類）、coli-form（大腸菌）である。 •なお、上記調査のインセプションレポートは入手済みである（収集資料リスト70）。
国際機関	UNDP	Grant 15.410 (1994) 	1) Environmental Management in Open-Pit Coal Mining in Quang Ninh Province 2) Strengthening National Capacities to Integrate the Environment into Investment Planning and Public Policy	•プロジェクト開発は第1段階を終了したところであり、96年7月および97年5月にwork shop を開催した。 •Phase 1 とPhase 2 にわかれており、研究は地元住民と関係官庁を同時にセミナー、ワークショップを開催することにより、関係レベルの対策能力の向上を目ざす。研究は現在始めたばかりであり、ハロン湾で行われるプロジェクトであり、3つのパイロットプロジェクト（DOSTEにおける対策能力の向上、石炭採掘の環境対策、土地利用（区画の拡張）が計画されている。	•当国にはまくのコンサルタント（国の下部組織あるいは企業のNGO）があるが、ADB能力は、CEETIA (Center for Environmental Engineering of Towns and Industrial Area)が良くできており、ハロン湾に関しては NIO（ハイフォン海洋研究所）のProf. Dr. Chu Hoi が様々な情報を持っているとのこと。 •ファンニン省の石炭研究の責任者は、Institute of Mining Science on Technology のDr. Trinh Van Hoan が詳しいとのこと。
国際機関	ADB	Grant 0.300 Loan 40.247 (1995) 	1) Coastal and Marine Environmental Management in the South China Sea	•96年8月にドラフトファイナルレポートが提出され ADBとしては次のステップに進む用意（資金的）ができている。これは南シナ海の海洋区域と沿岸地域の環境管理力強化を図るもので、ハロン湾区域も保護対象地域の1つとして位置づけられている。現在、ヴィエトナム政府と中国政府の調整が終了していないこと、および MOSTE側からのプロポーザルが出されていないため、ハロン湾区域を対象とするプロジェクトは存在されていないとのこと。	•ADB にはライブラリーがあり利用可能な資料があるので利用して下さいとのこと（収集リストは収集資料リスト252参照）。
二国間	CIDA / Canada	Grant 0.513 (1994) 	1) Environmental Assessment and Sustainable Development of Coal Mining Sector in Vietnam: A Case Study of Coal Mining of Quang Ninh Province 2) Training Workshop on the Role of Participatory Appraisal in Regional SustainableDevelopment Planning in Quang Ninh Province 3) VCEP (Vietnam-Canada Environment Project)	•Vinacomin に対する持続可能な石炭開発と環境保全を両立させるための方策の検討を行っている。 •地方レベルにおいて環境管理対策能力の向上を目ざすためワークショップを開催している。 •DOSTE の対策能力向上を目ざし、日本側と協調しながらプロジェクトを実施中である。日本側には日本側でヴィエトナムのカウンターパート研修を担当し（現在 DOSTEから2名が日本で研修中）、カナダ側がフォローするというものである。	•Local Consultantの能力について次の情報を得た。 •EPC (Environmental Protection Center) あるいは NIOはかなりすぐれている。また、CMESRC (Center for Marine Environment Survey, Research & Consultation) あるいはCEETIAは良い水準にある。 •各調査分野毎に協議できる研究所名を挙げると次のとおりである。 シミュレーションモデルの検討 ：CMESRC 水質調査の実施 ：NIO 汚染源調査 ：CEETIA
二国間	DANIDA / Denmark	Grant 10.536 (1994) 	1) Halong City Water Supply Project 2) Halong City Water Sanitation Project	•当初のLoanを受けて実施中のプロジェクトである。 •現在 F/Sを実施中である。	•プロジェクトを実施しているコンサルタントはDANISAX Int'l A/S（デンマーク）である。現地事務所は下記にあるとのこと。 PROJECT OFFICE : Quang Ninh WaterSupply Company Nguyen Van Co Rd, Halong City Tel, Fax 84 33 826051
二国間	SIDA / Sweden	Grant 30.553 (1995) 	1)Vietnam Coastal Area Sensitivity Mapping	•現在調査段階にある。	•Local ConsultantのひとつであるcmesrcはSensitivity Map を行っており、海域の汚染あるいはマングローブ等の伐採が問題であるとの情報を得た。
NGO	IUCN	――――― （IUCN単独のGrantはないが、NGO 全体で Grant 11.25 (1994)）	今のところハロン湾に関連するプロジェクトは行っていない。		•関連情報として、IUCNのプロジェクトとは関係がないものの、OXBOW INTERNATIONAL POWER CORPORATION がハロン湾の東北部にある地点において火力発電所(300MWのCoal Fired Power Plants)を計画中であり、現在EIA(環境影響評価) を行っているのでコンタクトしてはとの情報を得た。連絡先は下記のとおり。 Mr. Trish Birchは代表はDr. Chien Nguyen Vice President of OXBOW INTERNATIONAL POWER CORPORATION Tel:561-640-8711 Fax:561-640-8847

※ Viet Nam's Developmental Partners UNDP（収集資料リスト23）を参考とした。

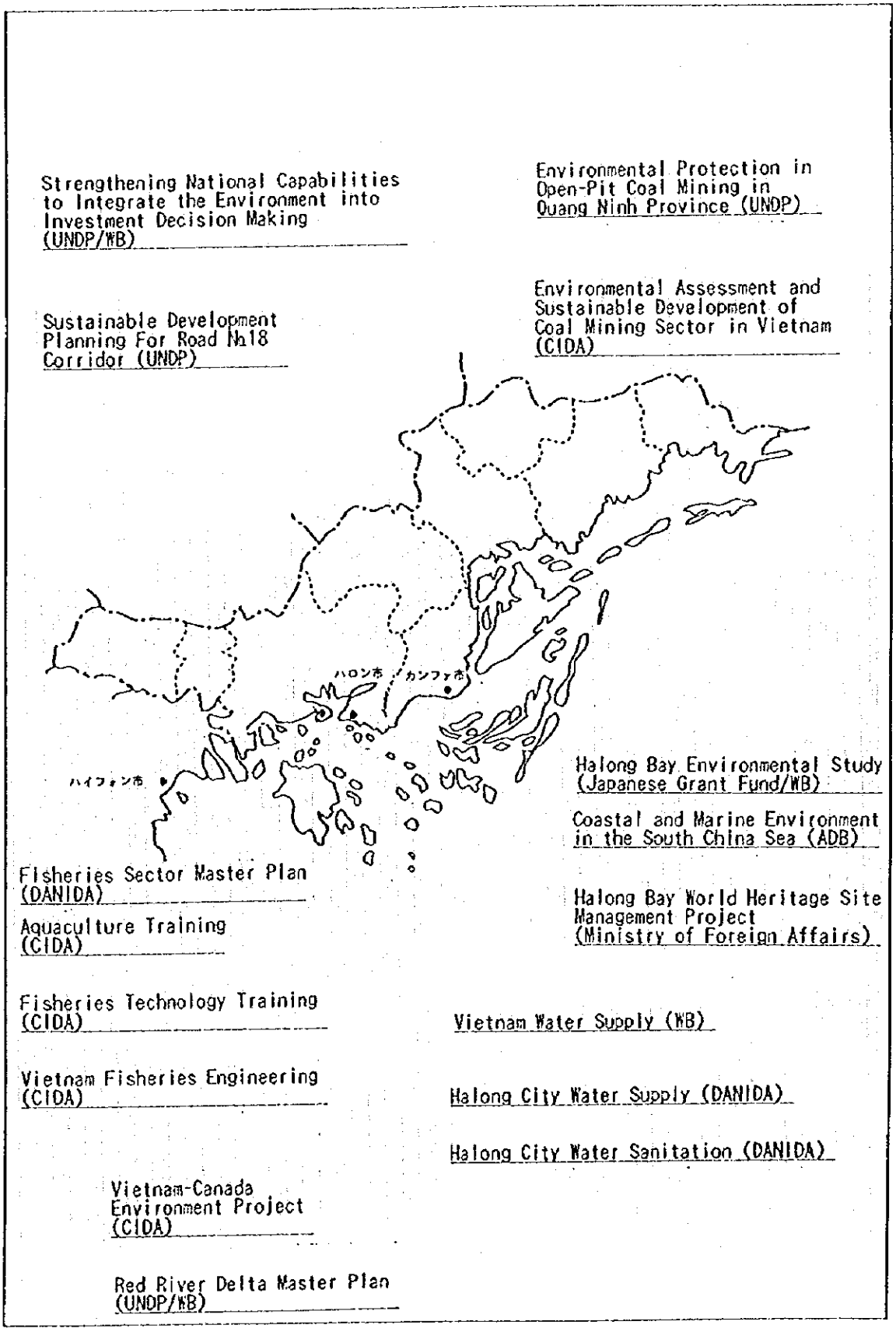


図9－1－1　ハロン湾周辺におけるプロジェクト実施状況図

9－1－2　国際機関による環境ODA

（1）WB（世界銀行）

1）The Ha Long Bay Environmental Pollution Study

① 調査はWBのJapan Fundによるものであり総額は2,800万円

② カウンターパート機関は、DOSTE（Mr. Vu Van Thanh）である

③ 調査はESSA Technologies Ltd.が受注し、この調査のチームリーダーはArthur Dennis Long氏（Internet:essa@netnam.org.vn）である

④ 調査の目的は

・水質汚濁源の把握とハロン湾のdilution capacityの評価

・ハロン市の開発に伴う水質汚濁を防止するための適正な戦略とその優先順位の策定

・クァンニン省DOSTEへトレーニングと技術移転を行う

2）Vietnam Water Supply Project

① 本プロジェクトは、ハノイ、ハイフォン、ハロン、ダナン各市を対象とした既存給水施設のリハビリテーションプロジェクトである

② 準備段階（F／S、デザイン、EIA）はDANIDAが調査を行い、レポートを作成している

これに要する費用は306万USドルである。なお、DANIDAは工事中の監理も担当する

③ 実際の工事は地元の会社が施工する。代表者名等は次のとおり

社　名：Ha Long City Environment Management Company QNPC

代表者名：Mr. Nguyen Manh Ha（Director）

Tel：033-826501

④ プロジェクトの総額（Base Cost）は2,200万～2,500万USドルになる見込みで、世銀がその80～90%、ヴィエトナム国側が10～20%の割合である

3）Vietnam Sanitation Project

① バイチャイ、カムファ、ホンゲイを対象に、下水、排水、固形廃棄物処理に関わるプロジェクトである。これに要する費用は約3,000万USドル

② 現在、F／Sを実施中であり（1997年12月に終了予定）、1998年2月に世銀ミッションがハロンへ行く予定である

③ プロジェクトは、KAMPSAX Int'l A/S（デンマーク）が受注し、プロジェクトマネージャーは、Mr. DAVID Mc Mullan（Internet：kampsax@netnam. org. VM）である

4）Quang Ninh Pilot Project

① プロジェクトは、ハロン湾を取り巻くクァンニン省の観光、石炭、港湾開発と環境保全を両立するためのLand-use planningを策定することを目的とするもので15か月間

にわたる調査が計画されている。これに要する費用は約58万USドル

② 現在、NGOの一つであるWorld Villageがプロポーザルを提出した（1997年８月）ところである

（２）UNDP（国連開発計画）

1）Environmental Management in Open-Pit Coal Mining in Quang Ninh Province

① プロジェクト開始後１年が経過したところであり、1996年７月及び1997年５月にwork shopを開催した（その際の資料を後日Dr.Anders Thurenより入手した。収集資料リスト16,17）

② カウンターパート機関は、工業省、DOSTEとVINACOALである

③ 実際のところ石炭開発がハロン湾の環境に与える影響及びその程度は分からないのが現状であるとのこと。その理由として、既存のデータが少ないこと、VINACOLAが情報開示を好まないからとのこと

④ 埋め立て用土として石炭残渣（採取後の土砂）が使われる場合があるが、そこに重金属等の有害物質が含まれている可能性もあり、今後、その調査も必要である

⑤ これまでの調査によれば、Mong Duong川における石炭採掘現場が最も水質に悪影響を与えているのではないかと考えられる。すなわち、降水によって石炭塵が流失し、沿岸には３m程度の堆積があるのではと考えられている

2）Strengthening National Capacities to Integrate the Environment into Investment Planning and Public Policy

