

Fig. 31 Operation & Maintenance System in the Plan

Appendix

Appendix 1 PERSONNEL

1.1 Government of Japan

(1) Advisory Committee

- 1) Ryuichi Tanabe Chairman of Advisory Committee Executive Director, Japan Marine Products Importers Association
- 2) Yuzuru Tomizuka Assistant Director, Coastal Fisheries Fisheries Promotion Division, Fisheries Agency
- 3) Yoshiyuki Shige Assistant Director, Off Shore Fisheries Fisheries Promotion Division, Fisheries Agency
- 4) Ryuichi Tabuti Hokkaido Research Center, Forestry and Forest Products Research Institute,

(2) Study Team

- 1) Tamostu Tomiyama Team Leader System Science Consultants Inc.
 - 2) Shigeru Iwasaki Socio-economic/Evaluation System Science Consultants Inc.
 - 3) Eiichi Haruta Fishery Production/ Fishing Ground Environment System Science Consultants Inc.
 - 4) Shigeru Kobayashi Aquaculture System Science Consultants Inc.
 - 5) Ichirou Kanou Fish Marketing/Processing Expert
 - 6) Tokio Kitamado Fishermen Organization Expert
 - 7) Hiromitsu Kuno Mangrove Ecology Japan Forest Technical Association
 - 8) Tadami Imai Mangrove Forest Management and Utilization Japan Forest Technical Association
 - 9) Tsuneo Kume Environmental Consideration System Science Consultants Inc.
-

1.2 Government of Indonesia

(1) National Steering Committee

- 1) Sukotjo Adisukres Counterpart Leader, Directorate General of Fisheries, Directorate of Fisheries Resource Management (DGF) Jakarta
- 2) Bambang Edi Priyo Directorate of Fisheries Resource Management (DGF) Jakarta
- 3) Suseno Directorate of Program (DGF) Jakarta
- 4) Praatma Prihadi DGF Jakarta
- 5) Deddy Setiaperman Head, Marine environmental Research and Development Division, Fisheries Agency
- 6) Bambang Soekartik Kepala Boro, KLM & PM, Departmen Kehutanan
- 7) Kenji Okuaki JICA Expert

(2) Regional Steering Committee

- 1) Sugiri Elon Kepala Dinas Perikanan, Dinas Perikanan Propinsi Dati II Riau
 - 2) Rusukin Har Kepala Bidang Penelitian, BAPPEDA Prop. Dati II Riau
 - 3) I. Putu Sedana The Faculty of Fisheries, The University of Riau
 - 4) Engkah Sutadi Kepala Dinas, Dinas Kehutanan Propinsi Dati II Riau
 - 5) Soekadji Kepala Kantor, Kanwil Kehutanan Propinsi Riau
 - 6) Azaly Djohan Bupati of Kabupaten Bengkalis
 - 7) Umar Lubis Kepala Dinas, Dinas Perikanan Kabupaten Daerah Tingkat II Bengkalis
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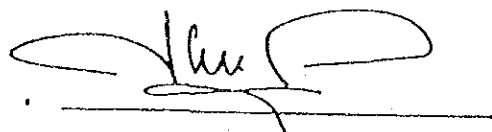
Appendix 2 Scope of Work

SCOPE OF WORK
FOR
THE STUDY
ON
COASTAL RESOURCES INVENTORY MANAGEMENT AND ENHANCEMENT
IN
THE REPUBLIC OF INDONESIA

AGREED UPON
BETWEEN
DIRECTORATE GENERAL OF FISHERIES,
MINISTRY OF AGRICULTURE
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

JAKARTA

December 20, 1991



Mr. Sukotjo Adisukresno
Director of Fishery
Resource Management,
Directorate General of
Fisheries



Mr. Ryuichi TANABE
Leader
Preparatory Study Team,
Japan International
Cooperation Agency

I . INTRODUCTION

In response to the request of the Government of Indonesia, the Government of Japan has decided to conduct the Study on Coastal Resources Inventory Management and Enhancement (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

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

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

II . OBJECTIVE OF THE STUDY

The objectives of the study are to formulate coastal community development programmes in coastal area of Riau Province based on sustainable and rational resource utilization, conservation of ecosystems, and promotion of social participation expecting their contribution to the rural development in Indonesia.

III . OUTLINE OF THE STUDY

1. The Study Area

The study area will cover Bengkalis District in east coast of Riau Province.

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2. Scope of the Study

In order to achieve the objectives mentioned above, the Study will cover the following works.

(1) Field survey and data collection

- a) Socio-economic background of selected coastal communities
- b) Utilization and management of fisheries resources
- c) Conservation and management of mangrove resources

(2) Formulation of coastal community development programmes

The programmes consist of:

- a) Small scale fisheries development with proper management measures of fisheries resources.
- b) Development of conservation and management measures of mangrove forest.
- c) Introduction of new income sources, such as aquaculture and
- d) Optimal combination of above a, b, and c for the improvement of socio-economic conditions of coastal communities.

Necessary works are:

- a) Collection and analysis of the data.
- b) Planning,
and
- c) Financial and economic analysis.

IV. STUDY SCHEDULE

The Study will be executed in accordance with the attached tentative work schedule.

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V. REPORT

JICA shall prepare and submit the following reports in English to the Government of Indonesia

1. Inception Report

Thirty (30) copies at the commencement of the field survey in Indonesia.

2. Progress Report

Thirty (30) copies within six (6) months after the beginning of the Study.

3. Interim Report

Thirty (30) copies within twelve (12) months after the beginning of the Study.

4. Draft Final Report

Thirty (30) copies within nineteen (19) months after the beginning of the Study, the Government of Indonesia is requested to provide its comments on the Draft Final Report within one (1) month after receipt of the Draft Final Report.

5. Final Report

Thirty (30) copies within two (2) months after receiving the comments from the Government of Indonesia on the Draft Final Report.

