

- ・必要に応じ、プーケット国際空港の利用者に対しアンケートヒアリング調査を行う。

③関連開発計画の調査及び分析

- ・プーケット島の開発に関する長期計画、特に観光開発の動向について調査分析を行う。
- ・タイ国南部臨海開発計画についても調査、分析を行う。

④現空港施設の評価

- ・現空港施設の能力、ICAO基準の満足度等について調査分析を行う。

⑤自然条件調査

- ・現空港及び新空港候補地について地形図の作成及び地質調査を行う。

a) 測量

地形図を下記の要領で作成する。

－現空港地域について

- ・既存の航空写真を利用して、地形図を作成する。
- ・図化範囲 10km (R/W延長) \times 3km (横方向) = 30km^2
- ・標定点測量 6 点 (3級基準点測量)
- ・水準測量 30km (簡易水準点測量)
- ・空中三角点測量 15 モデル
- ・図化縮尺 $1:5,000$
- ・等高線は、 2m 間隔に標示する

－現空港に対する詳細な地形図は、既存の地形図 $1:2,000$ を利用するが、不足している領域は上記作業で作成される $1:5,000$ の地形図から補完する。

－現空港に対する縦横断測量

- ・縦断 延長 4km 、測点間隔 100m
- ・横断 幅 $1,000\text{m}$ 、測点間隔 100m 及変化点
- ・縮尺 縦断 $H = 1/1,000$ $V = 1/100$
横断 $H = 1/1,000$ $V = 1/100$

－新空港地域について

- ・既存の空港写真を使用して、地形図を作成する。
- ・新空港計画予定地 (2箇所) 及びその周辺を対象に実施する。
- ・図化範囲 合計 40km^2
- ・標定点測量 合計 8 点 (3級基準点測量)
- ・水準測量 合計 40km (簡易水準点測量)

- ・空中三角点測量 合計22モデル
- ・図化縮尺 1/10,000
- ・等高線は、5 m間隔（場合によっては、2.5mの補助線を表示する）に表示する。

* なお、新空港候補地に関する地形図の作成は、次項新空港可能性調査の過程で、絞り込まれた2候補地についてのみ行う。

b) 土質調査

ーボーリング

- ・機械ボーリング 深さ10 m / 箇所
- ・標準貫入試験 2 m間隔
- ・現空港地域を対象に6箇所実施する。

ー室内試験

- ・単位体積重量
- ・自然含水比
- ・比重
- ・アッターベルグ限界（コンシステンシー限界）
- ・粒度試験
- ・圧密試験
- ・C B R 試験
- ・一軸圧縮試験

* なお、土質調査等の自然条件調査の大部分はタイ国のローカルコンサルタントが実施する能力を有しているものと考えられる。

c) 主なローカルコンサルタント

タイ国内のローカルコンサルタントのうち、地形図作成以外の業務を遂行できる主な会社を参考として次に示す。

- ーAsian Engineering Consultants Corp., Ltd. (AEC)
- ーMetropolitan Engineering Consultant Co., Ltd. (MEC)
- ーThai Engineering Consultant Co., Ltd. (TEC)
- ーSoil Testing Siam Engineering Consultants Co., Ltd. (STS)
- ーK Engineering Consultatns Co., Ltd. (KEC)