① Phase１とPhase２に分かれており、前者は適正な投資と環境保全を目的にセミナー、ワークショップを開催することにより、国レベルの対処能力の向上を目指す。後者は1998年初めからクァンニン省で行われるプロジェクトであり、３つのパイロットプロジェクト（ハロン市DOSTEにおける対処能力の向上、石炭生産時の環境配慮、土地利用状況の把握）が計画されている

② DOSTEに対しては、環境インスペクション、EIA、モニタリング等の技術移転を行うことを目的としている

③ そのためDOSTE及び他の研究機関に１セットずつポータブル分析・測定機器を持ち込む予定で現在準備中であるとのこと

（３）ADB（アジア開発銀行）

1）Coastal and Marine Environmental Management in the South China Sea

① このプロジェクトについては、1996年８月にドラフトファイナルレポートが提出されADBとしては次のステップに進む用意（資金的）ができている。これは南シナ海の海洋区域と沿岸地域の環境管理方策を提案するもので、ハロン湾区域も検討対象地域

のひとつとして位置づけられている

② 現在、ヴィエトナム国政府と中国政府の調整が終了していないこと、及びMOSTE側からのプロポーザルが出されていないため、ハロン湾区域を対象とするプロジェクトは保留されている

③ このプロジェクトのMOSTE側の担当者は、Mr. Binh (in-charge, Envi. Dept, Tel 8242510)。詳細情報は彼から入手できる

2) Returning Assistance Programme (RAP)

① クァンニン省において、NGOが実施するプログラムである

② 具体的には香港に流出した難民を社会復帰させるためのプログラムであり、トレーニング、自立資金貸し付け、小規模事業への援助等を行っている

③ プログラムは、ECIP (European Community Int'l Programme, 1993～1995)、RAP (1996～) が行っている

④ したがって、草の根の援助についてはRAP Officeへ行けば情報交換ができる。事務所の連絡先は次のとおり

5/12 Bac Co, Tran Guang Kliai St., Hanoi

Tel : 9340537、9340538

9－1－3 各国ドナーによる環境ODA

(1) CIDA／CANADA

1) Environmental Assessment and Sustainable Development of Coal Mining Sector in Viet Nam : A Case Study of Coal Mining of Quang Ninh Province

Vinacoalにおける持続可能な石炭開発と環境保全を両立させるための方策の検討を行っている

2) Training Workshop on the Role of Participatory Appraisal in Regional Sustainable Development Planning in Quang Ninh Province

地方レベルにおいて環境管理対処能力の向上をめざすためワークショップを開催している

3) VCEP (Viet Nam Canada Environment Project)

① DOSTEの対処能力向上を目指し、日本側と協調しながらプロジェクトを実施中である。

② 具体的には、日本側でヴィエトナム国のカウンターパート研修を担当し（現在DOSTEから２名が日本で研修中)、カナダ側がフォローするというものである

③ 現在４か所のDOSTE（ハノイ、ハイフォン、ダナン、ビンドン）を対象に技術移

転を実施している

④ 上記4か所に測定・分析機器を供与することが決まっているとのこと。ヴィエトナム国政府側としては日本がインドネシア及びタイに作った研究センターをイメージしているようだが、それは時期尚早であると判断し、簡易分析器及び基礎的な機器を供与する方針であるとのこと。なお、機材リストについては、VCEPのProgramme ManagerであるM. Sc. Peter Guyより入手した

（2）DANIDA／DENMARK

当初、Halong City Water Supply and Sanitation Projectとして実施されていたが、1996年以降からは下記に示す1)、2)の2つに分割された。

1) Halong City Water Supply Project

① 世銀のLoanを受けた実施中のプロジェクトである

② 現在、Tender document（入札書類）を作成中である

③ コンサルタントはKAMPSAX Int'l A/S（デンマーク）であり、連絡先は次のとおり

PROJECT OFFICE : Quang Ninh Water Supply Company

Nguyen Van Cu Rd. Halong City

Tel. Fax 84 33 836851

2) Halong City Water Sanitation Project

① 現在、F／Sを実施中である

② 1998年1月15日までにF／S（EIAを含む）を提出する予定である

③ 詳細設計は、1998年3月に開始し、同年10月に終了する予定である

（3）SIDA／SWEDEN

1) Viet Nam Coastal Area Sensitivity Mapping

本プロジェクトは、ヴィエトナム全国の海岸線から内陸へ10kmの沿岸地域における環境へのインパクトに対するセンシティビティの分析を行っている。人工衛星の写真を使用して分析し、全国を221地域に分けた地図上に表示したもので、1991年に開始し、現在最終化のための調整を行っている。1997年中には完了の予定である。作成した地図は1／100,000の図が221枚、さらに縮尺の低い地図が500枚である。現在、最終校正の段階にあるとのことである。

9－2　その他関連援助動向

9－2－1　NGOによる援助

（1）IUCN（世界自然保護連合）

今のところハロン湾に関連するプロジェクトは行われていないとのことである。現在実施中、または実施予定の主なプロジェクトは次の4件である。

1）Strenghten Environment Management Authority

① SIDAの資金で、1999年7月まで実施予定のプロジェクトである

② カウンターパート機関はMOSTE

③ 現在、プロジェクトマネージャーとコーディネーターをリクルート中である

④ 主な目的は、行政機関の組織強化による対処能力の向上及びPollution Control Inspection Surveyを行うことである

2）Sustainable Tourism Management Project

① OXFAMの資金援助で実施の予定である

② Phase 1が16か月、Phase 2が8か月の予定

③ 持続可能な観光についてパイロットプロジェクトを設けプロジェクトを実施する

3）Testing EIA

① 未だ実施していない

② カウンターパート機関はMOSTEになる見込み

4）Sustainable Use of Non Timber Forest Products

① 今後6か月以内に開始の見込み

② カウンターパート機関はMOSTE

③ 人々がマッシュルーム、ラタン、はちみつ、薬草等を山地から無計画に採取することを防止するとともに植林手法を技術移転し、持続可能な林業の確立をめざすものである

第10章　本格調査の基本方針

10－1　本格調査の目的

（1）ハロン湾とその周辺地域を対象とした環境と開発の両立をはかる包括的な環境管理計画を策定することを目的とする。

（2）本件調査を通じて、ヴィエトナム国側カウンターパートに対して技術移転を行う。

10－2　調査対象地域

ハロン湾とその周辺地域、主としてハロン市と汚染源となる周辺地域を対象とする。基本的には、討議議事録（M／M）に添付した地図を概略把握（マクロ分析）の主な対象地域とし、衛星画像解析や現地踏査などを通じ、詳細に調査する地域を絞り込むこととする。

また事前調査結果から、バイチャイ（Bai Chay）地区、クアオン（Cua Ong）地区は詳細調査実施が必要であることを確認した。

また、周辺地域としては、カットバ（Cat Ba）島については、先方が提出する既存資料による現状把握を行い、ハロン湾に面している沿岸域についてはハロン湾に与える周辺環境の影響を調査することとした。

10－3　基本方針及び留意事項

10－3－1　調査の基本方針

（1）環境と開発の両立をめざす計画策定

ハロン湾とその周辺の地域は、北部の経済開発拠点のひとつであり、ヴィエトナム国の経済開発の牽引的な役割を担うことを期待されている。一方、同地域は世界自然遺産に指定さている風光明媚な景観とともに水産業、観光等を育む豊富な自然資源を有している。このような地域においては、環境と開発の両立を確保しうる環境管理計画－環境の保全と持続的活用－の策定は必要不可欠である。

（2）ハロン湾地域の環境状況の把握

計画の策定においては、ハロン湾地域の環境の現状把握は特に重要となるため、科学的かつ客観的にハロン湾地域の特性、環境の状況を把握することが必要である。

（3）予防的・予見的な対策の検討

ヴィエトナム国は、ハロン湾地域も同様であるが、これから本格的に経済開発をめざす

段階にあり、環境問題に対する取組みも開始されたばかりである。環境に関する法制度はある程度整備されているものの、実施面においてはまだまだ初歩的段階であるといえる。

他方、日本は高度成長を達成した後に環境問題の取組みを本格化したが、これまでの日本の経験から、早期の段階での公害投資は経済的・社会的側面からも有利であることが判明している。本調査においては、開発を進めながら環境問題に取り組むといった予防的、予見的対応の必要性を先方に十分理解してもらうよう配慮するとともに、計画策定にも反映させる必要がある。

（4）日本の経験の紹介

ヴィエトナム国の発展段階、開発と環境への取組みを同時的に行う必要性を考慮すると、日本の高度成長に伴う環境問題の惹起とその克服の過程で得た経験とノウハウは、技術移転の重要なテーマである。日本の経験を踏まえ、以下の点に留意して技術移転を実施する必要がある。

① 日本の開発と環境保全両立の道は決して平坦でなかったことを明確にする

② 急速な経済開発の過程でどのような環境問題が生じたのか、それらは地域社会の振興にどのようなインパクトをもたらしたのかを取り上げる

③ 経済発展レベルの各段階で採られた対策の経済側面、技術側面、社会側面を明確にする

④ 産業公害対策に取り組むことによって切り開かれた地平。たとえば省エネ、省資源、人材の育成による企業の競争力の強化を明確にする

⑤ 開発初期の段階から環境対策を講じることの経済的・社会的優位性を明確にする。ISO－14000のように、マーケットが環境上の配慮を求める傾向がますます強まることから、ヴィエトナム国の産業強化のためにも環境対策をないがしろにできないことを伝える必要がある

（5）世界遺産への配慮

本調査はハロン湾という世界遺産指定地域を含んでいるため、UNESCOなどの国際機関や他の援助機関の関心が高い。UNESCOは世界遺産を担当している国際機関であり、今後直接もしくはヴィエトナム国を通じ説明を求められる可能性があるため、必要に応じ対応する必要がある。また、世界遺産地域の適切な管理のあり方については、科学的根拠をもって提示する必要がある。

10－3－2　調査実施上の留意点

開発調査を行うにあたって、以下の点に留意して調査を実施する必要がある。

（1）水質分析技術の強化及び環境モニタリング体制の整備

策定した環境管理計画を実施する実施体制の整備は必須のものであるが、ヴィエトナム国はまだまだ初歩的段階にあり、カウンターパート機関のキャパシティーは極めて低い状況にあるため、水質分析、モニタリング及びインスペクションにかかる能力向上を図り、必要最低限の実施体制を付与する必要がある。

（2）技術移転セミナー・ワークショップの充実

基本方針でも触れたが、本調査ではこれまでの日本の経験を時宜に応じ紹介することが大変重要であることから、調査の段階に応じミニワークショップを開催し環境管理の概念、日本の事例紹介を実施することが肝要である。また、技術移転セミナーについても十分に準備を行い、プレゼンテーションにも留意して、効果的なセミナーを実施する必要がある。

（3）ヴィエトナム国側関係機関の調整

本調査に参画する関係機関は多岐にわたるが、策定した環境管理計画を実効性の高いものにするためには、これら関係機関の積極的参加と調整が不可欠になる。調査期間を通じ関係機関の参画の確保と調整に努力を傾注することが必要である。

（4）他援助機関との連絡・調整

本調査の対象地域内には、世界銀行(WB)、アジア開発銀行(ADB)、国連開発計画(UNDP)、カナダ国際開発庁（CIDA）などの種々の国際機関、援助機関がさまざまな協力を実施しているため、これらの機関と十分に情報交換を行い、動向を把握し、本調査に反映させるとともに、必要に応じ調査の成果及び進捗状況などの情報提供を実施して調整を図る必要がある。