VI. UNDERTAKING OF THE GOVERNMENT OF INDONESIA

1. To facilitate smooth conduct of the Study, the Government of the Indonesia shall take necessary measures:

- (1) to secure the safety of the Japanese study team,
- (2) to permit the members of the Japanese study teams to enter, leave and sojourn in Indonesia for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,
- (3) to exempt the members of the Japanese study team from taxes, duties, fees, and other charges on equipment, machinery and other materials brought into and out for the conduct of the Study,

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- (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of Japanese study team for their services in connection with the implementation of the Study,
- (5) to provide necessary facilities to the Japanese study team for remittance as well as utilization of funds introduced into Indonesia 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 and photographs related to the Study out of Indonesia to Japan,
- (8) to provide medical services as needed, under the condition that its expenses will be chargeable on members of the Japanese study team,
- (9) to secure clearance for the use of communication facilities including transceivers and
- (10) to provide the Japanese study team with adequate means of local transport for official travel under the condition that its expenses will be chargeable on members of the Japanese study team.

2. The Government of Indonesia 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 part of the members of the Japanese study team.

3. Directorate General of Fisheries, Ministry of Agriculture (hereinafter referred to as "DGF") will act as the main counterpart agency to the Japanese study team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the study.

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4. DGF shall, at its own expense, provide the Japanese study team with the following, in cooperation with other organization concerned:

- (1) available data and information related to the Study,
- (2) counterpart personnel,
- (3) suitable office space with necessary equipment in Jakarta and Pekanbaru
and
- (4) credentials or identification cards.

VII. UNDERTAKING OF JICA

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

- (1) to dispatch, at its own expense, the study team to Indonesia,
and
- (2) to pursue technology transfer to the Indonesian counterpart personnel in the course of the Study.

VIII. CONSULTATION

JICA and DGF of the Government of Indonesia shall consult with each other in respect of any matter that may arise from or in connection with the Study.

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Appendix 3 Minutes of Meeting on S/W

MINUTES OF MEETING
ON
SCOPE OF WORK
FOR
THE STUDY
ON
COASTAL RESOURCES INVENTORY MANAGEMENT AND ENHANCEMENT
IN
THE REPUBLIC OF INDONESIA

AGREED UPON
BETWEEN
DIRECTORATE GENERAL OF FISHERIES,
MINISTRY OF AGRICULTURE
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

The Japanese Preparatory Study Team, headed by Mr. Ryuichi Tanabe, visited the Republic of Indonesia for the purpose of discussing the Scope of Work for the Study on Coastal Resources Inventory Management and Enhancement from December 9, 1991 to January 5, 1992.

The team had a series of discussion with Indonesia side for exchanging the views and opinions, and conducted field surveys in the study areas in Riau Province.

As the results of the above, both sides have confirmed the following points in addition to the Scope of Work.

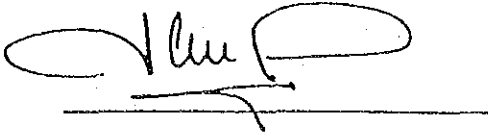
1. The Directorate General of Fisheries is requested that they will make effort to get permission from the authorities concerned to get necessary maps, aerial photos and so on.
2. The Directorate General of Fisheries is requested that they will make effort to establish a national steering committee and a regional steering committee.
3. The Directorate General of Fisheries is requested that they will issue invitation letters for the entry visa of Japanese study team members.

4. The Preparatory Study Team is requested to make copy of acquired data and submit them to the Directorate General of Fisheries.

5. The Preparatory Study Team is requested to accept counterparts of this Study by the JICA's Trainee Acceptance Programme.

JAKARTA

December 20, 1991



Mr. Sukotjo Adisukresno
Director of Fishery
Resource Management,
Directorate General of
Fisheries



Mr. Ryuichi TANABE
Leader
Preparatory Study Team,
Japan International
Cooperation Agency

24/12/91

Appendix 4 Minutes of Meeting on II/R

MINUTES OF THE MEETING
ON
THE INTERIM REPORT
OF
THE STUDY PHASE II
ON
COASTAL RESOURCES INVENTORY MANAGEMENT AND ENHANCEMENT
IN
THE REPUBLIC OF INDONESIA

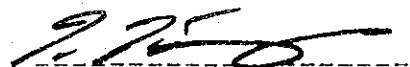
In pursuance to the Interim Report of the Study on Coastal Resources Inventory Management and Enhancement in the Republic of Indonesia (here in after referred to as "the study"). Japan International Cooperation Agency (here in after referred to as JICA) dispatched the study team headed by Dr. Tamotsu Tomiyama and advisory team headed by Mr. Yuzuru Tomizuka respectively.

The study team submitted 30 copies of the Interim Report to the Indonesian side and held the Technical Meeting participated by the National Steering Committee, Regional Steering Committee and other representative institutions as a resource person headed by Mr. Sukotjo Adisukresno, Director of Fishery Resources Management, Directorate General of Fisheries, Ministry of Agriculture.

The salient result of the technical meeting are as follows

1. Indonesian sides has agreed in principles upon the contents of Interim Report. Some comments were proposed and agreed upon which are shown in the annexes attached to the minutes.
2. Both sides agreed to cooperate with each other for the conducting the study phase III.

Jakarta, August 18, 1993

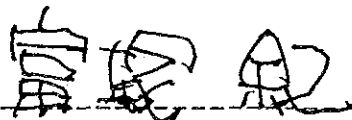


Dr. Tamotsu TOMIYAMA
Team Leader,
Study Team, JICA



Mr. Sukotjo Adisukresno
Director of Fishery Resources
Management
Directorate General of Fisheries

Witnessed by :



Mr. Yuzuru TOMIZUKA
Advisory Team, JICA

ANNEX

COMMENTS

1. Scope of work on the study was reconfirmed as follows :
 - Formulation of small scale fisheries development plan
 - Formulation of forestry conservation and management plan
 - Introduction of new income sources
 - Combination of three activities.

