

# Appendix A

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## EIA Brief of the Project



# Environmental Impact Assessment (EIA) Study Brief for Extension of Hebe Haven Yacht Club Development

## 1. Introduction

- 1.1 The proposed project consists of (i) reclamation of an area of <sup>4392</sup>2615 m<sup>2</sup> for boat hardstanding, (ii) dredging of some 12,000 m<sup>3</sup> of mud and sand; and (iii) provision of 46 additional marina berths by means of floating pontoons. The proposed works might cause adverse marine ecological impact and fisheries impact.
- 1.2 The purpose of this Environmental Impact Assessment (EIA) Study is to provide information on the nature and extent of environmental impacts arising from the construction, operating of the proposed project. All related activities taking place concurrently shall also be assessed to investigate the potential cumulative impacts. This information will contribute to decisions on whether:
- i) the adverse environmental impacts are within the established standards/ guidelines;
  - ii) there are any conditions and requirements for the detailed design, construction and operation, of the proposed project; and
  - iii) the **residual impacts** (impacts after the proposed mitigation measures are implemented) are within established standards/ guidelines.
- 1.3 No approval should be given to the proposed project unless it can be demonstrated (quantitatively, if possible) that no adverse environmental impacts will result from its implementation. Any statutory gazetting activity related to the proposed project should normally be carried out after the satisfactory completion of the EIA Study and its subsequent public consultations.

2. The Study Area for this EIA study is shown in Figure 1.

## 3. Objectives of the EIA Study

- 3.1 The objectives of the assessment are as follows :
- i) to describe the proposed project and associated works together with the requirements for carrying out the proposed project;
  - ii) to identify and describe the elements of the community and environment likely to be affected by the proposed project, and/or likely to cause adverse impacts upon the proposed project, including both the natural and man-made environment;
  - iii) to identify and quantify emission sources and determine the severity of impacts on sensitive receivers and potential affected uses;
  - iv) to identify and quantify any potential losses or damage to flora, fauna and natural habitats;

- v) to propose the provision of mitigation measures so as to minimize pollution, environmental disturbance and nuisance during construction and operation of the project;
- vi) to identify, predict and evaluate the residual (i.e. after practicable mitigation) environmental impacts and cumulative effects expected to arise during the construction and operation phases of the project in relation to the sensitive receivers and potential affected uses;
- vii) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the project which are necessary to mitigate these impacts and reduce them to allowable levels within established standards/ guidelines;
- viii) to identify and justify the need for environmental monitoring and audit and to define the scope of the requirements necessary to ensure the implementation and the effectiveness of the environmental protection and pollution control measures adopted;
- ix) to investigate the extent of side-effects of proposed mitigation measures that may lead to other forms of impacts;
- x) to identify constraints associated with the mitigation measures recommended in the study;
- xi) to identify any changes in the hydrodynamic conditions and to determine their associated impacts; and
- xii) to identify any additional studies necessary to fulfill the objectives to the requirements of this Environmental Impact Assessment Study.

#### 4. Requirements of the Environmental Impact Assessment Study

The proponent shall meet the objectives listed above by:

- i) carrying out the necessary background studies to identify, collect and analyze existing information relevant to the EIA study;
- ii) carrying out any necessary environmental survey, site investigations and baseline monitoring work to achieve the objectives;
- iii) quantifying, by use of models or other predictive methods, the residual and cumulative environmental impacts (specifying whether these are transient, long term and/or irreversible) arising from the construction and operation of the project;
- iv) proposing practicable, effective and enforceable methods, measures and standards to effectively mitigate any adverse environmental impacts in the short and long term; and
- v) outlining a programme by which the environmental impacts of the project can be assessed, monitored and audited.

## 5. Technical Requirements of the Environmental Assessment Study

The Proponent shall consider all aspects of the activities arising from the proposed project in any stage/phase of implementation, and, observe the Hong Kong Planning Standards and Guidelines as well as other statutory requirements under the coming Environmental Impact Assessment Ordinance (EIAO) during the EIA Study. Due consideration should be given to existing fisheries activities and sensitive receivers in the study area must be identified. The EIA study shall meet the requirements of the Technical Memorandum on Environmental Impact Assessment Process under EIAO and shall not be limited to the tasks as stated in 5.1 to 5.6 below.