(2) マスタープランの作成

2010年を目標年次とし、マスタープランを策定する。

①航空需要予測

・将来のブーケット国際空港の利用旅客、貨物の需要を予測する。

②所要施設規模の算定

・需要予測に基づき必要滑走路長、エプロン面積、ターミナル地域面積等、所要の施設規模の算定を行う。

③新空港の可能性調査

(a) 既存の1/50,000地形図を用いて、主として制限表面の確保等の観点から、新空港の立地が可能な場所を3ヶ所程度選定する。

(b) 既存の資料分析、現地踏査等を行い、AATと協議した上で2ヶ所の新空港候補地を選定する。

(c) 新空港候補地周辺の地形図の作成を行う（自然条件調査に含む）。

④空港整備計画に関する計画案の策定

(a) 現空港の能力アップを中心とした拡張計画案の策定

(b) 現空港のグレードアップ計画案の策定

(c) 新空港計画案の策定

⑤代替案の概算工費の算定

上記代替案の概算工費の算定を行う。

⑥代替案の比較及び最適案の選定

代替案の効果（空域、アクセス……）、工費等の比較を行い最適案を選定する。

⑦既存資料による環境調査

既存資料を用いて環境調査を行う。

⑧整備計画の策定

施設整備計画を策定する。

(3) 短期整備計画に関するフェージビリティスタディ

マスタープランのフレームワークに基づいて、現空港の短期整備計画に関するフェージビリティスタディを行う。目標年次は2000年を原則とするが、需要予測に基づいた段階整備計画の内容により、他の適当な年次とすることも考えられる。