2. It was recognized the development of the coastal village in one of ways to overcome the poverty.

3. The study shall take into consideration :
 - Legal Aspect :
 - * Presidential Decree No. 32/1990
 - * Ministry Decree between Minister of Forestry and Minister of Agriculture.
 - * Ministry Decree among Minister of Forestry, Minister of Agriculture and Minister of National Land Use.
 - Others :
 - * A small island (e.g. less than 1000 Ha) can not be used for aquaculture purposes.

4. The potential fishery resources for Malacca Strait can not be assessed properly by only analyzing catch and effort data. In order to cope with this situation, the available catch shall be estimated by the trend on fish catch or using the reference on the previous study for Malacca Strait.

SPATIAL PLANNING OF RIAU PROVINCE AND DISTRICT OF BENGKALIS

1. The proposed model area for aquaculture within the mangrove area should be adjusted according to the Spatial Planning for the respective District.

2. Four selected model areas from the study should be prioritized in the spatial planning of Riau Province.

3. The spatial planning of Riau Province is still in the stage of processing.

PRESENT CONDITIONS AND DEVELOPMENT STRATEGIES OF FISHERIES

1. The exploitation level from marine fisheries reached 99.7 %, therefore, for the near future, the fish production will focus on aquaculture activities.
2. The activities on aquaculture that give a better prospects are freshwater aquaculture, brackishwater pond culture and marine aquaculture (cage-culture).
3. Fish production is composed of about 95.5% from marine and about 4.5 % from freshwater aquaculture.
An improvement on gears (especially for traditional fishermen) is strongly needed, in order to keep stable level of fish product from marine.
4. Almost 60% from fish product consists of trash-fish. Therefore, technologies of processing and handling of fish need to be improved in order to give an additional income for fishermen.
5. A relationship between 'Tauke' and fishermen should be studied by the study team in order to increase the fishermen income.

REVIEW ON THE STUDY PROGRESS DURING PHASE I AND II

1. Following explanations were given by the study team based on the Progress Report (Phase I) :
 - Socio-economic conditions
 - Fisheries activities
 - Mangrove forest along the study area
 - Fishing village category
 - Criteria for "the model area" selection
 - Desa Muntai, Sungai Cingam, Pelantai and Teluk Ketapang had been selected as the model area.
2. The conditions on the selected model area were explained by the team based on the Interim Report (Phase II).
 - Fishery and Socio-economic conditions
 - Mangrove forest conditions
 - Local people's opinions on development and conservation of coastal resources (fishery resources and mangrove forest).

- Policy concept on management and enhancement on fishery and mangrove forest.

KEYS OF INTEGRATED MANAGEMENT PLANNING

Principally, the development planning on the four selected model areas should take following keys into consideration in order to achieve a sustainable development :

- Identify leading sector from user groups.
- Zonation
- Consultation, coordination and cooperation among user groups
- Establishment of advisory committee
- Involvement of local community
- Public education and training, information, leaflet, poster, etc. in order to increase a public awareness.
- Making some regulations, monitoring, control and enforcement.

UTILIZATION ON MANGROVE FOREST

1. It is suggested that a strategy on the utilization on mangrove can be done through ; analyzing, development, and the right utilization pattern.
2. Following problems regarding of mangrove utilization were discussed and recognized : data and informations, technology, coordination, laws, Socio-economic condition, land acreation, delineation and weak enforcement.
3. It is suggested that the study team should give any recommendation regarding the laws; forest management, and other problems which can be supported by the Ministry of Forestry.
4. It is expected that the study could give concepts on the coastal village model, social education, silvo fishery and green belt.
5. For settling project boundaries of selected model areas the team should take special care of existing boundary of HPH (near Desa Muntai and Sungai Cingam), i.e. New Union Timber (Rupat island) and PT Perkasa Baru (Bengkalis island). To

clarify this matter, the team should get relevant information from these two companies.

Appendix 5 Minutes of Meeting on DF/R

MINUTES OF THE MEETING
ON
THE DRAFT FINAL REPORT
OF
THE STUDY
ON
COASTAL RESOURCES INVENTORY MANAGEMENT AND ENHANCEMENT
IN
THE REPUBLIC OF INDONESIA

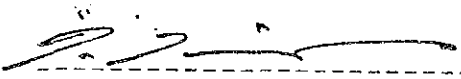
In pursuance to the Draft Final Report of the Study on Coastal Resources Inventory Management and Enhancement in The Republic of Indonesia (herein after referred to as "the study"), Japan International Cooperation Agency (herein after referred to as "JICA") dispatched the study team headed by Dr. Tamotsu TOMIYAMA and the advisory team headed by Mr. Ryuichi TANABE respectively.

The study team submitted thirty (30) copies of the Draft Final Report to the Indonesian side and held a series of meetings on the contents of the report participated by the National Steering Committee, Regional Steering Committee and other representative institutions as resource persons headed by Mr. Sukotjo Adisukresno, Director of Fishery Resources Management, Directorate General of Fisheries, Ministry of Agriculture. List of the attendants is attached here to.

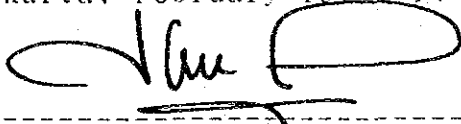
The salient results of the meetings are as follows

1. Indonesian side has agreed in principle upon the contents of the Draft Final Report. Comments will be submitted for examination to the Study Team through JICA Indonesia Office within one month from this date. Pertinent comments will be reflected for finalizing the study report.
2. Both sides agreed that this Integrated Coastal Management project is very important and recognized the importance of the implementation of the project in the near future.
3. Both sides agreed that the Report will be prepared by the end of March, 1994.