### 5.1 Water Quality Impact

All physical, chemical and biological disruption of marine, estuarine, fresh water or ground water system(s) arising during the construction, operation (and decommissioning of the project shall be identified and analysed in the impact assessment. Essentially the assessment shall address the followings:

#### General

- i) collection and review of background information on the existing water system(s) and the respective catchment(s); *-aquatic fauna, biological*
- ii) characterization of water and sediment quality based on existing information or site survey/tests as appropriate; *(data)*
- iii) identification and analysis of all existing and planned future activities and beneficial uses related to the water system(s) and identification of all water sensitive receivers;
- iv) identification of pertinent water quality objectives and establishment of other appropriate water quality and sediment criteria or standards for the water system(s) and all sensitive receivers;
- v) identification, analysis and quantification of all existing and likely future water and sediment pollution sources. Field investigation and laboratory tests shall be conducted as appropriate.
- vi) Establishment and provision of an emission inventory on the quantities and characteristics of all these pollution sources;

#### Impact Predictions

- vii) prediction and quantification by mathematical modelling or other technique approved by DEP, of the impacts on the water system(s) and the sensitive receivers due to those alterations and changes identified in (v) and the pollution sources identified in (vi). Possible impacts include changes in flow regime, sediment erosion or deposition, water

and sediment quality and the effects on the aquatic organism due to such changes. The prediction shall take into account and include likely different construction stages or sequences, different operation (and decommissioning) stages. Cumulative impacts due to other projects, activities or pollution sources within a boundary around the Study Area to be agreed by DEP shall also be predicted and quantified;

#### Dredging, Filling and Dumping

- viii) identification and quantification of all dredging, fill extraction, filling, reclamation, sediment/ mud transportation and disposal activities and requirements. Potential fill source and dumping ground to be involved shall also be identified. Field investigation, sampling and laboratory tests to characterise the sediment/ mud concerned shall be conducted as appropriate. The ranges of parameters to be analysed; the number, type and methods of sampling/ sampling preservation/ laboratory tests; and the laboratory to be used shall be approved by DEP. Particular attention shall be given to the requirement of WBTC No. 22/92 (or newer version) on "Marine Disposal of Dredged Material";
- ix) prediction, quantification and assessment of impacts on the physical regime, water and sediment quality of the water system(s) and the sensitive receivers due to the activities identified above. The prediction and quantification of impacts caused by sediment re-suspension and contaminants release shall be carried out by mathematical modelling or other techniques approved by DEP;
- x) identification and evaluation of the best practicable dredging and reclamation methods to minimise dredging and dumping requirements and demand for fill sources based on the criterion that exciting marine mud shall be left in place and not be disturbed as far as possible;
- xi) evaluation of the impacts due to release of the interstitial water and associated contaminants to the water column if wick drain installation is used to speed up consolidation of mud;
- xii) prediction and quantification of cumulative impacts due to other dredging, filling or dumping activities within a boundary around the Study Area to be agreed by DEP;

#### Mitigation

- xiii) Proposal of effective infrastructure upgrading or provision, water pollution prevention and mitigation measures to be implemented during the construction, operation (and decommissioning) stages so as to reduce the water and sediment quality impacts to within acceptable levels of standards. Requirements to be incorporated in the project contract document shall also be proposed. Attention shall be made to the water quality control and mitigation measures recommended in the ProPECC paper PNI/94 on construction site drainage; and
- xiv) evaluation and quantification of residual impacts on the water system(s) and the sensitive

receivers with regard to the appropriate water and sediment quality criteria, standards and guidelines.