10－4　調査項目

（1）フェーズⅠ：基礎調査

① 既存資料の収集・整理

② 衛星画像解析（マクロ解析）

③ 現地踏査

④ 現状把握

⑤ 実査

1．水質調査

2．潮流調査

3．生物指標調査

4．社会・経済調査　等

⑥　水質汚濁メカニズム解析

⑦　水質汚濁シミュレーション構築

⑧　基礎調査結果の解析・検討

（2）フェーズⅡ：環境管理計画策定

①　社会・経済フレーム設定

②　将来環境予測

③　計画基本方針策定

④　環境ゾーニングの設定

⑤　環境管理基準・目標の設定

⑥　環境保全対策の検討

⑦　モニタリング計画検討

⑧　組織・法制度検討

⑨　事業費概算

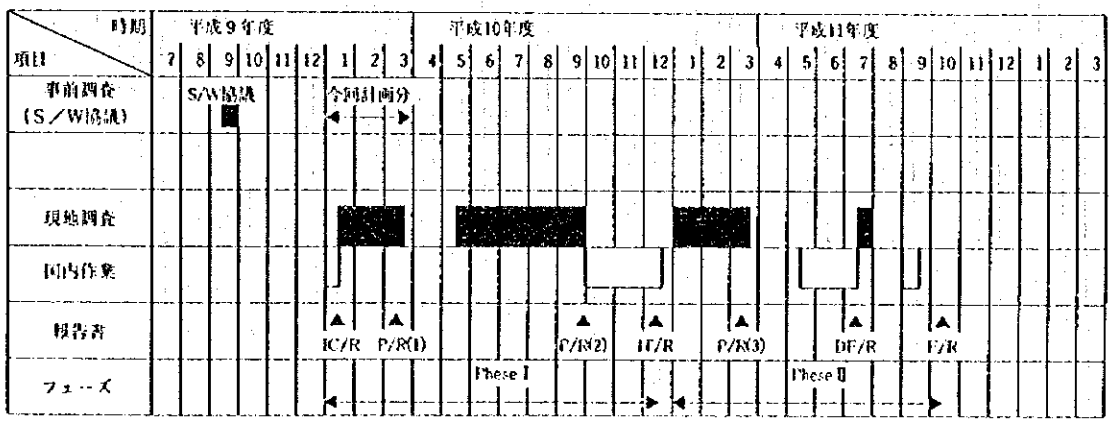
⑩　評価

⑪　段階別事業実施計画策定

⑫　提言

10－5　調査工程

調査工程は、全体で18か月とする。全体調査工程は次のとおりである。



10－6　調査団構成

調査団は、おおむね以下の要員により構成される。

① 総括

② 環境管理計画

③ 自然環境（生態系・水産資源）

④ 水文／水質汚濁解析

⑤ 水質分析・モニタリング計画

⑥ 環境衛生（下水・廃棄物）

⑦ 地域開発計画／土地利用

⑧ 港湾調査

⑨ 公害対策（石炭産業）

⑩ 汚濁源対策（観光）

⑪ 景観保全

⑫ 組織・法制度

⑬ 経済・財務分析

⑭ データベース

10－7　調査実施体制

10－7－1　カウンターパート機関

カウンターパート機関は、科学技術環境省（MOSTE）及びクァンニン省人民委員会とする。MOSTEは、ヴィエトナム国の環境関連問題を総括する責務を有する機関であり、実質的には国家環境庁（NEA）がクァンニン省人民委員会を含め、調査全体のマネージメントを行うこととなる。また、クァンニン省人民委員会は、同省の地方行政機関であり、環境に関連する組織としては、科学技術環境局とハロン湾管理局があり、この２局のほかに関連組織が加わってカウンターパートを形成することとなる。

10－7－2　ステアリングコミッティ

本調査に関係する機関は、計画投資省（援助窓口）、外務省（UNESCO等他援助との関係）、文化・情報省（世界自然遺産）、運輸省、工業省、商業省、農業・地方開発省、建設省、観光総局等関係機関が多岐にわたることから、ヴィエトナム国側と協議してステアリングコミッティを設置することとした。さらに、事務レベルでの協議を円滑に実施することを目的にワーキンググループを設置することとすることも、先方と合意した。

添 付 資 料

1．ヴィエトナム国政府要請書
2．SCOPE OF WORK
3．MINUTES OF MEETING
4．質問表及び回答
5．主要面会者リスト
6．収集資料リスト
7．参考資料

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2．SCOPE OF WORK

3．MINUTES OF MEETING

4．質問表及び回答

5．主要面会者リスト

6．収集資料リスト

7．参考資料

添付資料１

ヴィエトナム国政府要請書

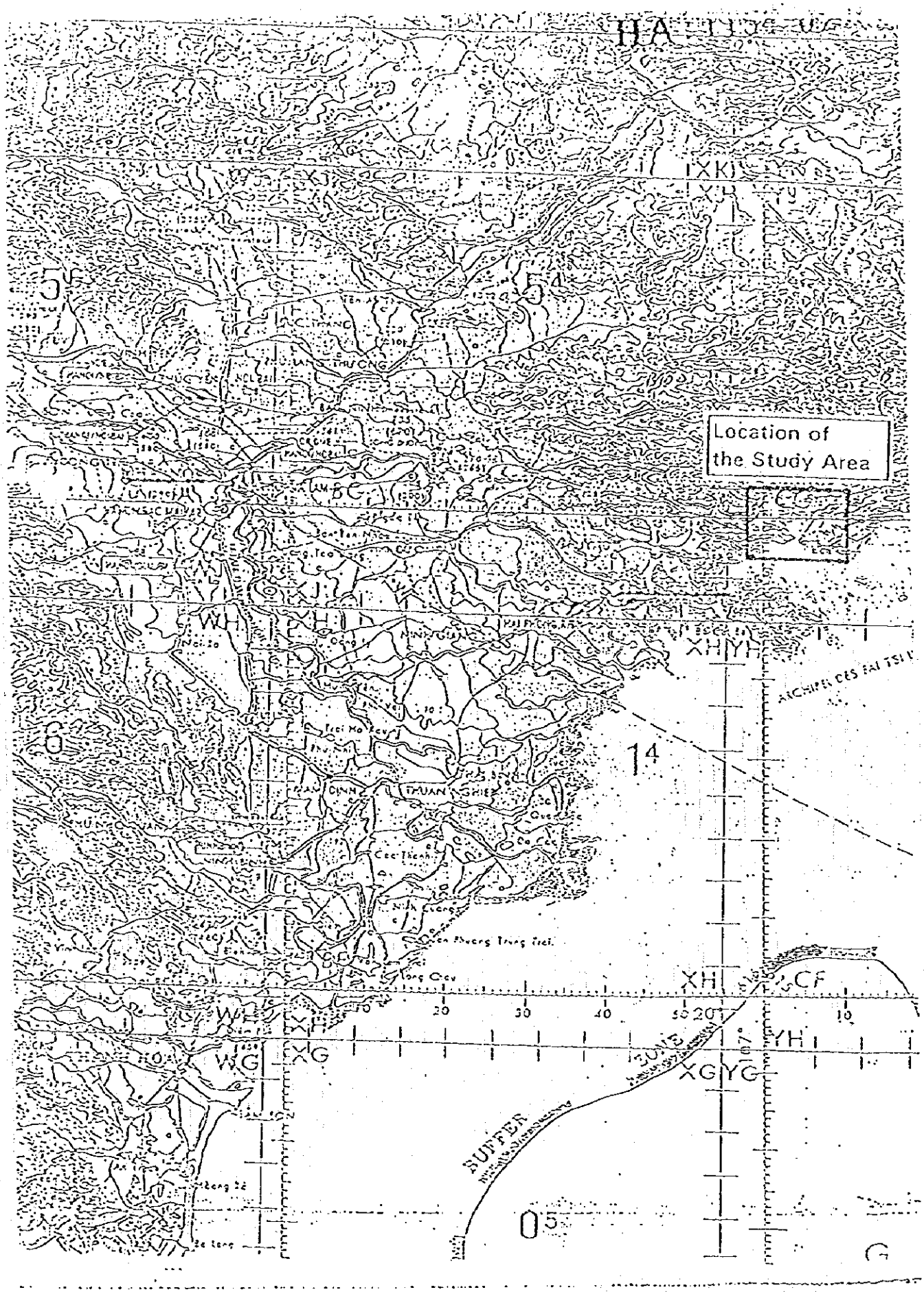
HA:1154-01

(DRAFT)

TERMS OF REFERENCE

For

COMPREHENSIVE ENVIRONMENTAL CONSERVATION STUDY FOR HA LONG CITY AND BAI CHAY BAY AREA


Location of
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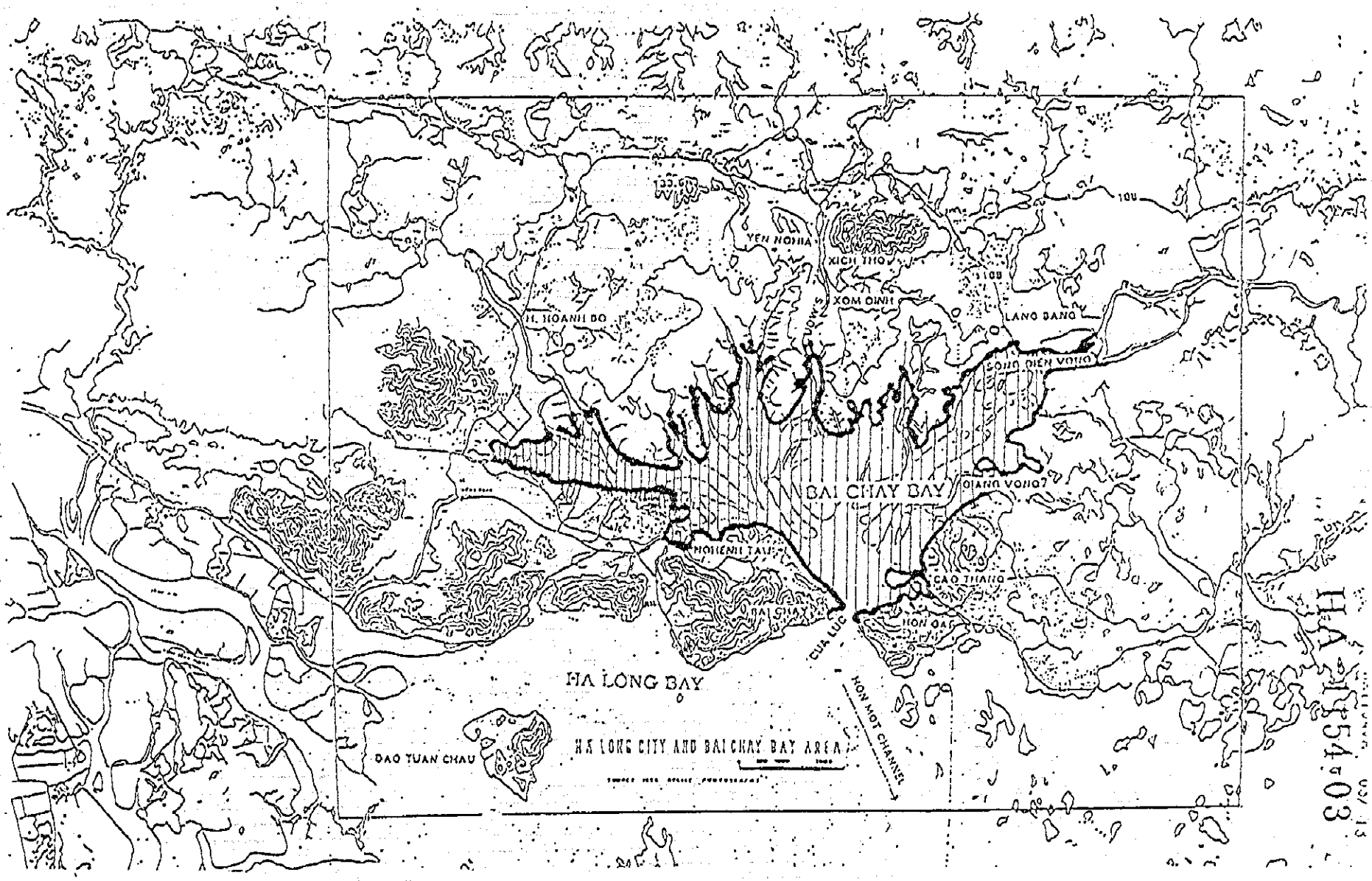

YEN NGHIA
XICH THO
XOM DINH
H. HOANH BO
LANG BANG
SONG DIEN VONG
BAI CHAY BAY
DIANG VONG
HOHENH TAU
CAO THANG
HON GAI
CUA LUC
HON MOT CHANNEL
HA LONG BAY
DAO TUAN CHAU
HA LONG CITY AND BAI CHAY BAY AREA

HA 1154.03

HA : 1154-04

1. BACKGROUND AND NECESSITY OF THE STUDY

Ha Long City is a new city recently established by mergence of Hong Gai, Bai Chay and their surrounding area in Quang Ninh Province.