Jakarta, February 10, 1994

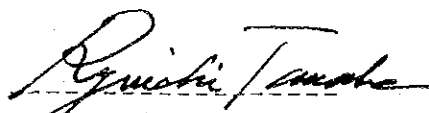


Dr. Tamotsu TOMIYAMA
Team Leader
Study Team, JICA



Mr. Sukotjo Adisukresno
Director of Fishery Resources
Management
Directorate General of Fisheries

Witnessed by



Mr. Ryuichi TANABE
Leader
Advisory Team, JICA

Appendix 6 List of Reference

- 1 Rencana Pembangunan Lima Tahun Kelima Daerah Kalimantan Barat I,II,III 1989/90-1993/94
- 2 Statistik Indonesia 1991
- 3 Statistik Perdagangan Luar Negeri Indonesia Impor 1991 Jilid I,II,
- 4 Statistik Perdagangan Luar Negeri Indonesia Ekspor 1991 Jilid I,II
- 5 Indikator Ekonomi 1986, 1987
- 6 Indikator Ekonomi Riau 1991
- 7 Statistik Industri Riau 1981, 1985, 1990
- 8 Statistik Ekonomi-Kuangan Indonesia/Indonesian Financial Statistics
- 9 Statistik Ekonomi-Kuangan Indonesia/Indonesian Financial Statistics 1992
- 10 Statistik Lingkungan Hidup Indonesia 1991
- 11 Sensus Ekonomi/Economic Census 1986
- 12 Pengeluaran Untuk Konsumsi Penduduk Indonesia 1990
- 13 Pengeluaran Untuk Konsumsi Penduduk Indonesia per Propinsi 1990
- 14 Konsumsi Kalori dan Protein Penduduk Indonesia Dan Propinsi 1990
- 15 Indikator Kesejahteraan Rakyat Riau 1990
- 16 Survey Biaya Hidup/Cost of Living Survey 1989
- 17 Indikator Kesejahteraan Rakyat Riau 1991
- 18 Indeks Harga Konsumen Di Ibukota Propinsi Indonesia 1989-1990
- 19 Harga Konsumen Beberapa Barang Dan Jasa Di Seluruh Ibukota Propinsi Indonesia 1991
- 20 Perkiraan Pendapatan Regional Riau 1983-87
- 21 Perkiraan Pendapatan Regional Riau 1983-1990
- 22 Penduduk Riau Hasil Sensus Penduduk 1990
- 23 Penduduk Propinsi Riau Menurut Kabupaten/Kotamadya Dan Kecamatan 1980
- 24 Potensi Desa Hasil Sensus Penduduk 1990 Kabupaten Bengkalis
- 25 Statistik Bongkar Muat Barang Di Pelabuhan Indonesia 1990
- 26 Riau Dalam Angka In Figures 1980
- 27 Bengkalis Dalam Angka 1990, 1991
- 28 Dumai Dalam Angka 1981, 1990
- 29 Tebing Tinggi Dalam Angka 1989
- 30 Peraturan-peraturan Tentang Kaitan Kegiatan Industri dan Lingkungan
- 31 Sosio Ekonomi Penduduk Riau 1987
- 32 Monografi Kabupaten Daerah Tingkat II Bengkalis Tahun 1989
- 33 Statistik Koperasi Per Kecamatan Kab. Bengkalis 1984
- 34 Sensus Ekonomi/Economic Census Village Potential Statistics 1986
- 35 Indikator Ekonomi Juli 1992
- 36 Laporan Semester II Tahun 1991

- 37 Faktor-Faktor Ekonomi Yang Mempengaruhi Pendapatan Masyarakat Nelayan Pulau, Rupa Kabupaten Bengkalis
- 38 Profile Propinsi Daerah Tingkat I Riau 1992
- 39 Faktor Sosial Ekonomi Yang Berhubungan Dengan Pendapatan Keluarga Nelayan Gombang, Di Desa Tanjung Medang Kecamatan Tebing Tinggi Kabupaten Bengkalis Propinsi Riau
- 40 Survei Industri Rumah Tangga Di Kabupaten Bengkalis
- 41 Program Bantuan Pembangunan Daerah Tingkat II Kab. Bengkalis Tahun 1992/1993, Gubernur Kepala Daerah Tingkat I Riau
- 42 Buku Fasilitas Inventaris Serta Layout Pelelangan Perikanan Di Indonesia 1986
- 42 Statistik Perikanan Indonesia, 1981 □ 1991
- 44 Buku Tahunan Statistik Perikanan Tingkat Propinsi Riau, 1980 - 1991
- 45 Laporan Tahunan, Cabang Dinas Perikanan Kab. Bengkalis, 1985 □ 1991
- 46 Laporan Tahunan Proyek Peningkatan Produksi Perikanan RIAU-APBD 1991/1992
- 47 Buku Tahunan Statistik Perikanan Tingkat Propinsi Riau, Tahun 1980 to 1991
- 48 Daftar Isian Proyek Daerah Tahun Anggaran 1991/1992, 1992/1993
- 49 Pelaksanaan Pelelangan Ikan Di Propinsi Riau
- 50 Suatu Komperasi Rentabelitas Usaila Jaring Tansi, Jaring Bawal, Jaring Kurau Diperairan
- 51 Kertas Kerja Bahan Pertemuan Koordinasi Terbatas Peningkatan Daerah, (Pajak Alat Penangkap Ikan Dan Retribusi Pelelangan Ikan)
- 52 Peranan Organisasi Dan Pengorganisasian Nelayan Dalam Menunjang pelaksanaan pelelangan Ikan Di Riau
- 53 Pedoman Pelaksanaan Program Pengembangan Usaha Perikanan Rakyat Dengan Fasilitas KIK/KMKP 1978/1979
- 54 Kesimpulan Diskusi Panel Peningkatan Ekspor Perikanan Rakyat Riau Tanggal 17 S/D 19 Nopember 1977
- 55 Data Umum Perikanan Kabupaten Bengkalis 1990
- 56 Penelitian Pengolahan Dan Penyusunan Harga Patokan Ikan Segar Campuran Di Daerah Riau 1984/1985
- 57 Potensi Dan Penyebaran Sumberdaya Ikan Laut Di Perairan Indonesia 1989
- 58 Tempat Pelelangan Ikan 1989
- 59 Analisis Usaha Nelayan Ambai Dan Gombang Di Desa Meskom Kecamatan Bengkalis
- 60 Keadaan Budidaya Tambak Di Desa Pangkalan Batang Kecamatan Bengkalis Kabupaten Bengkalis, Propinsi Riau
- 61 Keadaan Budidaya Ikan Di Kelurahan Air Jamban Kecamatan Mandau Kabupaten Bengkalis Propinsi Riau
- 62 Analisis Produksi Dan Pendapatan Nelayan Gombang Dengan Menggunakan Ukuran Sayap Yang Berbeda Di Perairan Kecamatan Tebingtinggi 1986
- 63 Analisis Usaha Alat Penangkapan Jaring Tansi(Nilon Monofilament) Dan Jaring Tenggiri (Nilon Multifilament) Di Desa Muntai Kecamatan Bengkalis Kabupaten Bengkalis
- 64 Analisis Titik Impas Usaha Penangkapan Pengerih Di Desa Purnama Kecamatan Dumai Barat
- 65 Kabupaten Bengkalis Propinsi Riau
- 66 Laporan Singkat Tentang Pelaksanaan Kredit Keppres No 39/1980 Di Dabrah Kabupaten Bengkalis 1987