## 5.2 Marine Ecological Impact

The proposed project shall take into account the importance of marine ecological components, including the natural habitats and the associated flora and fauna. It is essential to protect and preserve rare or fragile ecosystems as well as the habitats of depleted, threatened, or endangered species and other marine life, and to maintain the environmental conditions and ecological processes that sustain the survival and establishment of these marine organisms. The relevant guidelines and requirements laid down in the Technical Memorandum of the Environmental Impact Assessment Ordinance shall be followed. The assessment shall include the following:

- i) revision and collation of available information regarding the ecological characteristics of the development areas, based on findings of previous studies or of scientific literature;
- ii) identification of species or habitats (include both the intertidal and subtidal zones) likely to be affected directly or indirectly (in particular impacts associated with dredging and disposal activities) by the proposed development, based on the collected information and, if necessary, verified by field checks;
- iii) prediction and evaluation of the potential ecological impacts using well-defined criteria, and determination of the significance and acceptability of the ecological impacts identified;
- iv) identification of appropriate and practicable mitigation measures to minimize or avoid the adverse ecological impact identified; and
- v) prediction and evaluation of the residual ecological impacts after implementation of the proposed mitigation measures using well-defined criteria, and determination of the significance and acceptability of the residual ecological impacts.

## 5.3 Fisheries Impact

The study area of fisheries impact shall include the works site and its adjacent area of probable impact. The fisheries impact study shall review and collate existing information and conduct field surveys, if necessary, to provide adequate and accurate data for accurate prediction and evaluation of fisheries impacts of the proposed project. The study shall include the following tasks:-

- i) description of the physical environmental background;
- ii) description and quantification as far as possible of the existing fisheries activities (e.g. capture fisheries, aquaculture, shellfish farming/collection, etc);
- iii) description and quantification as far as possible of the existing fisheries resources (e.g.

composition of commercially important species, abundance of fish stocks);

- iv) identification of parameters (e.g. water quality parameters) and areas (e.g. nursery and spawning grounds, corals) that are important to fisheries;
- v) identification and quantification as far as possible of any direct/indirect and on-site/off-site impacts to fisheries (e.g. deterioration of fishing grounds/fish culture zones, loss of nursery and spawning grounds, reduction of catch/productivity);
- vi) evaluation of impacts and make proposals for any practicable alternatives or mitigation measures to prevent/minimize adverse impacts on fisheries; and
- vii) review the need and make appropriate recommendation for a fisheries monitoring and audit programme.

#### 5.4 Use of ELA models/Survey Techniques/Analytical Methods

The use of models, survey protocols and analytical methods (includes laboratory techniques) proposed in the Inception Report shall be agreed and approved by the Director of Environmental Protection (and/or by the Director of Agricultural and Fisheries where appropriate), prior to commencing with detailed studies. This shall include the following:

- i) elaboration of background assumptions;
- ii) confirmation with data validation;
- iii) calibration of model;
- iv) prescription of tool application (such as, questionnaire, numerical/stochastic algorithm);  
and,
- v) presentation of scenario projection and interpretation of results.

#### 5.5 Impacts Summary

It is important to present the findings in simple terms to sum up all environmental impacts and select the appropriate alternative for the proposed project. The summary shall include the following:

- i) elaboration of alternatives, including where appropriate the "do nothing" scenario (i.e. not to proceed with the proposed project);
- ii) discussion of the extent of impacts and the proposed ranking system;
- iii) presentation of the recommendations on overall adequacy of the mitigation measures;

- iv) justification of the proposed methodology to be adopted;
- v) application of impacts summary; and
- vi) summary of breakdown costs of recommended mitigation measures.

## 5.6 Environmental Monitoring & Audit [EM&A] Requirements

The Proponents are required to identify and justify whether there is a need for EM&A during project implementation and operation phases and to define the scope of the EM&A requirements for the project, during the EIA study. Subject to the confirmation of the EIA study findings, the EM&A programme should comprise the following:-

- i) The Proponents shall prepare, during the course of the EIA study, an Environmental Monitoring and Audit Manual which covers the requirements and recommendations in (ii), (iii) and (iv), below. This Manual shall be used as a guideline for environmental monitoring and audit during the construction, post-project and operational phases. This Manual shall be a stand-alone document and form part of the EIA study Final Report. This Manual will need to be reviewed and revised at regular intervals by the project proponent.