Ha Long City, located about 250 km east of Hanoi, faces to two bays, Ha Long Bay and Bai Chay Bay. Geographically, Bai Chay Bay is separated from Ha Long Bay by Cua Luc Strait where the Bay Chay - Hong Gai Ferry provides a link between Bai Chay District and Hong Gai District.

Ha Long Bay, dotted with a number of small scenic islands, is one of the most beautiful spots in Vietnam. Many tourist hotels cluster along the coast of Ha Long Bay. Most of them are located in Bai Chay side of Cua Luc Strait. During summer seasons, many vacationers visit Ha Long Bay and enjoy sightseeing by boat-cruising in the bay area.

The Bai Chay - Hong Gai Ferry functions as a section of national road No.18. In addition to this ferry service, many port facilities are concentrated near Cua Luc Strait. Near the Hong Gai Ferry Terminal there is a coal export port, "Hong Gai Port". Cai Lan Port is now under construction partially on the southwestern coast of Bai Chay Bay, which is sparsely inhabited by local villagers and partly occupied by various shore facilities such as the B-12 oil berth, Ha Long ship yard, brick factory, etc.

Into Bai Chay Bay flow many rivers whose estuaries are densely covered by mangroves. This mangrove forest abounds in the northern ans western coastal zone of Bai Chay Bay, being relatively thin in its southern coast. This mangrove forest, in terms of its role in the local ecological and hydrological system, seems to have significant value.

As Bai Chay Bay forms a lagoon, its basin is relatively calm all the year round. The water depth around the entrance of Bai Chay Bay through Cua Luc Strait to Ha Long Bay is deep enough to receive ocean-going vessels of up to 30,000 ~ 50,000 DWT (deadweight ton). Making use of this natural potential, various kinds of coastal development is now under way or under planning, including:

- Cai Lan Deep-sea Port, in Bai Chay Bay, and associated port facilities,
- Industrial zone and export processing zone in the hinterland of Cai Lan Port,
- Up-grading of Route No.18,
- New residential areas,
- Tourism area development, etc.

A Master Plan of Halong City by the year 2010 has been compiled by the local government covering sectoral development and land use plan, and has obtained the Prime Minister's approval in April 1995.

An environmental impact assessment have been carried out for the development of Cai Lan Port. In this Cai Lan Port study, EIA for the construction of the port facility and its operation for the first stage (by 2000) has been done. The construction of the port will trigger establishmnet of various factories in the vicinity of the port and eventually regional development will be enhanced. Such economic activities give strong impact to the area's environment. Assessment of these aspects are considerably important as well as the EIA for a single project of construction and operation of the port facility. A comprehensive environmental conservation study proposed here for Bai Chay Bay area is a quite big work and out of scope of the Cai Lan Port study. This proposed comprehensive study is

needed to be done in parallel with the implementation of the first stage of the Cai Lan Port Project.

With careful and forward environmental planning and effective institutional arrangements, it should be possible to ensure that the existing environmental values can be protected and successful tourist industry is established. To realize the sustainable development of Ha Long City and Bai Chay Bay area in good harmony with the environmental conservation in the region, it is very important and urgent to set up a comprehensive environmental management plan with guidelines for environment monitoring and enforcement of regulations, thereby coordinating all the development activities in the area. It is also needed to implement, in an early stage, environmental improvement facilities such as drainage/sewage system, solid waste disposal system and parks/landscaping.

2. JUSTIFICATION OF JAPANESE TECHNICAL COOPERATION

In 1993/94 the Government of Japan, through Japan International Cooperation Agency (JICA), assisted to carry out the Master Plan Study on the Transport Developement in the Northern Part in Vietnam, which was to prepare a comprehensive transport sector master plan for the northern part of the country including Quang Ninh Province. Subsequently, JICA has completed "Feasibility Study on Cai Lan Port Construction Project" at Bai Chay Bay, in 1994/95.

Bai Chay Bay is a closed water area, and not open sea where discharges are easily diffused over a period of time. In such areas of enviroment, careful environmental management system is to be well established for the economic development activities. Vietnam has not many experiences of development activities in this kind of environment, while Japan has experienced quite serious problems related to the similar type of development and also experienced in developing environmental management expertise appronate to such areas.

The other aspect to be paid attention to is a recent tendency in the international cooperation. It has become a global consensus that developed countires like Japan are better not to assist any project on which enough consideration is not paid for the environmental aspect as well as human right.

Taking into account Japanese experiences in environmental management in Japan and in cooperation to developing countries, it is very much desirable to ask for the Governement of Japan to assist in this proposed comprehensive environmental conservation study in Halong Bay.

3. OBJECTIVES OF THE STUDY

The ultimate target of the study is to set up an effective and practical environmental management framework for the development in Ha Long City and Bai Chay Bay area. To fulfill the target, it should be taken into account as a prerequisite to preserve the important and beautiful environment of the area, and to allow such development of industries as those not environmentally damaging.

Immediate objectives of the study consist of the following:

- To evaluate the real-state of the environment of the area and analyse environmental data relevant to the formulation of an environmental management plan,

- To establish strategies on environmental protection from the viewpoint of sustainable development,

- To put forth institutional frame work for implementation of the environmental conservation and management plan,

- To formulate projects to be implemented for the improvement of the environment of the area: such as drainage/sewage system, solid waste disposal system, parks/landscaping, etc., and

- To transfer expertise and knowledge of environmental management and protection to counterparts of the study, and to provide with tools and equipment for environmental monitoring and testing.

This study would follow the lead set out by Vietnam's Law on Environmental Protection which provides an overall environmental philosophy. The environmental management framework would meet the specific requirement of the environment of the study area, to fit into that philosophical framework.

4. STUDY AREA

The study area, in a broad term, can be seen as comprising two distinctive elements as follows :

- Bai Chay Bay ; the "inner marine" area comprising an extensive mangrove forest environment, together with the "coastal" area where port, industrial, commercial and residential developments are proposed.

- Ha Long Bay ; the "outer marine" and "coastal" area of Ha Long Bay composing tourism, commercial, industrial and residential zones, that is an important area as a tourism base near the ocean.

5. SCOPE OF THE STUDY

5.1. General

To achieve the objectives specified above, the study shall be undertaken in a phasewise manner, including the following scope of works :

Phase I : Scoping of Important Environmental Items and Environmental Zoning

The major outputs under this first phase are identification or confirmation of existing environment which is supposed to be important and valuable for the region's sustainable development in the future, and appropriate zoning of the study area from the environmental point of view, resulting from the following Phase-I study activities :

(1) Review of the existing environmental condition in the study area, including physical/natural resources, social environment and waste disposal,

(2) Review and confirmation of the planned development strategy/schemes in the study area, including review and assessment of the Halong City Master Plan and further elaboration of it as required,
(3) Scoping of important environmental items in the study area,
(4) Environmental zoning of the study area, and
(5) Conduct of additional field survey for each zone to supplement the baseline data for Phase II.

Phase II : Formulation of Environmental Management Framework

Being based on the outputs of the Phase-I study, the study activities below will be taken place to fomulate and implement the environmental management plan :

(1) Setup of protection criteria and conservation targets for environment,
(2) Review and justification of the environmental zoning plan proposed in Phase I,
(3) Assessment of environmental impacts and recommendation of protection measures necessary for the planned development strategy and schemes,
(4) Formulation of Environmental Management Plan, and
(5) Recommendation of an effective and practical institutional framework for implementing the Plan, including personnel training together with supplying equipment.

Phase III: Formulation of Projects for Environmental Improvement

Specific projects to avoid elements to worsen the environment or projects to improve the environment shall be fomulated for future implementation, based on the following activities:

(1) Clarifying elements to worsen the environment, at present and in the future forecast according to the Halong City Master Plan, and
(2) Formulation of proposed projects and carry out their pre-feasibility study.

5.2. Detailed Scope of Work

Phase I-(1) : Review on the existing environmental condition

To evaluate the present level of environmental condition of the study area; the available data/information of environmental items as follows shall be collected and analyzed;

1) Physical Aspect
- seabed topography,
- oceanographic conditions,
- seawater quality and sedimentation,
- meteorological and hydrological conditions, and
- seismicity

2) Natural Resources and Environment
- marine area,
- coastal area, and
- terrestrial area

3) Social and Institutional Aspects
- socio-cultural aspect,

- socio-economic aspect, and
- existing rules or regulations for environmental protection (such as the tentative water quality standard developed under the Cai Lan Port Development Project)

4) Drainage and Sewage
- rain water, flood water, waste water, and their drainage and treatment system

5) Wastes
- liquid, solid and hazardous wastes, and their handling and disposal system

Phase I-(2) : Review and confirmation on the planned development strategy/schemes

For formulation of Environmental Management Plan, planned regional development strategy and schemes for the study area should be fully reviewed and confirmed, since they ought to be the baseline framework to examine future environmental risk and hazard. This test includes review and assessment of the approved Halong City Master Plan and for the evaboration or modification as required.

In addition to the governmental-based development strategy and schemes, various types and scales of the development schemes planned by private sectors shall also be reviewed.

Phase I-(3) : Scoping of important environmental items

Making full use of the results of the above analysis, environmental items and scopes, which should be most focused because of their importance and value for the regional sustainable development, will be defined. This work is quite significant to efficiently formulate an environmental management framework.

Phase I-(4) : Environmental zoning

A zoning plan for the study area is to be proposed at this stage, from a viewpoint of environmental conservation. To do this, available data/information collected upto here is made full use of, according to the result of scoping above and some appropriate zoning criteria which should be prepared in advance.

Phase I-(5) : Additional field survey for each zone

In Bai Chay and Ha Long City area, some environmental survey and investigation were carried out by the government and environmental insitutes in Vietnam. To supplement the environmental baseline data in each zone, additional field survey shall be conducted on site, including the following basic environmental items :

- mangrove forest,
- hydrology and water quality, and
- air quality

Phase II-(1) : Setup of protection criteria and conservation targets

Using the data resulting from the additional field survey for each environmental zone at Phase I, probable situation of the key environmental aspects in future will be further analised. For instance,

- air and water quality to be quantitatively analysed, and

- ecosystem such as mangrove forest to be qualitatively analysed

For quantitative analysis, either available simulation models can be utilized, or new models will be developed as far as appropriate and possible within this study constraint.

At last, reflecting these analytical outputs, protection criteria and conservation targets for local environment are developed by means of review on the such existing regulations and new setup of them. This work should be done taking implementation capability into due account.

Phase II-(2) : Review and justification of the environmental zoning plan

The environmental zoning plan presented in Phase I will be reviewed, justified and confirmed as satisfactory as possible, through prediction of negative loading only from the major development projects planned in the future development strategy.

Phase II-(3) : Assessment of environmental impacts and recommendation of protection measures

Firstly, environmental impacts of the planned development strategy and schemes are to be preliminarily assessed. And then, recommendation on appropriate environmental guidelines and measures against severely negative impacts will be made.

Phase II-(4) : Formulation of environmental management plan

Having recommended the environmental zoning framework, the environmental management plan for the zones shall be developed. It would combine the outputs of Phase-II study, such as :

1) Environmental protection criteria and conservation targets relating to,
   - atmospheric emissions,
   - noise,
   - water use and quality,
   - receiving water criteria,
   - waste management,
   - land use criteria,
   - mangrove forest, and so on.

2) For each zone defined in zoning plan, a set of guidelines establishing the appropriate scale and extent of environmental protection measures as well as an efficient environmental monitoring system will be defined.

Phase II-(5) : Recommendation of institutional framework

To be effective, Environmental Management Plan must be capable of being implemented by those "in the field". It is therefore important to ensure that, firstly, the Plan recognizes the prevailing conditions in the context of government and local decision making mechanism, and secondly that the study provides guidance on how the institutional framework can best be set up to ensure successful implementation.

The Study shall present:

1) Organizational structure for environmental monitoring to ensure the conservation of the environment in conformity with Environmental Management Plan, and

2) Practical system to control development activities, i.e. procedures for permits and decision-making on applications.

This shall be discussed with all interested groups, and based on these discussions a final recommended Institutional Framework shall be presented.