- 67 Laporan Tahunan Dinas Pertanian Tanaman Pangan Kabupaten Daerah Tingkat II Bengkalis 1991
- 68 Data Umum Perikanan Kabupaten Bengkalis
- 69 Uratkeputusan Pemimpin Proyek Dan Daftar Isian Proyek 1991/1992 APBD
- 70 Program Bantuan Pembangunan Daerah Tingkat II Kabupaten Bengkalis Tahun 1992/1993
- 71 Lembaran Daerah Propinsi Daerrah Tingkat Riau 1985
- 72 Departemen Pertanian Direktorat Jenderal Perikanan Jalan Salehba Raya No. 16 1983
- 73 Riau Dalam Angka in Figures 1990/1991
- 74 Kumpulan Peraturan Daerah Surat Keputusan Dan Instruksi Yang Berhubungan Kegiatan Penangkapan Ikan di Laut Propinsi Datii Riau 1991
- 75 Standar Rencana Induk Dan Pokok Desain Untuk Pelabuhan Perikanan Dan Pangkalan Pendaratan Ikan 1981
- 76 Statistik Ekspor Dan Impor Hasil Perikanan/International Trade Statistics of Fisheries Commodities
- 77 Proyek Pada Dinas Perikanan Kabupaten Bengkalis 1989 s/d 1992
- 78 Laporan Semester I Tahun 1992
- 79 The Integrated Management Plan for Segara Anakan-Cilacap, Central Java, Indonesia
- 80 Pemerintah Propinsi Daerah Tingkat I Riau Dinas Perikanan
- 81 Pedoman Teknis Penyusunan Amdal Sub Sektor Perikanan Bidang Budidaya Perikanan 1990
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- 87 SWAMPS SOUTHEAST ASIA, Institute fo Tropical Agriculture, 1986 (Japaneae)
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- 89 MANGROVE FORESTS OF THE MALAY PENINSULA, J.G. Watson,1928
- 90 TABEL VOLUME BAKAU-BAKAU (RHIZOPHORA spp.) DI DAERAH BENGKALIS, RIAU, K.Soemarha,1974
- 91 PRIMARY PRODUCTIVITY OF MANGROVE FEREST, A.Komiyama, M.Moriya, Suhardjono Prawiroatmodjo. T.Toma and K.Ogino (pp97□ pp106, A Report of East Indonesian Mangrove Expedition, Ehime University) Mar.1988
- 92 PETA HAK PENGUSAHAAN HUTAN DALAM WILAYAH KERJA BAGIAN KESATUAN PEMANGKUAN HUTAN DUMAI 1:100,000,1991 (Indonesian)
- 93 PETA HAK PENGUSAHAAN HUTAN DALAM WILAYAH KERJA BAGIAN KESATUAN PEMANGKUAN HUTAN BENGKALIS 1:100,000,1991 (Indonesian)
- 94 PETA TYPE HUTAN BAGIAN KESATUAN PEMANGKUAN HUTAN SELATPANJANG 1:100,000 1991 (Indonesian)
- 95 PEDOMAN PENYUSUNAN PENCANA TEKNIK LAPANGAN PENTAI, DJ RRL, Departmen Kehutanan, 92 (Indonesian)

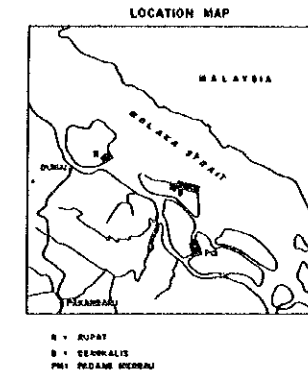
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- 96 SURAT KEPUTUSAN GUBERNUR KEPALA DAERAH TINGKAT I RIAU,, SKPTS 128/VI/1979
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- 97 Larangan Pemberian Ijin HPHH (No.328/Menhut-...-1989) (Indonesian)
- 98 PETA RENCANA TATA GUNA HUTAN KESEPAKATAAN PROPINSI DATI I RIAU 1:500,000
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- 99 KEPUTUSAN PRESIDEN REPUBULIK INDONESIA NOMOR 32 TAHUN 1990 TENTANG PENGELOLAAN KAWASAN LINDUNG, Presiden Republik Indonesia, July 1990 (Indonesian)
- 100 PETUNJUK TEKNIS PEMBUATAN PERMUDAAN BAKAU [RHIZOPHORACEAE], Dinas Kehutanan RIAU, 1986 (Indonesian)
- 101 PEDOMAN PENYELENGGARAAN PENGEMBANGAN HUTAN BAKU RAKYAT, Departemen Kehutanan, 1992 (Indonesian)
- 102 FORESTRY AND FOOD SECURITY,FAO
- 103 MEMELIHARA LEBAH MADU, Bambang Agus Murtidjo, 1991 (Indonesian)
- 104 STASTISTIK KEHUTANAN INDONESIA 1989/1990, Sekretariat Jenderal Departemen Kehutanan, 1991 (Indonesian)
- 105 PROFIL DAN PENGEMBANGAN "EKSPOR ARANG BAKAU PROPINSI RIAU", Kanwil Perdagangan Riau, 1991 (Indonesian)
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- 107 PEDOMAN RANCANGAN HUTAN KEMASYARAKATAN, Departemen Kehutanan, 1987
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- 108 STASTIK KEHUTANAN PROPINSI RIAU TAHUN 1990/1991, Kanwil Kehutanan Riau, 1991
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- 109 INDONESIA FORESYRY ACTION PROGRAMME, Ministry of Forestry, 1991
- 110 KEPUTUSAN PRESIDEN REPUBLIK INDONESIA NOMOR 32 TAHUN 1992 TENTANG DAFTAR BIDANG USAHA YANG TERTUTUP BAGI PENANAMAN MODAL, 1992 (Indonesian)
- 111 PROFIL DAN PENGEMBANGAN "EKSPOR ARANG BAKAU PROPINSI RIAU" Kanwil Perdagangan Riau, 1991 (Indonesian)