### ii) Environmental Monitoring

The Proponents shall identify and recommend environmental monitoring requirements for all construction, post-project and operational phases of the project. These requirements shall include the identification of sensitive receivers, monitoring locations, monitoring parameters and frequencies, monitoring equipment to be used, and any other necessary programmes for baseline monitoring, impact and compliance monitoring, and data management of monitoring results.

The Proponents shall carry out baseline monitoring to establish the existing environmental quality within the Study Area. The results of the environmental baseline monitoring shall be included in the EIA study Final Report.

### iii) Environmental Audit

The Proponents shall identify and recommend environmental audit requirements for all construction, post-project and operational phases of the project which shall include, where appropriate, the audit of design submissions during the construction stage. These requirements shall include:

- a) organisation and management structure, and procedures for auditing of the design submissions and implementation of environmental mitigation measures recommended for the detailed design, contract document preparation, construction, post-project and operation stages of the project;



- b) environmental quality performance limits for compliance auditing of each of the recommended monitoring parameters to ensure compliance with relevant environmental quality objectives, statutory or planning standards, or acceptance criteria recommended by the EIA study. These limits shall give an indication of any deteriorating environmental quality and shall allow proactive responses to be taken. (The usual approach is a set of action and limit levels);
  - c) organisation and management structure, and procedures for reviewing the design submissions, monitoring results and auditing the compliance of the monitoring data with the environmental quality performance limits ((b) above), contractual and regulatory requirements, and environmental policies and standards;
  - d) Event and Action plans for impact and compliance monitoring;
  - e) complaint handling, liaison and consultation procedures; and
  - f) interim notification of exceedances, reporting procedures, report formats and reporting frequency including periodical summary reports and annual reviews to cover all construction, post-project and operational phases of the project.
- iv) The Proponents shall prepare a project implementation schedule (check list) containing all the EIA study recommendations and mitigation measures with reference to the implementation programme.
  - v) The Environmental Monitoring and Audit work shall be carried out by qualified personnels.

## **6. Compliance with Environmental Law**

- 6.1 An EIA Study is a tool to identify potential environmental impacts arising from the proposed project and to provide a basis for decisions for the implementation of the project, but it does not automatically exempt the proposal from licensing requirements and the approvals from relevant authorities.
- 6.2 The Proponent shall comply with and observe all Ordinances, bye-laws, regulations and rules for the time being in force in Hong Kong governing the control of any form of pollution for environmental protection.

## **7. Liaison and Management of the study**

- 7.1 The Proponent shall liaise with relevant Government departments and agencies, and all other parties involved in this and any other projects or projects likely to be affected by this project. Any correspondence, notes or minutes arising from this liaison shall be copied to the Director of Environmental Protection.
- 7.2 The EIA Study will be managed by a Study Management Group (SMG) chaired by a

representative of the Director of Environmental Protection if a SMG is set up. This shall be the forum for liaison with Government departments and agencies, providing guidance to the study consultant, and for comment and review on the work and outputs of the study. All secretarial services will be provided by the Proponent.

- 7.3 The Proponent should make himself/herself available to be present in the Advisory Council on the Environment (ACE) EIA Sub-committee and its full council, DB and/or any public consultation meeting(s) (if necessary) to brief members.

## 8. Report Requirements

8.1 The assessment shall consist of at least the following :

- i) a Final Assessment Report which
  - a) fully satisfies the requirements of this brief in respect to the prediction and assessment of impacts, the identification of environmental impact mitigation measures and the associated residual impacts;
  - b) describes the agreed schedules and programmes for monitoring and audit requirements;
  - c) prescribes the specification for detailed design, construction and operation requirements of the proposed project; and
  - d) provides with the impacts summary, the study findings, conclusions, recommendations and a mechanism for implementation;
- ii) an Executive Summary in both English and Chinese of the study, highlighting the issues of concern to the community, the acceptability of residual environmental impacts and cumulative effects, requirements for implementation of the project, and the basis for and implications of those requirements. It is intended that the information contained therein would assist the Government in undertaking ACE, DB and other public consultation(s);
- iii) the EIA Report should be prepared in accordance with ELAO as well as the requirements of the Technical Memorandum on Environmental Impact Assessment Process issued under the ELAO; and
- iv) any revisions or supplements to the above as might be required by the Director of Environmental Protection.