In the course of the study, intensive training of personnel to be involved in the environmental management and monitoring, transfering advanced knowledge and know-how together with providing some tools and equipment for environmental monitoring.

Phase III-(1): Clarifying elements to be improved

Assesment shall be made on every element to be improved to keep a good environment. Such elements may include; rain/flood water drainage, waste water treatment, solid waste disposal, landscaping.

Phase III-(2): Formulation of projects

Based on the above assessment, formulate projects of high priority to improve environment, and carry out pre-feasibility study for these projects.

6. SCHEDULE OF THE STUDY

This comprehensive environmental conservation study for the total development of Bai Chay Bay area is precondition to the initiation of the construction of development projects. At least without decision to perform this comprehensive study, it is not recommendable to start big development work. And the comprehensive study must be done in parallel with the implementation of the first stage of the Cai Lan Port Development. In early stages before full operation of development activities take place, environmental impact assessments should be presented, effective environmental management plan must be established, and necessary regulations must be defined and enforced.

The study shall be carried out in accordance with the attached tentative schedule, taking about 15 months.

7. REQUIRED EXPERTIZE

The following is a tentative list of experts deemed to be required for this study :

- Project manager
- Environmental planner
- Regional development planner/economist
- Hydrologist
- Marine hydraulic specialist
- Water-quality analyst
- Water-quality simulation specialist
- Air-quality analysis/simulation specialist
- Ecologist
- Fishery expert
- Land-use planner
- Waste disposal planner
- Institutional expert

8. REPORTING AND SEMINAR

JICA shall prepare the following reports in English and submit them to the Government of Vietnam and organize Seminars to invite domestic and foreign agencies and organizations concerned at the timing of important report submission:

(1) Inception Report (30 copies)
This report is to describe the overall approach and implementation program of the study and to be submitted at the beginning of the study.

(2) Interim Report (30 copies) and Seminar
This report is to describe the results of the Phase-I study activities and to submitted within 7 months. Seminars will be organized at Halong and Hanoi.

(3) Draft Final Report (30 copies)
The report is to describe the result of the whole study including environmental management plans and to be submitted within 14 months. The comments made by the authorities concerned of the Government of Vietnam shall be submitted to JICA within 3 weeks after the explanation of the Draft Final Report as well as an environmental workshop.

(4) Final Report (60 copies)) and Seminar
The report is to describe all the essential recommendations, results, and findings of the study and to be submitted within 1 month after having received the written comments on the Draft Final Report from the Government of Vietnam. Seminars will be organized at Halong and Hanoi.

9. UNDERTAKING OF THE GOVERNMENT OF VIETNAM

(1) To facilitate the smooth implementation of the study, the Government of Vietnam shall take the following necessary measures :

1) to secure the safety of the Japanese study team,

2) to permit the members of the Japanese study team to enter, leave and sojourn in Vietnam for the duration of their assignment therein, and exempt them from consular fees and alien registration requirements,

3) to exempt the members of the Japanese study team from taxes, duties and other charges n equipment, machinery and other materials brought into and out of Vietnam for the implementation of the study,

4) to exempt the members of the Japanese study team from income tax and other 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 Japanese study team for remittances 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 restricted areas for the implementation of the study,

7) to secure permission for the Japanese study team to take all data and documents (including maps, photographs) related to the study out of Vietnam to Japan, and

8) to provide medical services as needed ; the expenses will be chargeable n the members of the Japanese study team.

(2) The Government of Vietnam shall bear claims, if any arises against the members of the Japanese study 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 arise from gross negligence or willful misconduct on the members of the Japanese study team.

(3) People's Committee of Halong City shall act as the counterpart agency to the Japanese study team and also as the coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the study.

(4) The Halong City, at its own expense, shall provide the Japanese study team with the following, in cooperation with other organizations concerned such as MOSTE:

- available data and information related to the study,
- counterpart personnel,
- suitable office spaces with necessary equipments in Hanoi and Bai Chay, and
- credentials or identification cards if required.

10. UNDERTAKING OF JICA

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

(1) to despatch , at its expense, the study team to Vietnam,

(2) to pursue technology transfer to the Vietnamese counterpart personnel in the course of the study, and

(3) to provide equipment and machinery for the implementation of the study, which will remain the property of the Government of Japan unless otherwise agreed upon.

Schedule of the Study

Study Works	FY 1995								FY 1996						
	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Phase I															
Preparation for Phase -I Study															
Presentation of Inception Report															
(1) Review on the Existing Environmental Condition															
(2) Review and confirmation on the Planned Development Strategy/Schemes															
(3) Scoping of Important Environmental Items															
(4) Environmental Zoning															
(5) Conduct of Additional Field Survey															
Drafting of Interim Report															
Presentation of Interim Report															
Phase II															
(1) Setup of Protection Criteria and Conservation Targets															
(2) Review and Justification of the Environmental Zoning Plan															
(3) Assessment of Environmental Impacts and Recommendation of Protection Measures															
(4) Formulation of Environmental Management Plan															
(5) Recommendation of Institutional Framework															
Drafting of Final Report															
Presentation of Draft Final Report and Environmental Workshop															
Completion of Final Report															
Presentation of Final Report															

IIA: 1154-13

添付資料 2

SCOPE OF WORK

SCOPE OF WORK

FOR

THE STUDY

ON

ENVIRONMENTAL MANAGEMENT FOR HA LONG BAY

IN

THE SOCIALIST REPUBLIC OF VIET NAM

AGREED UPON BETWEEN

MINISTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT

AND

PEOPLE'S COMMITTEE OF QUANG NINH PROVINCE

AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

Hanoi, September 19, 1997

Dr. PHAM KHOI NGUYEN
Vice Minister,
Ministry of Science, Technology and Environment

Mr. SENRO IMAI
Leader of the Preparatory Study Team,
Japan International Cooperation Agency (JICA)

Mr. NGO DINH THO
Vice Chairman,
People's Committee of Quang Ninh Province

I. INTRODUCTION

In response to the request of the Government of the Socialist Republic of Viet Nam (hereinafter referred to as "the Government of Viet Nam"), the Government of Japan has decided to conduct The Study on Environmental Management for Ha Long Bay in the Socialist Republic of Viet Nam (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

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

The present document sets forth the Scope of Work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. to formulate environmental management plan for Ha Long Bay area to be compatible with nature conservation and human activities.
2. to transfer technology to the counterpart personnel in the course of the Study.

III. STUDY AREA

The Study will cover Ha Long Bay which is designated by UNESCO as the World Natural Heritage and its buffer zone, and the surrounding area.

IV. SCOPE OF THE STUDY

Phase I: Basic Study

1. Collection and review of related data and information
   (1) natural conditions, including meteorological, geological, coastal environment, water quality, fauna and flora data
   (2) social and economic conditions
   (3) national, urban and regional development plans
   (4) laws, regulations, policies and customary practices relevant to environment
   (5) land use
   (6) solid and liquid waste
   (7) present institutions, organizations, administration and their function relevant to environment
   (8) on-going and planned projects relevant to environment and Ha long Bay
   (9) social and economic infrastructures relevant to the Study
   (10) existing water supply and sewerage facilities
   (11) on-going and planned projects relevant to the Study
   (12) other relevant data and information

2. Remote sensing survey

3. Field reconnaissance
   (1) present environmental conditions of Ha Long Bay and its coastal area
   (2) present conditions of Ha Long area such as land use, sewerage, solid waste and etc.

4. Field Survey
   (1) geographic conditions
   (2) tidal current
   (3) water quality
   (4) sediment
   (5) eutrophication
   (6) biological indicators

5. Analysis of mechanism of the pollution of environment
   (1) identification of pollutant sources and important environmental item(s)
   (2) establishment of simulation model

Phase II : Formulation of environmental management plan for Ha Long Bay

1. Confirmation of socio-economic framework
   (1) population projection
   (2) economic growth
   (3) estimation of waste water and solid waste
   (4) other socio-economic conditions such as industrial development, tourism, coal mining and etc.

2. Projection of future impact on environmental conditions of Ha Long Bay area
   (1) impact on water quality
   (2) impact on environmental resources

3. Confirmation of planning framework
   (1) environmental zoning
   (2) set-up of management criteria
   (3) others

4. Confirmation of basic policy for formulation of environmental management plan

5. Formulation of environmental conservation measure(s)

6. Formulation of environmental monitoring system
   (1) monitoring system
   (2) inspection system
   (3) data and information management plan

7. Formulation of institutional development plan

8. Cost estimation
   (1) facility(ies) plan including equipment, if necessary
   (2) cost estimation

9. Evaluation
   (1) economic and financial evaluation
   (2) social evaluation
   (3) technical evaluation
   (4) environmental evaluation

10. Recommendation for environmental management plan

V. STUDY SCHEDULE

The study will be carried out in accordance with the tentative schedule as attached in the Appendix 1. The schedule is tentative and subject to be modified when both parties agree upon any necessity that arise during the course of the Study.

VI. REPORTS

JICA shall prepare and submit the following reports in English to the Government of Viet Nam.

1. Inception Report:

Forty (40) copies at the commencement of the first field survey in Viet Nam. This report will contain the schedule and methodology of the Study as well as outline of the field survey.

2. Progress Report (1):

Forty (40) copies at the end of the first field survey.

3. Progress Report (2):

Forty (40) copies at the end of the second field survey.

4. Interim Report:

Forty (40) copies at the end of Phase I. This report will contain the results of the Phase I survey and outline of the Phase II study program.

5. Progress Report (3):

Forty (40) copies at the end of the third field survey.

6. Draft Final Report:

Forty (40) copies at the end of the forth field survey. The Government of Viet Nam shall

submit its comments within one (1) month after the receipt of the Draft Final Report.

7. Final Report:

Eighty (80) copies within one (1) month after the receipt of the comments on the Draft Final Report.

VII. UNDERTAKINGS OF THE GOVERNMENT OF VIET NAM

1. To facilitate the smooth conduct of the Study, the Government of Viet Nam will take the following necessary measures:

   (1) To secure the safety of the Japanese study team (hereinafter referred to as "the Team")

   (2) To permit the members of the Team to enter, leave and sojourn in Viet Nam for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees

   (3) To exempt the members of the Team from taxes, duties, fees and any other charges on equipment, machinery and other materials brought into Viet Nam for the conduct of the Study

   (4) To exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study

   (5) To provide necessary facilities to the Team for remittance as well as utilization of the funds introduced into Viet Nam from Japan in connection with the implementation of the Study

   (6) To secure permission for the Team to enter into private properties or restricted areas for the implementation of the Study

   (7) To secure permission for the Team to take all data and documents (including photographs and maps) related to the Study out of Viet Nam to Japan

   (8) To provide medical services as needed, expenses for which will be chargeable to the members of the Team.

2. The Government of Viet Nam 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 arise from gross negligence or willful misconduct on the part of the member of the Team.

3. Ministry of Science, Technology and Environment (hereinafter referred to as "the MOSTE") and People's Committee of Quang Ninh Province (hereinafter referred to as "the QNPC") shall act as a counterpart agency to the Team and also as a coordinating body in relation with other governmental and non-governmental organizations for the smooth implementation of the Study. The MOTE and the QNPC shall, at its own expense, provide the Team with the

followings, in cooperation with other organizations concerned:

(1) available data and information relevant to the Study
(2) counterpart personnel
(3) suitable office space with necessary equipment in Hanoi and Ha Long
(4) credentials or identification cards
(5) an appropriate number of vehicles with drivers.

VIII. UNDERTAKINGS OF JICA

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

1. to dispatch, at its own expense, study teams to Viet Nam

2. to pursue technology transfer to the counterpart personnel in the course of the Study.

IX. CONSULTATION

JICA, the MOTE and the QNPC shall consult with each other in respect of any matter that may arise from or in connection with the Study.