①段階的整備計画の策定

マスタープランのフレームワークの枠内で、需要予測に基づいて空港の段階的整備計画を策定する。

②短期的整備計画の決定

AATと協議してフィージビリティスタディの対象とする短期整備計画を確定する。

③概略設計及び工程計画の策定

フィージビリティスタディに必要なレベルで概略設計を行うとともに、工程計画を策定する。

④概算事業費の算定

上記概略設計に基づき概算工費の算定を行う。

⑤管理運営計画の策定

完成後の管理運営計画を策定する。

⑥経済分析・財務分析

フィージビリティを評価する指標の1つとなる経済的・財務的な分析を行う。

⑦短期整備計画の評価

短期整備計画を技術的並びに経済・財務的に評価し、プロジェクトの実施可能性を評価する。

⑧実施計画の策定

以上の検討を基に、実現可能なプロジェクトの短期実施計画を策定する。

6. 4 調査スケジュール

調査スケジュールは、表6-1に示す調査実施フローのとおりである。

6. 5 調査の実施体制

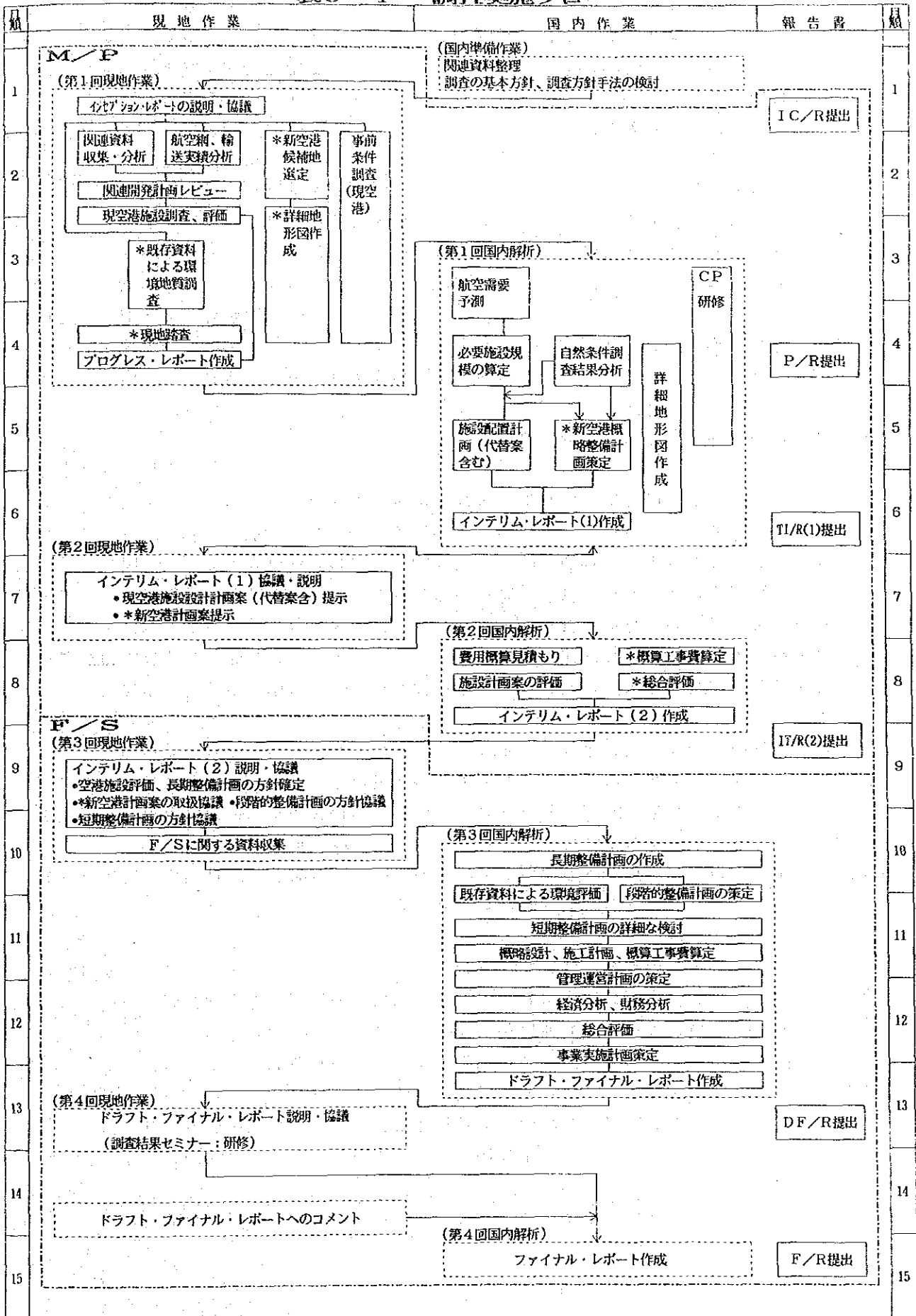
本格調査の内容から実施体制は以下の分野が想定される。

(1) マスタープラン、フィージビリティ調査

①総括

②空港計画

表6-1 調査実施フロー



*新空港可能性調査に係る調査項目

- ③土木施設計画Ⅰ（現空港）
- ④土木施設計画Ⅱ（新空港）
- ⑤建築計画
- ⑥航空保安施設計画
- ⑦空域計画及び運航計画
- ⑧航空需要予測
- ⑨経済・財務分析
- ⑩空港管理運営計画
- ⑪自然条件調査（土質調査、縦横断測量）
- ⑫環境調査

（２）地形図作成

6. 6 調査実施に当たっての留意事項

（１）現空港の拡張（能力アップ）のための整備項目の例

①滑走路の延長（現R/W 3,000m → 3,300~3,500m…）

- ・長距離国際線（欧州、米国）直行便に対して、現R/W長では最大離陸重量での離陸は難しいと考えられる。
- ・長距離国際線の需要動向が鍵となると考えられる。（現在はチャーター便が主であり、又貨物量も少ないので当面必要性はやや薄いかな？）。

②平行誘導路の移設及び延伸

- ・現在整備中の平行誘導路は、R/W 09末端から2,500mの地点までしか整備工事を実施していないため、R/W 27ではターニングパットにおける転回を余儀なくされることになる。
- ・中央部はR/W中心線と平行T/W中心線間隔が150mしかないため、大型機（B747等）のオペレーションには運行制限が生じる。

③ターミナル地域の拡張（特にエプロン）

- ・現ターミナル地域の拡張ないしは、別の地域への展開を考える必要がある。
- ・特にエプロンの拡張が必要である。
- ・ターミナルビルについては、処理能力にやや余裕がある。

（２）空港のグレードアップのための整備項目の例

①上記（１）の①～③

② I C A O 基準関連

- a) 完成 C A T - I 化のための着陸帯の拡幅 (150m → 300m)
- b) 平行誘導路中心線と滑走路中心線間隔の拡大 (150m → 182.5m)
- c) 転移表面、水平表面等の確保のための障害地形削除