LAYOUT ON MANGROVE FOREST GREENBELTS

R



BENGKALIS STRAIT



LEGEND

MANGROVE

- Avicennia spp stands
- High Rhizophora spp stands
- Medium-high Rhizophora spp stands
- Low Rhizophora spp stands
- Low Rhizophora spp stands (Sparse)
- Marsh lands (Non-low vegetation cover)
- Marsh lands with low vegetation cover

NON MANGROVE

- Non-mangrove Forests
- Sago palms
- Rubber trees
- Coconut palms
- Agricultural lands
- Grass lands
- Settlements and facilities
- Site of charcoal Kilns
- Boundary of model mangrove areas
- Road
- Foot path
- Waterbody

BOUNDARY

- HPH
- HPHH
- DESA

- G-I (Greenbelt I : Coastal Protection Zone)
- G-II (Greenbelt II : Mangrove Ecosystem Protection Zone)
- P (Productive Forest Land)

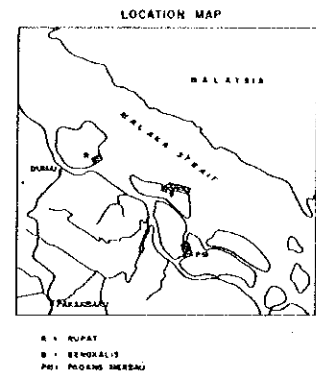
JAPAN INTERNATIONAL COOPERATION AGENCY
(J I C A)

LAYOUT ON MANGROVE FOREST GREENBELTS

R



BENGKALIS STRAIT



LEGEND

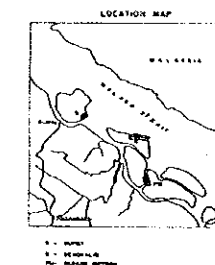
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JAPAN INTERNATIONAL COOPERATION AGENCY
(J I C A)

LAYOUT ON MANGROVE FOREST GREENBELTS

PM

STUDY ON COASTAL RESOURCES INVENTORY
MANAGEMENT AND ENHANCEMENT



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BOUNDARY

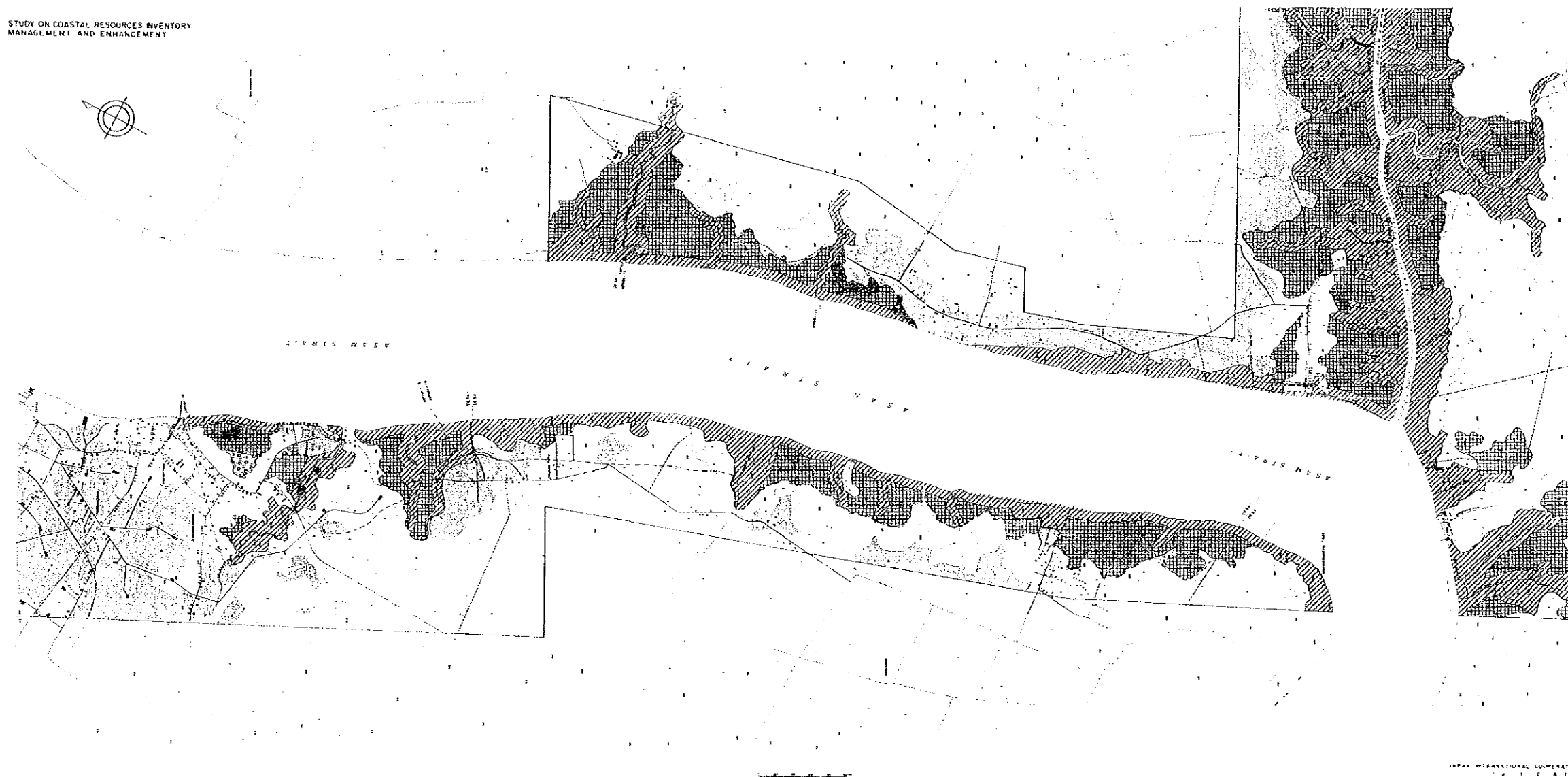
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- MPHH
- DESA
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JAPAN INTERNATIONAL COOPERATION AGENCY
JICA