TENTATIVE SCHEDULE

MONTH / DESCRIPTION	1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	19
WORK IN VIET NAM																		
WORK IN JAPAN																		
PHASE OF THE STUDY						PHASE 1								PHASE 2				
REPORT PRESENTATION		IC/R		P/R(1)						P/R(2)	IT/R			P/R(3)	DF/R		F/R	

: JICA Study Team's Work in Viet Nam

: JICA Study Team's Work in Japan

IC/R : Inception Report DF/R : Draft Final Report

P/R : Progress Report F/R : Final Report

添付資料 3

MINUTES OF MEETING

MINUTES OF MEETINGS

ON

SCOPE OF WORK

FOR

THE STUDY

ON

ENVIRONMENTAL MANAGEMENT FOR HA LONG BAY

IN

THE SOCIALIST REPUBLIC OF VIET NAM

AGREED UPON BETWEEN

MINISTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT

AND

PEOPLE'S COMMITTEE OF QUANG NINH PROVINCE

AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

Hanoi, September 19, 1997

Dr. PHAM KHOI NGUYEN
Vice Minister,
Ministry of Science, Technology and Environment

Mr. SENRO IMAI
Leader of the Preparatory Study Team,
Japan International Cooperation Agency (JICA)

Mr. NGO DINH THO
Vice Chairman,
People's Committee of Quang Ninh Province

1. Introduction

In response to the request of the Government of the Socialist Republic of Viet Nam (hereinafter referred to as "the Government of Viet Nam"), the Preparatory Study Team (hereinafter referred to as "the Team") of the Japan International Cooperation Agency (hereinafter referred to as "JICA") visited Viet Nam from September 9 to September 21, 1997 to discuss the Scope of Work (hereinafter referred to as "S/W") for The Study on Environmental Management for Ha Long Bay in the Socialist Republic of Viet Nam (hereinafter referred to as "the Study").

The Team carried out field surveys of the study area and held a series of discussions with the authorities concerned of Ministry of Science, Technology and Environment (hereinafter referred to as "the MOSTE"), People's Committee of Quang Ninh Province (hereinafter referred to as "the QNPC"), and other organizations.

The list of attendants is shown in the Appendix 1.

The Minutes of Meetings have summarized main points of the discussions made in the course of the preparation of S/W for purpose of better understanding S/W agreed upon among the MOSTE, the QNPC and the Team on September 19, 1997.

2. Study Title

Both sides agreed that the title of the Study would be "The Study on Environmental Management for Ha Long Bay in the Socialist Republic of Viet Nam" as described in S/W.

3. Study Area

(1) Both sides agreed on the Study area as described in S/W, and both sides also agreed on the Study area for macro analysis which is shown mainly in the Appendix 2.

(2) The MOSTE and the QNPC pointed out that Bai Chay area and Cua Ong area might be covered for in-depth study. The Team recognized the situation and promised to convey the message to JICA H.Q. for consideration.

(3) The MOSTE and the QNPC requested to include the coastal area of eastern part of Cat Ba Island for the Study area since that area has been related to environmental conservation for Ha Long Bay, and the Team agreed to it and requested that the necessary data and information would be provided in the course of the Study.

4. Target Year

Both sides agreed that the target year for the Study would be set in the year 2010.

5. Counterpart Agency

The MOSTE and the QNPC shall act as the counterpart agencies as described in S/W.

6. Coordination with Other Ministries and Organizations

The Team requested the MOSTE and the QNPC to coordinate with other ministries and organizations concerned to get maximum cooperation from these organizations as well as to avoid any duplicated works. The Team also suggested to establish a Steering Committee and Working Group(s) to achieve the above mentioned coordination. The MOSTE and the QNPC agreed to this point and promised to set up the committee and to invite representatives from relevant ministries and

organizations for the smooth implementation of the Study. The tentative function and composition of the committee is shown in Appendix 3.

7. Coordination with International Organizations

The Team requested the MOSTE and the QNPC to coordinate with international organizations concerned such as UNDP, UNESCO, World Bank, ADB, CIDA, SIDA and DANIDA to exchange view and information with these organizations as well as to avoid any duplicated works, and the MOSTE and QNPC agreed to this point.

8. Undertakings of the Government of Viet Nam

(1) It was confirmed that the MOSTE and the QNPC would secure the full support and participation of organizations concerned in the course of the Study.

(2) It was confirmed that the MOSTE and the QNPC would assign the appropriate number of counterpart personnel to the JICA Study Team. The MOSTE and the QNPC suggested that both sides would discuss the effective way of coordination for the effective implementation of the Study.

a. Supervision
b. Environmental management
c. Natural environment
d. Water quality analysis
e. Hydrology / simulation model
f. Solid and liquid waste treatment
g. Regional development / land use
h. Harbor and navigation Management
i. Coordination for JICA Study Team
j. Others

(3) The Team requested that the MOSTE and the QNPC would provide suitable office space with necessary equipment in Hanoi and Ha Long, and sufficient numbers of vehicles with drivers for the Study. The MOSTE and the QNPC replied that the office space enough to work could be prepared by the MOSTE and the QNPC. The MOSTE and the QNPC, however, expressed concern that, due to budgetary constraints, it would be hard to provide office equipment, secretary(ies) and vehicles with drivers. The Team recognized the situation and promised to convey the message to JICA H.Q. for consideration.

9. Counterpart Training

The MOSTE and the QNPC requested that JICA conduct counterpart training in Japan, in addition to on-the-job-training, for the purpose of the smooth technology transfer during the Study. The Team agreed to convey the request to JICA H.Q. for consideration.

10. Technology Transfer Seminar

The MOSTE and the QNPC requested that JICA hold a seminar as a part of the technology transfer in the course of the Study. The Team recognized the necessity and promised to convey the request to JICA H.Q. for consideration.

Further, based on the valuable results of a Mini Workshop which was held on September 16, 1997 under the sponsorship of the MOSTE, the team suggested that this type of Mini Workshop might be held in the course of the Study.

11. Technology Transfer

The MOSTE and the QNPC expressed a strong wish to transfer technology relevant to the methods which are used to form the policies, regulations and management systems through the implementation of the Study.

12. Equipment

The MOSTE and the QNPC requested the Study Team to bring the basic equipment for water quality analysis using in the course of the Study. The Team agreed to convey the request to JICA H.Q. for consideration.

13. Report

As for the Study reports, the MOSTE and the QNPC agreed to make them open to the public in order to achieve maximum use of the Study results.

The MOSTE and the QNPC requested that JICA provide executive summaries for each reports as a reference in Vietnamese for better understanding of the Study result. The Team recognized this necessity and promised to convey this request to JICA H.Q. for consideration.

14. JICA's Development Study Program

The Team explained JICA's Development Study Program and the MOSTE and the QNPC fully understood the Program.

APPENDIX 1

LIST OF ATTENDANTS

(Vietnamese side)

Ministry of Science, Technology and Environment

Dr. Pham Khoi Nguyen	Vice Minister
Dr. Truong Manh Tien	Director, Planing and International Relations Division, National Environment Agency (NEA)
Dr. Nguyen Dac Hy	Director, Policy Dept., NEA
Dr . Nguyen Tien Dung	Deputy Director, Policy Dept., NEA
Dr. Tran Hong Ha	Policy Dept., NEA
Mr. Nguyen Xuan Bao Tam	International Relation Dept.

People's Committee of Quang Ninh Province

Mr. Ngo Dinh Tho	Vice Chairman
Mr. Vu Van Thanh	Director, Dept. of Science Technology and Environment (DOSTE)
Mr. Le Van Giao	Deputy Director, DOSTE
Mr. Tran Van Chuong	Chief of Environmental Management, DOSTE
Mr. Vu Khac Tu	Deputy Director of Quang Ninh Port
Mr. Nguyen Van Tuan	Director, Ha Long Bay Management Dept.
Mr. Nguyen Van Tuc	Deputy Director of Ha Long Hotel
Mr. Vu Tien De	Deputy Director Hong Gai Coal Industry

Office of Government

Dr : Kieu Tien Quang	General Director
Mr. Le Minh Hung	International Relation Dept.

Parliament Office

Mr. Nghiem Xuan Banh

Ministry of Planning and Investment

Mr. Vo Hong Phuc	Vice Minister
Mr. Ho Quang Minh	Deputy Director of International Economic Relations Dept.
Mr. Nguyen Xuan Tien	International Economic Relation Dept., Japan Desk
Mr. Tran Loc	Environment Science and Education Dept.

Ministry of Foreign Affairs

Mr. Nguyen Tam Chien	Deputy Minister for Foreign Affairs
Mr. Nguyen Minh Ha	Asian Dept.

Ministry of Agriculture and Rural Development

Mr. Tran Nhat Hau	Policy Dept.

Ministry of Construction

Mr. Ngo Trung Hai	Rural and Urban Planning Dept.
Mr. Huynh Dang Hy	Architecture Planning Dept.

Ministry of Industry

Mr. Le Quoc Khanh	Vice Minister
Mr. Huynh Dang Hy	Quality and Quantity Management Dept.

Ministry of Culture and Information

Mr. Dang Van Bai	Environment Protection Dept.

Ministry of Commerce

Mr. Tran Trong Ho	Training - Consulting Center

(Japanese Side)

Embassy of Japan

Mr. Naoto Ikeda	First Secretary

OECF Hanoi Office

Mr. Tosio Nagase	Representative

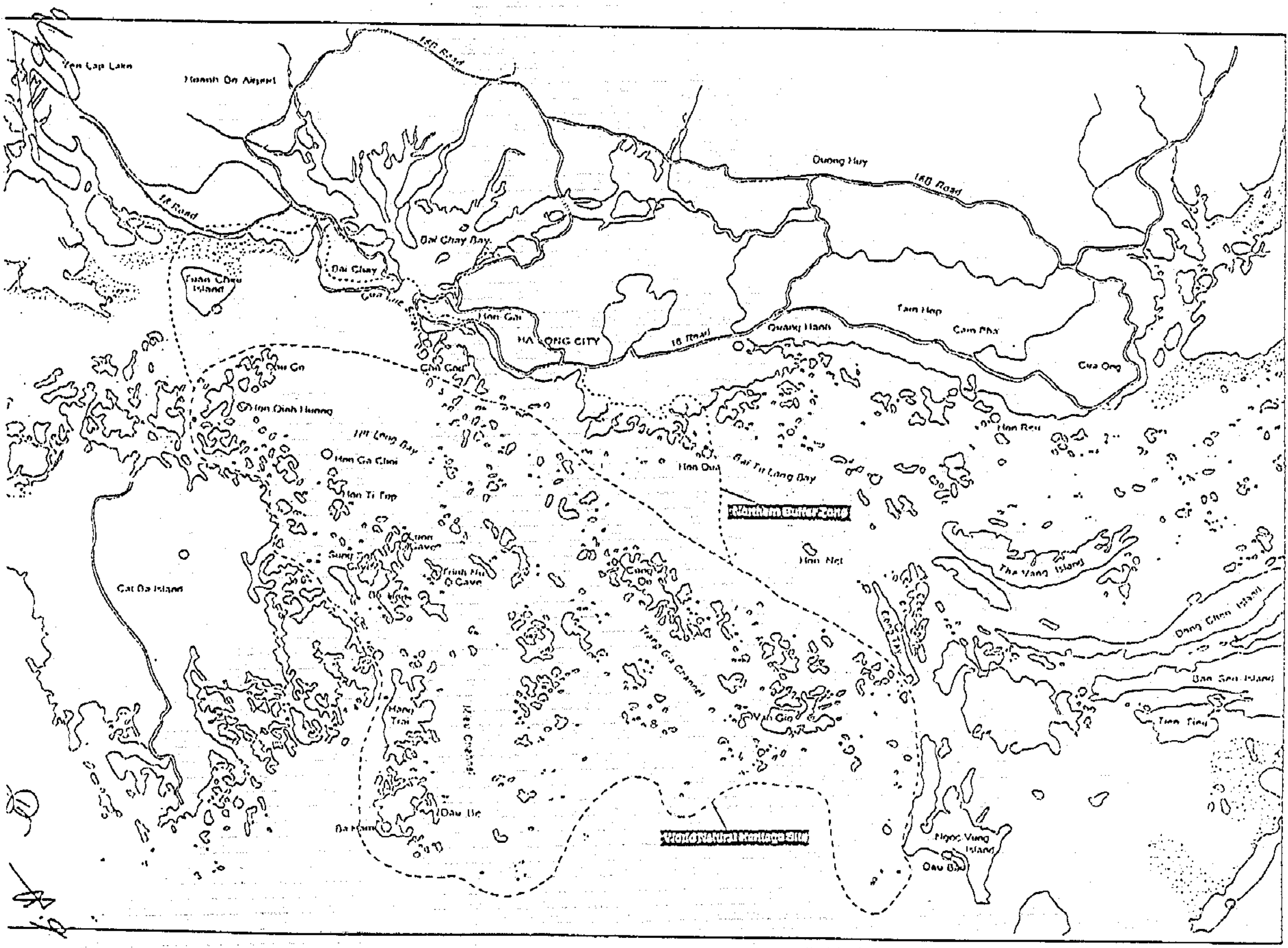
JICA Vietnam Office

Mr. Masaru Todoroki	Resident Representative
Mr. Hirosi Tsujino	Assistant Representative

Preparatory Study Team

Mr. Senro Imai	Leader
Mr. Masahito Kuse	Member
Mr. Hiroyuki Sakuraoka	Member
Mr. Katsuyoshi Saito	Member
Mr. Hiroyuki Doi	Member
Mr. Hiroshi Sumikawa	Member
Ms. Ran Nagai	Member

Appendix 2 Study Area for Macro Analysis



APPENDIX 3

The Tentative Function and Composition of the Steering Committee

I. Function

The Study on Environmental Management for Ha Long Bay in the Socialist Republic of Viet Nam (hereinafter referred to as "the Study") will cover a wide range of subjects handled by other organization and agencies. Therefore, Ministry of Science, Technology and Environment and People's Committee of Quang Ninh Province will establish a Steering Committee and Working Group(s) which consist of other organizations and agencies for overall management of the Study.