③ 運航上望ましい整備

- a) 最終進入コース下の丘の除去による I L S / G P 角度の標準化 (3.2° → 3.0°)
- b) オフセット L L Z の標準位置 (R / W 中心線上) への移設
- c) 標準式進入灯の整備

- ・ 運航方式 (Minima の設定) の設定の根拠について、Aerothai から十分ヒアリングすることが必要である。
- ・ 着陸帯の拡幅、障害地形削除等の整備による Minima の減少、それによる就航率の向上といった具体的な効果を算定するとともに、安全上のポイントを十分に整理することが必要である。

(3) 新空港可能性調査

- ・ インテリムレポートには各候補案の土地利用現況、環境への影響、アクセス、空港計画としての優位性などを十分に整理、記述し、タイ国が意志決定する場合には、円滑な判断ができるよう配慮すること。
- ・ 空域 (水平表面、進入表面、I L S 無障害物表面、進入復行区域、転移表面) の確保という観点を最優先し、少なくとも I L S、C A T - I、MINIMA 200feet を実現可能な候補地点を 1/50,000 地形図をもとに探す (2ヶ所程度、第 5 章参照)。
- ・ 進入方式は I C A O、P A N S / O P S によるものとする。
- ・ 調査対象は海上を含むブーケット島全域及び、タイ本土の一部とする。
- ・ 候補地については、タイ空軍が保有する空撮写真をもとに 1/10,000 程度の地形図を作成し、想定される基本施設を配置し、概算工事費を算定する。
- ・ 現地踏査、周辺資料収集等により、用地確保の容易性、環境問題の有無等について十分調査する必要がある。
- ・ A A T (特に現地) と十分に協議しながら調査を進める。

(4) 技術移転について

本調査の発端は、A A T 側が空港整備のマスタープラン作りの技術移転を日本側に要請したことにある。その後の J I C A 事務所、日本大使館等との協議の結果、開発調査を実施することとなった経緯がある。したがって、本調査の実施に当たっては「技術移転」を常に意識すべきである。

事前調査団の協議を通じて以下の 2 点を強く要請してきている。

① 日本におけるカウンターパート (C / P) トレーニングの受入れ (2 名)

②タイにおけるワークショップ（W/S）の開催

- ・ C/Pトレーニングは、先方と協議の上、その時期については、調査の中でどのポイントの技術移転を希望するか、また、日本側としてどのポイントが重要（何が欠けているか）かを十分に判断してアドバイスすべきである。
- ・ W/Sは、通常DF/Rの段階で行われることが多いが、本調査は3つの代替案のうちどの案を採用するかが重要なポイントであり、インテリムレポートの段階で実施することも検討する必要がある。尚、その対象者としてはAATはもちろんAerothai及びDOAのMemberの参加が考えられる。
- ・ 以上に加え、レポートの作成に当たっては、根拠となる諸基準（ICAO等）を明記するとともに、結果だけでなく、その過程について十分な記述を行うことが望ましい。
- ・ AATは現バンコク空港の整備（OECEがローン供与）を通じて、日本より主として施工に関する技術移転にほぼ成功しており、カウンターパートの技術移転受入能力は高いと判断される。
しかしAATが自ら空港のM/Pを作成した経験は少ないことから、本調査の実施を通じてM/P作成についても十分な技術移転を行うことが望まれる。

（5）その他

①エアラインへのヒアリング

- ・ 現空港の運航上の問題点については、エアラインのパイロットに十分ヒアリングするとよい（JAZ、WACも乗り入れている模様）。
 - ・ 欧州、米国からの直行便（チャーター便を含む）の動向がR/W延長するが否かのポイントとなるので、定期エアラインだけでなく現在プーケットにオフィスをかまえる、ラウダ航空等のチャーター便専門会社にも、将来の運航計画等について十分にヒアリングを行うことが必要である。
- 注） JAZ： ジャパンエアチャーター（株）
WAC： ワールドエアネットワーク（株）