8.2 The Proponent shall produce the following stand-alone reports to the Director of Environmental Protection:

- i) for the purpose of review of the EIA report by the Director and other relevant

departments, 30 copies of the EIA report and 50 copies of Executive Summary\* may be required;

- ii) for the purpose of public inspection of the report and the deposition of the report in the register, 40 copies of the EIA report and 80 copies of the executive summary may be required;
- iii) for the purpose of consultation with the Advisory Council on the Environment, 20 copies of the EIA report and 30 copies of the executive summary may be required;
- iv) the number of reports as required by the relevant District Boards or other government consultative bodies; and
- v) 30 copies of Environmental Monitoring & Audit Manual if the EIA study requires an EM&A programme for the project.

\* in both Chinese and English versions.

After endorsement of the EIA report, the proponent shall also produce 10 soft copies of both the EIA Report and the Executive Summary Report in CD-ROM (Compact Disc - Read Only Memory). The soft copies shall be prepared either by "WordPerfect for Windows, Version 6.0" or "Microsoft Word, Version 6.0", or an equivalent software to the satisfaction of DEP. All texts, tables, graphics, illustrations and other contents shall be presented in the same layout and appearance as the hard copy of the EIA Report and the Executive Summary Report.

- 8.3 The Proponent shall also supply the government with appropriate copies of such reports, technical notes, working papers, briefs, supporting documents and other relevant inputs as may be required during the EIA Study or any public consultation exercise.

## 9. Green Measures for Reporting Documents

The recommended environmentally-friendly measures for Consultants to minimise the use of papers in preparing documents include :

- a) All Submissions, Reports, etc. are to be printed on both sides.
- b) the EIA report and the Executive Summary have to be printed on recycled paper. The use of recycled paper with not less than 50% recycled materials and not exceeding 80 gsm should be used as a general rule. The logo of recycled paper should be printed in prominent area of the report.
- c) Documents other than EIA Reports and Executive Summary should preferably be printed on recycled paper. Otherwise, the paper used should not be excessively bleached.

- d) EIA report and Executive Summary should be of single line spacing on the both sides of the paper.
- e) Page numbers can be reduced by reducing the size of typeface (font). For example, "Times Roman" or "C. G. Times" font size not exceeding 10 characters per inch (cpi) or equivalent to point 12 should be used in balancing legibility and clarity against the waste reduction objective.

#### 10. General Reference

The EIA Study shall be carried out with due regard to the information, policies, regulations, requirements and procedures contained in:-

- i) all anti-pollution Ordinances, Technical Memoranda, advisory booklets etc;
- ii) PEL Branch/ Works Branch, April 1992: "EIA of major private sector projects" (Technical Circular No. 2/92, 14/92);
- iii) PEL Branch, May 1994: "Public access to EIA reports" (General Circular No. 2/94);
- iv) EPD and Planning Department, April 1991: "Environmental Guidelines for Planning in Hong Kong" (Chapter 9 of HKPSG);
- v) EPD: "Environment Hong Kong" (Annual Review);
- vi) PEL Branch, November 1993: "The Hong Kong Environment: A Green Challenge for the Community";
- vii) EPD, February 1994: Consultancy Documents Submitted to EPD - "Working Greener" DTC No. 15.2.94;
- viii) EPD, Practice Note for Professional Persons - ProPECC Note, 1994: Construction Site Drainage (PN1/94); and
- ix) EPD, May 1996: Generic EM & A Manual.
- x) **Environmental Impact Assessment Ordinance (Cap. 499, S.16) & its Technical Memorandum on Environmental Impact Assessment Process**