II. Composition

1. Office of Government
2. Ministry of Science, Technology and Environment
3. Ministry of Planning and Investment
4. Ministry of Foreign Affairs
5. Ministry of Culture and Information
6. Ministry of Transport
7. Ministry of Industry
8. Ministry of Commerce
9. Ministry of Agriculture and Rural Development
10. Ministry of Construction
11. Ministry of Defense
12. Vietnam National Administration of Tourism
13. People's Committee of Quang Ninh Province
14. Others

The above organization and agencies are the subjects would be confirmed at the commencement of the Study.

添付資料 4

質問表及び回答

REQUIRED DATA AND QUESTIONNAIRE
FOR
THE PREPARATORY STUDY
ON
ENVIRONMENTAL MANAGEMENT FOR HA LONG BAY
IN
THE SOCIALIST REPUBLIC OF VIET NAM

September 1997

JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

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The questionnaire is prepared by the JICA Preparatory Study Team for the preparatory study on Environmental Management For Ha Long Bay in The Socialist Republic of Viet Nam.

Please kindly answer the questions attached.

Thank you very much for your Cooperation.

Note : • Please mark "○" in the column of "Availability" for the data which is available, and specify the name of reference materials.

• Please mark "×" in the column of "Availability" for the data which is not available.

• Item marked "◎" shows some reference material written in the column of "Remarks" have been collected.

ABBREVIATION

MPI : Ministry of Planning and Investment
MOSTE : Ministry of Science, Technology and Environment
MOFA : Ministry of Foreign Affairs
MOCI : Ministry of Culture and Information
MOT : Ministry of Transport and Communication
MOC : Ministry of Construction
MOF : Ministry of Fishery
MOI : Ministry of Industry
MOJ : Ministry of Justice
MOARD : Ministry of Agriculture and Rural Development
VNAT : Vietnam National Administration of Tourism
GDLA : General Department of Land Administration
HSV : Hydrometeorological Service of Vietnam
NCHF : National Center for Hydrometeorological Forcasting
QNPC : People's Committee of Quang Ninh Province
HMFS : Ha Long Meteorological Forcasting Station
POQN : Port of Quang Ninh (Cai Lan Port Management Unit)
PAHP : Port Authority of Hai Phong
VINACOAL: Vietnam National Coal Corporation
VINAMAR : Vietnam National Marine Corporation
TEDI : Transport Engineering Design Inc.
HNU : Hanoi National University
HIO : Hai Phong Institute of Oceanology
DOSTE : Department of Science, Technology and Environment
ENCO : Environmental Committee
IUCN : The World Conservation Union

NEA	: National Environmental Agency
NLEP	: National Law of Environmental Protection
SCCI	: State Committee for Cooperation and Investment
SCS	: State Committee for Science
SOSTE	: Service of Science, Technology and Environment
MDH	: Management Dept. of Ha Long Bay
UNDP	: United Nations Development Program
CIDA	: Canadian International Development Agency
VCEP	: Vietnam Canada Environment Project
ESSA	: Essa Technologies Ltd.
ADB	: Asian Development Bank
WB	: World Bank
DANIDA	: Danish International Development Assistance
VNC	: Vietnam National Center for Natural Science and Technology
QNTD	: Quang Ninh Tourism Dept.
HNPU	: Hanoi National Pedagogic Univ.
SPH	: Statiscal Publishing House
MOH	: Ministry of Health
RSC	: Remote Sensing Center
RIMP	: Research Institute of Marine Products
CEST	: Centre for Environmental Science and Technology, Hanoi Univ. of Technology
CEETIA	: Centre for Environmental Engineering of Towns and Industrial Areas, Hanoi Univ. of Civil Engineering
CMESRC	: Center for Marine Environment Survey, Research & Consultation, Institute of Mechanics

I. General(1)

Item of Data/Information		Availability		Remarks
Item	Description	Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
1. Socio-Economic Information for the last 5 years (Nation & Northern Region)				
1) Gross Domestic Product (GDP)		○	Statistical Publishing House, 1997	• Statistical Year Book 1996
2) Gross Regional Domestic Product (GRDP)		○		• ditto
3) Structure of Production		○		• ditto
4) Growth of consumption and investment		○		• ditto
5) Growth of merchandise trade		○		• ditto
6) Balance of payments and reserves		○		• ditto
7) Total External debt		○		• ditto
2. Financial Performance in the Last 5 years				
1) National Budget with Breakdown		○		
2) Foreign Trade Balance		○		• Statistical Year Book(the latest)
3) Foreign Economic Assistance		○		• ditto

I. General(2)

Item of Data/Information			Availability		Remarks
Item	Description		Availability	Place of Data or Source	(name of reference materials, outline, etc.)
3. Public Investments in the last 5 years (Nation & Northern Region)					
1) Capital Outlays			○		
2) Sources of Finance			○		
4. Development Plans (Nation & Northern Region)					• Strategy for Socio-Economic Stabilization and Development up to the year 2000
1) National Development Plan	① Long term plan ② Short term plan	◎	○	Statistical Publishing House	• Vietnam's Economy the Period 1945 ~ 1995 and its Perspective by the Year 2020
2) Five Year Economic Development Plan		◎	○	ditto	
3) Agricultural Development Plan		◎	○	UNDP, ditto	• Agriculture and Food Production, Sector Review, FAO
4) Industrial Development Plan		◎	○	Statistical Publishing House	• Statistical Data of Agriculture, Forestry and Fishery 1985~1995
5) Mining & Oil Development Plan		◎	○	ditto	
6) Transport Development Plan		◎	○	ditto	
7) Forecast of Socio-Economic Indicators		◎	○	ditto	

I. General(3)

Item of Data/information		Availability		Remarks
Item	Description	Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
8) Land Management	①Land and Coastal Use	○	UNDP	• Feasibility Study on Viet Nam Land Management System, 1991
5. Progress of Coastal Development Project (Quang Ninh Province)				
	① Cai Lan Deep-sea Port	○		
	② Industrial zone and Export Processing Zone	○		
	③ Up-grading of Route No18	○		
	④ New residential areas	○		
	⑤ Tourism area development, etc.	○		
	⑥ Other on-going and Planned Projects	○		
6. Outline of the Study	① Study Area		S/W	• Ha Long Bay which is designated by UNESCO AS THE World Natural Heritage and its buffer zone, and the surrounding area.
	② Target year			
	③ Majority of citizen opinion and idea to the Study			
	④ Effectiveness of the Environmental Management Plan			
	⑤ Prospective funding source			

I. General(4)

Item of Data/Information		Availability		Remarks
Item	Description	Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
7. Other Relevant data and Information	ⓒ Coordination with Other Organization			

Ⅱ. Natural Conditions(1)

Item of Data/Information			Availability		Remarks
Item	Description		Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
1. Geology and Topography					
1) Map and Aerial Photograph	① Geological Map (scales of 1/1000～1/50,000)				
	② Topographical Map (scales of 1/1000～1/50,000)				
	③ Aerial Photograph		○	RSC	MOSTE に申請して入手する。
	④ Sensitivity Map by SIDA		○	RSC	
2) Protected Area, etc.	① Location of National Parks and Nature Conservation Area		○	MOSTE, NEA	
	② Location of Environmentally Vulnerable Area	◎		MOSTE, NEA	• Coastal Sensitivity Mapping Project-Final Report Vietnam-Sweden, 1996
	③ Protected Areas	◎		NEA	• Zoning Map for Protection of HaLong Bay, 1/100000
	④ Important Landscape and Scenery	◎		MOSTE	• Vinh Ha Long－Ho so dang ky Di San Thien Nhien The Gioi
2. Meteorology and Hydrology					
1) Meteological Date	① Rainfall Data			HMFS, TEDI	
	② Temperature Data			HMFS	
	③ Wind Data			HMFS	
2) Hydrological Date	① River flow rate Data			HSV, TEDI	

II. Natural Conditions(2)

Item of Data/Information		Availability		Remarks
Item	Description	Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
	② Sediment Load Data		HSV	
	③ Erosion Data		HSV	
3. Coastal Environment				
1) Ocean & Tidal Current	① Wave		TEDI	
	② Tidal Current Data		TEDI	
	③ Tidal Level Data		TEDI	
	④ Silutation Date		TEDI	
4. Water Quality				
1) Water Quality Data	① River Water		DOSTE	
	② Lake and Pond Water		DOSTE	
	③ Sea Water			
2) Monitoring System	① Number of Monitoring Station		MOSTE, DOSTE	
	② Location of Monitoring Station		MOSTE, DOSTE	
	③ Monitoring Items and Frequency		MOSTE, DOSTE	
	④ Network System		MOSTE, DOSTE	
	⑤ Database System, Main Computer		MOSTE, DOSTE	

II. Natural Conditions(3)

Item of Data/Information			Availability		Remarks
Item	Description		Availability	Place of Data or Source	(name of reference materials, outline, etc.)
5. Fauna and Flora					
1) Wildlife and Plant Distribution	① Wildlife Distribution Map			MOSTE, NEA	
	② Plant Distribution Map, Vegetation Map			MOSTE, NEA MOSTE, NEA	
2) Relevant Information	① Forest			NEA	
	② Mangrove	◎		NEA	• Mangroves of Vietnam. 1993. IUCN
	③ Wetland			NEA	
	④ Coral reefs			MOF, RIMP	
	⑤ Seagrass beds			MOF, RIMP	
	⑥ aquatic life(plankton, benthos)			MOF, RIMP	
	⑦ Species of Rare or Endemic Animal and Plants (aquatic life)	◎	○	NEA	• Biodiversity Action Plan For Vietnam

Ⅲ. Social and Economic Conditions(1)

Item of Data/Information			Availability		Remarks
Item	Description		Availability	Place of Data or Source	(name of reference materials, outline, etc.)
1. Population Statistics (Nation & Northern Region)	① Population	◎	○	QNPC, CEETIA	• Statistical Yearbook (Nien Giam Thong Ke) 1996, General Statistical Office
	② Population Growth Rate	◎	○	QNPC, CEETIA	• ditto
	③ Population Density	◎	○	CEETIA	• ditto
	④ Income Standard	◎	○	CEETIA	• ditto
2. Economic Conditions					
1) Economic Growth	① Agriculture	◎	○	CEETIA	• Vietnam's Economy the Period 1945 ~ 1995 and its Perspective by the year 2020
	② Industries	◎	○	CEETIA	
	③ Manufacturing	◎	○	CEETIA	
	④ Service, etc.	◎	○	CEETIA	
2) Structure of Production	① Agriculture & Fisheries	◎	○	QNPC, CEETIA	• A Brief Information of the Research Institute of Marine Products, RIMP
	② Industries		○	VINACOAL, CEETIA	
	③ Tourism	◎	○	VNIAT, QNPCP CEETIA, MOCI, MOH, CEETIA	• Brochure "Quang Ninh Tourism", Tuorism Dept.
	Historical or Cultural Monuments				
	④ Energy and Mining		○	VINACOAL, CEETIA	