②周辺空港整備の動向調査

- ・ 現在タイ国内ではバンコク第2空港計画が進められているが、周辺アジア諸国を見ると、クアラルンプール新空港、香港新空港、ソウル新空港、チャンギ国際空港Ⅱ期と新空港計画及び拡張計画が集中している。現在、プーケットへの航空旅客のかなりの部分がバンコクを経由している。しかし、これらの周辺空港が東南アジア地域のハブとして成長し、大半の欧米路線を受入れ、そこからフィーダー路線を伸ばし、プーケットもそのフィーダーの着地となる可能性がある。そうになるとプーケットの将来の就航機材、路線、需要に大きな影響を与える。したがって、この点について十分な情報収集を行うことが望ましい。

③観光開発の動向調査

- ・プーケット島の産業としては、観光開発に今後も依存せざるを得ないと考える。したがって観光開発の動向は将来の航空需要を左右するものである。近年プーケット島対岸のKrabiも観光地としての潜在力を期待されており、その開発に対するタイ国のポリシー、動向の把握が望ましい。

④周辺産業開発の動向調査

- ・プーケット島近隣部の本土側は、工業地域としての開発計画があるとも聞く。この開発如何によっては航空旅客及び航空貨物の需要が期待できる可能性がある。

付 属 資 料

1. 要請書
2. SCOPE OF WORK
3. MINUTES OF MEETING
4. DRAFT OF S/W (案の1)
5. DRAFT OF S/W (案の2)
6. DISCUSSION PAPER
7. MEMORANDUM
8. 事前調査団の対処方針(案)
9. QUESTIONNAIRE
10. 収集資料一覧

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No. 1709/ 7836

The Department of Technical and Economic Cooperation presents its compliments to the Embassy of Japan and, with reference to the Department's Urgent Note No. 1702/9011 dated March 30, 1990, concerning the submission of the Joint Study of Runway Extension at Phuket Airport of the Airports Authority of Thailand, Ministry of Transport and Communications, for the Embassy's consideration for the Japanese Fiscal Year 1991, has the honour to inform the Embassy, on behalf of the Ministry of Transport and Communications that the above-mentioned project proposal has been revised by the Airports Authority of Thailand with the consultation of the Japan Transport Consultant Association. Copies of the revised project document are enclosed herewith for the Embassy's further arrangements.

The Department of Technical and Economic Cooperation avails itself of this opportunity to renew to the Embassy the assurances of its highest consideration.



The Embassy of Japan,
Bangkok.

DEC-III/Japan Sub-Division

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REVISED TERMS OF REFERENCE
FOR
FEASIBILITY STUDY
PHUKET INTERNATIONAL AIRPORT DEVELOPMENT PLAN

1 INTRODUCTION

The Airports Authority of Thailand (the AAT), established on 1st July 1979 under the Airports Authority of Thailand Act, 1979, of the Government of the Kingdom of Thailand, currently having jurisdiction over the four (4) international airports of the country including Phuket International Airport (HKT) of their administration, control, management, construction and maintenance, intends to upgrade the facilities of the Phuket International Airport to Precision Approach Category I airport to ensure safe airport operation (the Development Plan).

The AAT as Executing Agency of the Development Plan has, therefore, requested the technical cooperation assistance of the Japanese Government through the Department of Technical and Economic Cooperation (DTEC) of the Government of the Kingdom of Thailand for preparation of the feasibility study report (the Study) by 1992 of this Phuket International Airport Development Plan, with the ultimate design year beyond 2010 based on the master plans which are to be made as part of this Study carried out by the feasibility study team (the Study Team) of the Japanese Government in joint undertaking with Thai engineers of the AAT.

2. BACKGROUND

Thailand is approximately the size of France (513,000 sq. km) with a population of 52.1 million, bordered by Malaysia to the south, Myanmar to the west, Laos to the north and northeast and Cambodia to the east.