Environmental Assessment and Noise Division  
 Environmental Protection Department  
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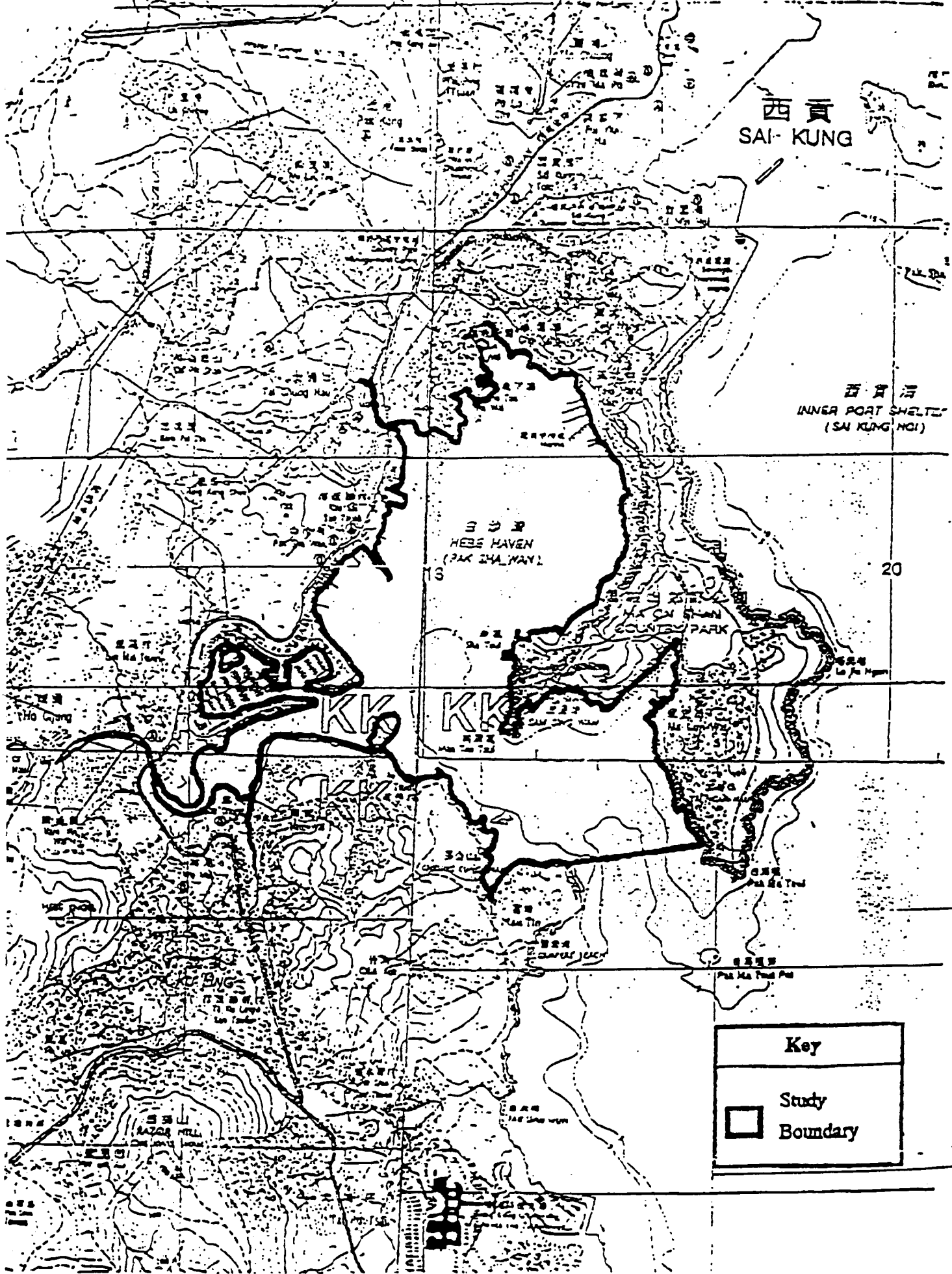


FIG1 EZA STUDY BOUNDARY FOR EXTENSION OF  
HEBE HAVEN YACHT CLUB