LAYOUT ON MANGROVE FOREST GREENBELTS

PM

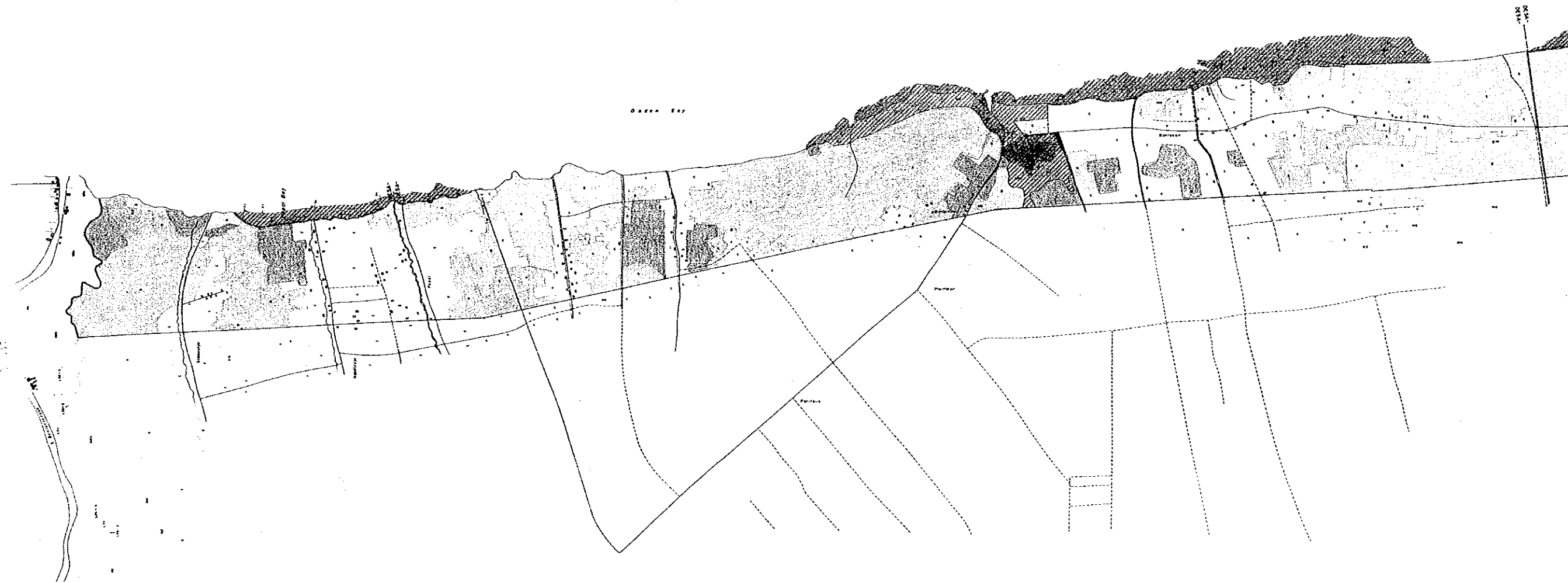
STUDY ON COASTAL RESOURCES INVENTORY
MANAGEMENT AND ENHANCEMENT



LEGEND

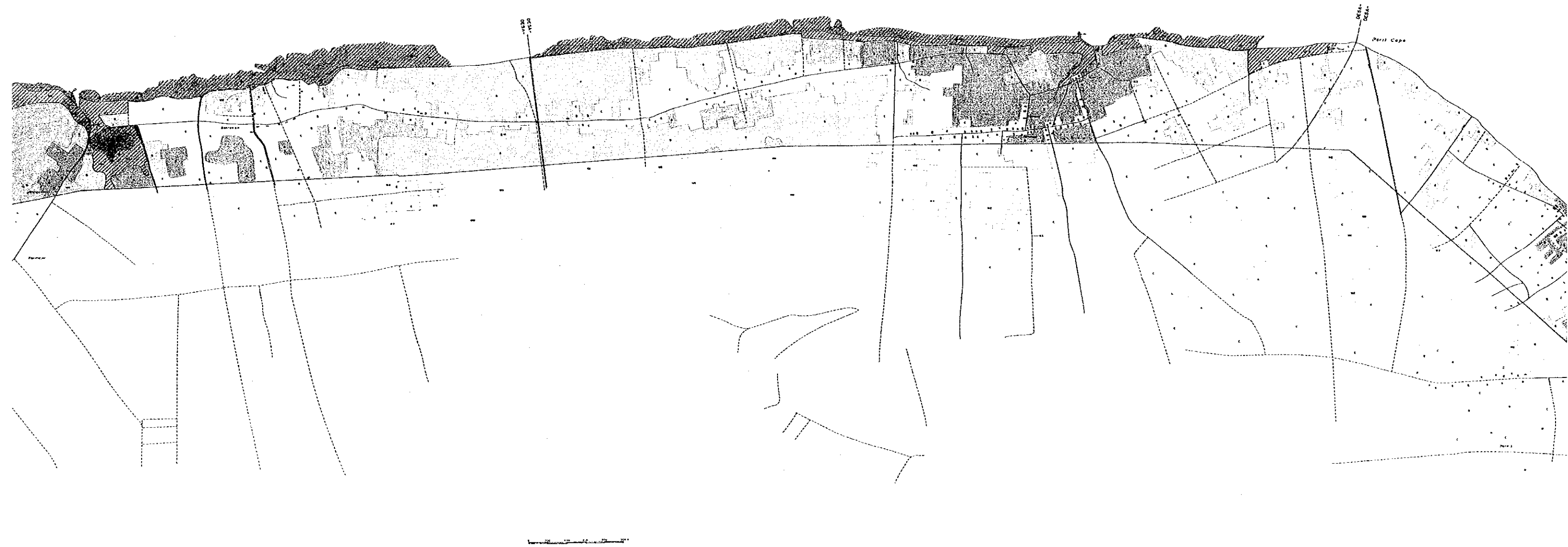
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- BOUNDARY**
- HPH
 - HPHH
 - OESA
 - G-I (Greenbelt I: Coastal Protection Zone)
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JAPAN INTERNATIONAL COOPERATION AGENCY