The Kingdom of Thailand has thirty six (36) airports in all serving international and domestic air transportation operations. The four (4) out of five international airports are being administered and controlled by the AAT, namely, Bangkok, Chiang Mai, Hat Yai and Phuket International Airports.

Phuket is the Thailand's largest island (approximately the size of Singapore) and located on the west side of Peninsula some 862 km south of Bangkok in the Andaman Sea of the Indian Ocean.

The high potential of tourism attraction in Phuket island has been identified in the various tourism study reports as the first ranked project among the nation's tourism developments and as the world's fastest growing international tourism resort. To serve these visitors carried by direct charter flights from such tourist originating countries as Malaysia, Japan, USA, England, Germany, Australia, France, Italy, Taiwan and middle east countries, Phuket International Airport has been playing

an important role as the center of tourist services and major tourism revenue source of the country. Phuket International Airport is expected to continue to cope with the steady increase in passenger traffic corresponding to the growing tourism demand of the Island.

The existing Phuket International Airport has, however, serious physical handicaps to satisfy such growing demand in passenger services, and should have to be improved to ensure safe aircraft operation in accordance with an adequate airport siting criteria and operational capability required (approach minima).

3. PRESENT CONDITION OF AIRPORT

The existing Phuket International Airport has the total premises area of 2.2 sq. km (1,402 rai, 2 ngan, 69 sq. wah) having one runway (Precision Approach Category I) of 3,000m length which is currently aided by NDB, VOR/DME, offset LLZ/DME, middle marker and VASIS. One end (RWY 27) of the runway is closed to the sharp slope 400m to the east running 8-10m downhill to the pineapple farm while the other end (RWY 09) is limited by the sea 150m to the west of the runway end, the topography of which virtually make it difficult to install the ILS/LLZ on the required location to the recommendation of ICAO Annexes.

In addition to the above handicaps, there are hills on both sides of the runway that also topographically hamper the construction of a taxiway and widening of the runway strips from the present width of 150m to 300m as recommended in the ICAO Annex 14 for the "Precision Approach Category I" airport.

These hills have been the natural physical handicaps to pilots approaching to the runway, which will penetrate the obstacle limitation surfaces (transitional surface) if the runway strip is widened to 300m in total width and will make it difficult to keep the airspace free from obstacles to permit the intended air operation to be conducted safely. The localizer of the Instrument Landing System (ILS) has, due to these topographic handicaps, had to be installed off to the runway centerline at an angle of about 1° with the runway end line, which has been the cause of complaints of the airline serving the HKT Airport saying that it should have been installed on the extended runway centerline approximately 250m away from the runway (09) end in the sea.

It is considered imperative, therefore, that all the facilities of the Airport should be thoroughly reviewed and evaluated in strict accordance with the latest international standards on airport safety and functional requirements to increase airport operational efficiency and to provide physical safety precautions even under low cloud ceiling and restricted visibility conditions in an inclement weather.

If technical and economic feasibility can by no means justify the

clearance plans of those natural physical handicaps of the existing airport, a new airport construction should also be considered at the new site which is wide enough and free from obstacles, and is capable of ensuring future facility expansibility and allowing safe airport operation.

4. OBJECTIVES OF THE STUDY

The objective of the Study is to undertake the technical and economic feasibility study of the Phuket International Airport Development Plan;

- 1) Review of Existing Phuket Airport Development Plans
- 2) Alternative Development Plan of Existing Phuket International Airport including Relocation of the Runway
- 3) New Airport Development Plan

The design target years should be set for short (10 years up to 2000, intermediate (20 years up to 2010) and ultimate long-terms (beyond the year 2010) planning period. The Study Team should make detailed recommendations in the report on facility development needs, timing of development and cost estimates based on the demand forecasts and site selection survey which are sufficiently justifiable to permit financial planning and budgeting through economic feasibility analysis.

5. SCOPE OF FEASIBILITY STUDY

The Study Team will carry out a thorough investigation and will contact relevant agencies and organizations in Thailand that may be involved in the development of this Airport or in supply of data and local services.