Ⅲ. Social and Economic Conditions(2)

Item of Data/Information			Availability		Remarks
Item	Description		Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
3. Present Condition of Infrastructure (Quang Ninh Province)					
1) Social and Economic Infrastructures Relevant to the Study	① Port		○	CEETIA	
	② Port facilities		○	CEETIA	
	③ Drainage & Sewarage System		○	CEETIA	
	④ Solid&Liquid Waste Disposal System		○	CEETIA	
2) Existing Water Use	① Water Supply & Sewerage Facilities	◎	○	DANIDA, CEETIA	• Halong City Water Supply and Sanitation Project. Project Formulation/Feassibility Study(Draft). Summary Report and Draft Project Document. 1995. DANIDA
	② Ground Water Use		○	CEETIA	
	③ Solid and Liquid Waste Water Treatment System	◎	○	DANIDA, CEETIA	• Halong City Water Supply and Sanitation Project. Project Formulation/Feassibility Study(Draft). Summary Report and Draft Project Document. 1995. DANIDA
	④ Irrigation System		○	CEETIA	
3) Land Use	① Land Use Planning		○	CEETIA	• CEETIA (Center for Environmental Engineering of Towns and Industrial Area, Hanoi University of Civil Engineering)は下記の資料を保有し、多くの情報を提供できる。
	② Zoning Plan		○	CEETIA	
	③ Land Use Map		○	CEETIA	
4) On-going and Planned Projects relevant to Ha Long Bay	① Water Use		○	QNPC, CEETIA	o Annual Report. Regional Environmental Monitoring Program for North Part of Vietnam. CEETIA. MOSTE. 1995～ 1997
	② Flood Control		○	QNPC, CEETIA	
	③ Sewage Treatment		○	QNPC, CEETIA	o EIA Reports for ・Halong City Water Supply Project. 1996 ・Highway No.18 (Noibai-Mongcai). JICA. 1995～1996
	④ Agriculture		○	QNPC, CEETIA	

Ⅲ. Social and Economic Conditions(3)

Item of Data/Information		Availability		Remarks
Item	Description	Availability	Place of Data or Source	(name of reference materials, outline, etc.)
	⑤ Fishculture	○	QNPC, CEETIA	o Waste Water Treatment Plant for B12 Manufacture, QNPC, CEETIA
	⑥ Industries	○	QNPC, CEETIA	o Drainage System Project for Baichay City QNPC, CEETIA, 1996
4. Environmental Issues	① Water Pollution	○	MOSTE, NEA, HIO, CEETIA	o Water Quality and Discharge Survey in Halong Bay, ESSA Project, Canada, 1997 (CEETIA)
	② Soil Contamination	○	MOSTE, NEA, HIO, CEETIA	
	③ Air Pollution	○	MOSTE, NEA, HIO, CEETIA	
	④ Soil Erosion	○	MOSTE, NEA, HIO, CEETIA	
	⑤ Solid and Liquid Waste	○	MOSTE, NEA, HIO, CEETIA	
	⑥ Natural Disaster	○	Institute of Geophysics	
5. Water Pollution Sources				
1) Industrial Source	① Category(mining, agriculture, etc.)	○	CEETIA	
	② Location	○	CEETIA	
	③ Size	○	CEETIA	
	④ Products	○	CEETIA	
	⑤ Effluent-Quality & Quantity	○	CEETIA	

Ⅲ. Social and Economic Conditions(4)

Item of Data/Information		Availability		Remarks
Item	Description	Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
2) Household	① Location	○	CEETIA	
	② Size	○	CEETIA	
	③ Volume of Water Use	○	CEETIA	
	④ Effluent	○	CEETIA	
	⑤ Solid & Liquid Waste	○	CEETIA	
3) Tourism(Hotel & Ships)	① Location	○	CEETIA	
	② Size	○	CEETIA	
	③ Effluent	○	CEETIA	
	④ Solid & Liquid Waste	○	CEETIA	
4) Navigation	① Frequency	○	CEETIA	
	② Effluent	○	CEETIA	
	③ Solid & Liquid Waste	○	CEETIA	

IV. Laws, Regulations, Policies and Customary Practices Relevant to Environment(1)

Item of Data/Information			Availability		Remarks
Item	Description		Availability	Place of Data or Source	(name of reference materials, outline, etc.)
1. Laws/Guidelines (National & Regional Level)	① Nature Conservation Laws	◎	○	MOSTE	• Luat Bao Ve Moi Truong (Low on Environmental Protection), 1994, MOSTE
	② Pollution Control Laws	◎	○	MOSTE	• Du thao Quyet dinh cua Bo Truong Bo Khoa Hoc, Cong Nghe va Moi Truong ve viec ban hanh Quy che tam thoi bao ve moi truong vinh Ha Long, MOSTE
	③ Water Rights		○	MOSTE	
	④ Fishery Rights		○	MOF	
	⑤ Land Use		○	GDLA	
2. Laws/Guidelines Related to EIA (National & Regional Level)	① Procedure		○	MOSTE, NEA, MDH	
	Type/Size of Activities for EIA				
3. Quality Standards (National & Regional Level)	① Environmental Quality Standards	◎	○	MOSTE, NEA, MDH, PCQNP, MOH	• Halong City Water Supply and Sanitation Project, 1995, DANIDA
	(Water)				
	(Soil)				
	(Air)				
	② Effluent Standard	◎	○	MOSTE, MOH	• Environmental Standard
	③ Emission Standard	◎	○	MOSTE, MOH	• ditto
	④ Drinking Water Standard	◎	○	MOSTE, MOH	• ditto
	⑤ Noise	◎	○	MOSTE, MOH	• ditto

IV. Laws, Regulations, Policies and Customary Practices Relevant to Environment(2)

Item of Data/Information			Availability		Remarks
Item	Description		Availability	Place of Data or Source	(name of reference materials, outline, etc.)
	⑥ Vibration	◎	○	MOSTE, MOH	• ditto
	⑦ Offensive Odor	◎	○	MOSTE, MOH	• ditto
4. International Conventions on Environmental Conservation					
	① The Convention of World Cultural and Natural Heritage	◎	○	MOFA, MOSTE, NEA	• HA LONG BAY, A WORLD HERITAGE, 1995, CULTURAL AND INFORMATION SERVICE OF QUANG NINH PROVINCE
	② Ramsar Convention				
	③ Washington Convention				
	④ United Nations Convention on the Law of the sea				
	⑤ London Dumping Convention				
	⑥ Basel Convention about Hazardous Waste				
5. Present Institutions, Organization, Administration and their function relevant to Environment					
	① Organization or agency that shall be directly responsible for the study				
	② Chart of organization or agency				
	③ Other organizations that are related to the study				

IV. Laws, Regulations, Policies and Customary Practices Relevant to Environment(3)

Item of Data/Information		Availability		Remarks
Item	Description	Availability	Place of Data or Source	(name of reference materials, outline, etc.)
6. Budget				
1) National Budget				
2) Local Budget	① Quang Ninh Province			
	② Ha Long City			
3) Budget Allocation to Environment	① Master Plan			
	② Environmental Management Plan			

V. Trends in Other Environmental Projects cooperated with Int'l. Foreign and Non-governmental Organization(1)

Item of Data/Information		Availability		Remarks
Item	Description	Availability	Place of Data or Source	(name of reference materials. outline. etc.)
1. W B				
	① Pollution Control Study in Ha Long Bay Area ◎			• Pollution Control Study in Ha Long Bay Area. 1995.2～1996.4
	② Cooperation to DANIDA, Water Supply, Waste Water and Sanitation Project			
	③ Land Use Survey in Ha Long Bay Area			
2. U N D P				
	① Capacity Building for Promotion of Environmental Awareness (UNV)			
	② Pre-Feasibility Study of the Environmental Sustainable Development (IUCN)			
	③ Strengthening National Capacities to Integrate the Environment into Investment Planning and Public Policy (UNIDO)			
	④ Industrial Environment Pollution Policies (UNIDO)			
	⑤ Environment Protection in Open-Pit Mining in Quang Ninh			
	⑥ Industrial Pollution Environment in Viet Tri (UNIDO)			
	⑦ Industrial Pollution Environment in Dong Nai (UNIDO)			

V. Trends in Other Environmental Projects cooperated with Int'l. Foreign and Non-governmental Organization(2)

Item of Data/Information			Availability		Remarks
Item	Description		Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
	⑧ Land Erosion Survey in Ha Long Area				
3. A D B	① Coastal and Marine Environment Management for Ha Long Bay	◎			• Coastal and Marine Environment Management for Ha Long Bay. 1996.8
4. C I D A	① Viet Nam Environment Action Plan				
	② Viet Pro2020 Environment Training				
	③ VCEP (Viet Nam Canada Environment Project)	◎			• Viet Nam Canada Environment Project 1995～2000
	④ Local Environment Management for Sustainable Development				
	⑤ Water Environment Quality of Ha Long Bay				
5. D A N I D A	① Ha Long City Water Supply and Sanitation Project	◎			• Ha Long City Water Supply and Sanitation Project 1995.10～1996.5
6. S I D A	① Viet Nam Coastal Area Sensitivity Mapping				
	② Liquid Waste Treatment Plan in Ha Long Bay Area				
7. N G O					
1) World Village Foundation					

VI. Equipment(1)

Item of Data/Information		Availability		Remarks
Item	Description	Availability	Place of Data or Source	(name of reference materials, outline, etc.)
1. Water Quality Meters	Owing Meters	○	CEST	CESTはNOSTE (NEA) の許可が得られれば、本 Questionnaire中のほとんどを供給可能であるとのこと。
2. Sediment Analyzer	Owing Analyzer	○	CEST	
3. Tidal Current Meter	Owing Meter (Current velocity, Current direction, Water temperature, Water depth)	○	HIO. RIMP	
4. Oceanographic Observation Meters	Owing Meter	○	HIO. RIMP	
5. Wind vane & Anemometer	Owing Meter	○	HIO. RIMP	
6. Remote Sensing Remote Sensing Data	① Using Software	○	RSC. SIDA, CMESRC	
	② Main Computer	○	RSC. SIDA CMESRC	
7. Vehicles for Field Survey				
8. Boats for Field Survey	① Marin Observation Boat			
	② Operating Boat			

VI. Equipment(2)

Item of Data/Information		Availability		Remarks
Item	Description	Availability	Place of Data or Source	(name of reference materials, outline, etc.)
9. Office Space				
10. Office Equipment	① Air-Conditioning	○	CEST	CEST (Centre for Environmental Science and Technology, Hanoi University of Technology)
	② Telephone	○	CEST	
	③ Facsimile	○	CEST	

VII. Local Consultants in Viet Nam

Item of Data/Information		Availability		Remarks
Item	Description	Availa bility	Place of Data or Source	(name of reference materials, outline, etc.)
1. List of Consultants				
1) Field Survey of Quality of Ocean	① Water Quality	○	CEST	
	② Plankton, Bentos, Seagrass			
	③ Sediments	○	CEST	
2) Field Survey of Environmental Resource	① Coral Reefs			
	② Mangroves			
	③ Shores			
	④ Forests			
	⑤ Island with Scenic Beauty			
3) Field Survey of Ocean & Tidal Current	① Ocean Current (Continuous monitoring)			
	② Tidal (Continuous monitoring)			
2. Consultant Fee			TEDI, IEE, RIMP	
1) Field Survey of Quality of Ocean				
2) Field Survey of Environmental Resource				
3) Field Survey of Ocean & Tidal Current				

VII. Data for Cost Estimate

Item of Data/Information		Availability		Remarks
Item	Description	Availability	Place of Data or Source	(name of reference materials, outline, etc.)
1. Cost of Survey	① Tidal Current Survey		HIO, TEDI, IEE	
	② Water Quality Analysis	○	HIO, TEDI, IEE CEST	
	③ Sediments Analysis	○	HIO, TEDI, IEE CEST	
	④ Marine Biotic Study		RIMP	
2. Cost of Collecting Data	① Fishery			
	② Fauna and Flora			
3. Consultation service per day	① Professor			
	② Senior Researcher			85USD } CEST
	③ Researcher			75USD } CEST
	④ Technical persona's			50USD } CEST
	⑤ Standard of Labor Cost			40USD } CEST

添付資料５

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