LAYOUT ON MANGROVE FOREST GREENBELTS

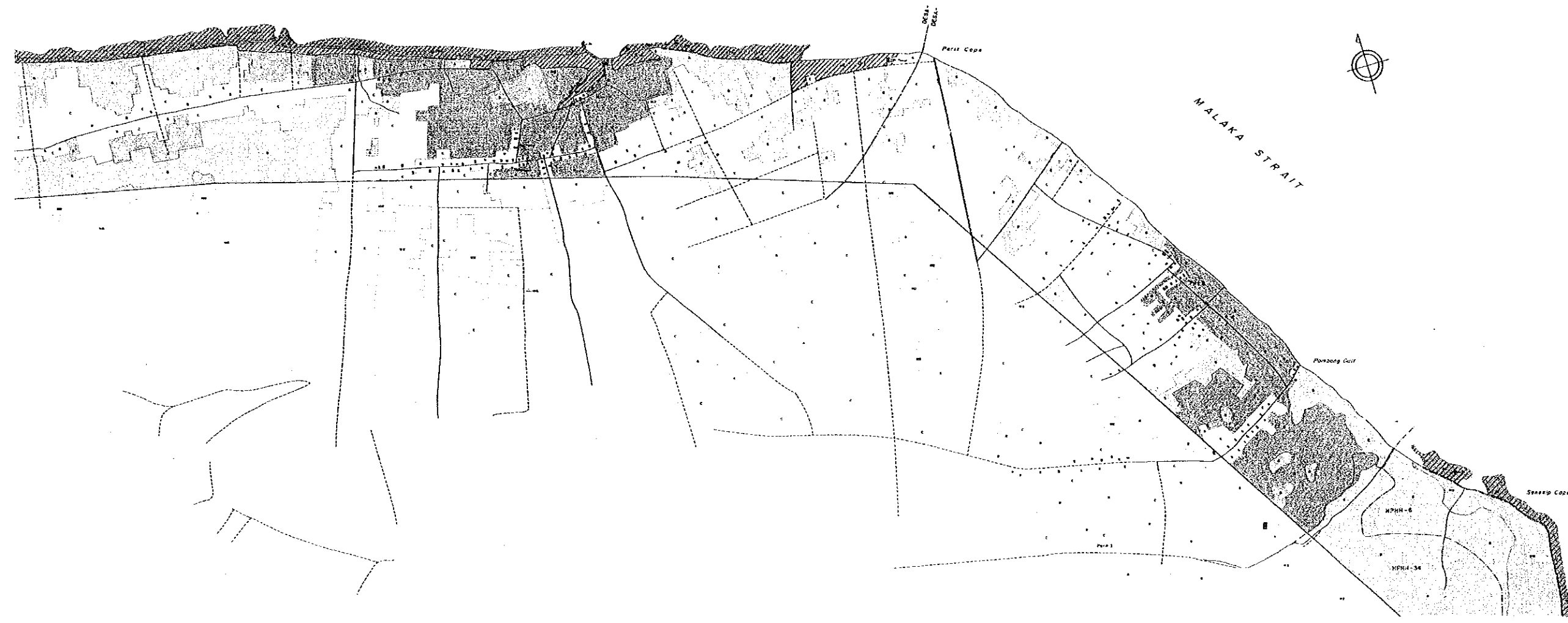
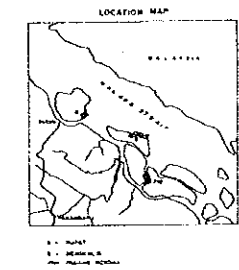
MALAKA STRAIT



FOREST GREENBELTS

MALAKA STRAIT

B



LEGEND

- MANGROVE**
- Avicennia spp stands
 - High Rhizophora spp stands
 - Medium-high Rhizophora spp stands
 - Low Rhizophora spp stands
 - Low Rhizophora spp stands (Sparse)
 - Marsh lands (Non-low vegetation cover)
 - Marsh lands with low vegetation cover
- NON MANGROVE**
- Non-mangrove Forests
 - Sago palms
 - Rubber trees
 - Coconut palms
 - Agricultural lands
 - Grass lands
 - Settlements and facilities
 - Site of charcoal Kilns
- BOUNDARY**
- HPH
 - HPHH
 - DESA
 - G-I (Greenbelt I : Coastal Protection Zone)
 - G-II (Greenbelt II : Mangrove Ecosystem Protection Zone)
 - P (Productive Forest Land)
- Other Symbols:**
- Boundary of model mangrove areas
 - Road
 - Foot path
 - Waterbody

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

JICA