It is expected that the Study Team will spend sufficient time in Thailand to carry out the necessary Study through investigations on field tests, data collection and presentation of their analyses to effect transfer of airport master planning and feasibility study technologies to the counterpart AAT's engineers as much as possible, and that the Study Team will provide not only experienced and qualified professionals to conduct these plans and study but also materials and equipment necessary to perform such specific duties jointly and effectively with the AAT's engineers.

The Study Team should analyze economically the feasibility of the Development Plan on the basis of master planned facilities for improvement of the existing airport or for a new airport construction at another site. The services of the Study Team under this Study should include the following:

- (1) Data collection and inventory
- (2) Air transport demand forecast;
- (3) Demand/capacity analysis and facility requirements
- (4) Environmental study
- (5) Airport plans
- (6) Financial plan
 - Schedule and cost estimates of proposed developments
 - Economic feasibility
 - Financing

- (8) On-the-job training of two (2) AAQ's engineers in Japan while the Study Team works in Japan.

1) Data Collection and Inventory

The Study Team should define the existing airport system and evaluate the effectiveness of such system before investigating various means of meeting future airport requirements, and collect appropriate types of data inclusive of the following on the airport and the area which the airport serves as well as national trend which will affect that area;

- Historical data
- Airports and facilities inventory
- Airspace structure and nav aids inventory
- Airport related land use data
- Existing areawise plans inventory
- Laws and ordinances
- Financial resources data
- Socio-economic resources data
- Geographical (site selection) data
- Other data such as airline timetable, airport ownership, management body, etc.
- Transport statistics

2) Air Transport Demand Forecasts

The Study Team should review all the forecast factors, if any, in the development of forecasts for the airport master plan, including traffic statistics data relative to the existing HKT Airport which are to be broken down into major groups of passengers (origin/destination, foreign/domestic, business/tourist), cargo and aircraft movements by type both at the annual and peak levels, presented for three (10, 20 and ultimate years beyond 20 years) planning stage periods. These forecast factors will include;

Demography

- Size and structure of area's population
- Potential growth rate of area's population
- Disposable personal income per capita
- Purchasing power
- Economic activity and status of industries
 - Community's economic character
 - Manufacturing and service industries
 - Potential patterns of internal and external trade
 - Other aviation activities such as agricultural and instructional flying

Geographical factors

- Physical and climatic attractions for holiday traffic and tourism

Geographic distribution and distances between populations and commercial centers or nearest cities

Competitive Position

Present and future ability to compete with alternative modes of transportation

Technological advances in aircraft designs and in other transportation modes

Sociological factors

Trend towards a more urbanized society

Increasing mobility of the population

Shorter work week with resultant increase in leisure time

Political factors

Granting of new traffic rights and routes for international air service

Government action such as imposition of taxes, currency restrictions, etc.

Government support of other mode of transportation.

These factors may be available from national, regional and other public planning departments and corporations through assistance of the AAT.

The Study Team should determine the growth relationship of future general aviation, air carrier, air taxi and air cargo demand based on principal planning and economic determinants, using as a basis similar correlations established for current demand such as population, income, employment, gross national product and other appropriate factors.

The Study Team should project future air transportation demand for general aviation, air taxi and air carrier type of aviation for each aviation planning area into following five major types of operational activity requirements:

Enplaning passenger

Total numbers

Originations

Stopovers

Transfer

Domestic

International

Enplaning air cargo

Total tonnage

Priority or nonpriority

Foreign mail

Express

Freight

Originations

Stopovers

Transfer

Aircraft Movements

Total number of arrivals and departures

Local operations

Itinerant operations, international and domestic

Busy-hour operations

Total number of aircraft operations at airport, averaged for two adjacent peak hours of a typical high activity day.

Busy-hour operations by each category of major users.

Based aircraft

Total number of active general aviation and air carrier aircraft using an airport as "home use" and having current airworthiness certificate, categorized by,

Gross weight

Number and type of engines

Air carrier use

General aviation use

Aircraft mix

Types or categories of aircraft (Aircraft mix) to be accommodated at the airport or location under consideration

3) DEMAND/CAPACITY ANALYSIS AND FACILITY REQUIREMENT

3-1) Demand/capacity analysis

The Study Team should analyze the existing system and planned facilities against forecast demand and provide the basis for establishment of the airport system development plan in two stages (Phase I up to 2000 and Phase II up to 2010), with the elements of work to include the following tasks;

- Aircraft characteristics
- Airspace utilization and nav aids requirements
- Airport locations and characteristics
- Physical environment
- Other transportation systems
- Current air transportation demand
- Travel analysis
- Demand versus capacity
- Land use and noise consideration.

The Study Team should establish the demand/capacity relationship and examine the maximum permissible capacity of each existing facility on the basis of the following methodologies:

- (1) Alternative to be developed from the above demand/capacity analysis in;
 - a) With-case and
 - b) Without-case
- (2) Comparison of these alternatives and selection of optimum alternative plans for facility requirements taking into account;
 - Cost estimate
 - Operating conditions
 - Environmental effects
 - Future expansibility

3-2) Facility Requirement

The Study Team should develop the size and spacing requirements for Phases I and II for such facilities as runway and runway strip, taxiway, apron, terminal area, terminal building, administration/service equipment building, cargo facilities, fire and rescue equipment building, fuel supply, drainage, lighting and marking, nav aids, access/service roads, car parks, utilities and security

3-3) Site selection

The Study Team should establish the feasibility to plan for a new airport in consideration of:

- 1) Inventory of existing airport serving the community
- 2) Forecast of aviation demand on the community
- 3) Demand capacity analysis showing that existing facilities will not meet that demand or that it is not desirable or feasible to expand existing facilities to meet the demand
- 4) General requirements for a new airport facility established by demand/capacity analysis
- 5) Environmental consideration
- 6) Preliminary estimates of the economic feasibility of building a new airport

The Study Team should evaluate airspace, environmental factors, community growth, airport access, availability of utilities, land costs, and site development costs, and should recommend and give preferential ratings to possible sites, which will be culminated in the recommendation of a specific site.

4) Airport Plans

The airport plans should consist of the following:

- Airport Layout Plans
- Land use plan
- Terminal area plan
- Terminal building plans
- Utility plan
- Airspace use plan
- Airport access plans
- Security plan

Airport layout plans should be prepared in stage (Phases I & II) for runway, taxiway, apron with holding area and terminal buildings, location of the naviads and other ancillary facilities such as control tower, operations buildings, cargo building, fire stations, maintenance buildings, drainage system, access roads, both landside and airside, and car parks and lighting aids.

The Study Team should show in the layout plans the airport location, clear zones, approach area and other environmental features that may influence airport usage and expansion capabilities, in three dimensions, i.e., length, width and height.

The airport layout plan should note thereon the designated ILS Category I runway, and the related facilities which are required for precision approach operations.

These plans to scale of existing and proposed airport facilities shall be the basis on which the Study Team should coordinate other area development planning efforts with the land use planning, impacts study to environment,

obstacle clearance study to show conformance with applicable standards.

Other airport plans should be prepared in accordance with the latest international practices such as of ICAO recommendations on security in the Annex 17, on airspace in ICAO PANSOPS or FAA TERPS, etc.

5) ENVIRONMENTAL STUDY

The Study Team shall examine with respect to the anticipated demand the scale and timing of new facilities in the context of anticipated environmental implications.

The Study Team shall consider the following potential effects, if any, with respect to airport development, that significantly affect environmental quality both during the technical and economic site evaluation processes:

- Significant increase in sea, river and lake water pollution
- Adverse effects on watertable/down-stream of drainages
- Changes in ambient noise level
- Impact to existing infrastructures/facilities
- Impact of behavioral pattern of a species
- Other interference with wildlife
- Deterioration of important recreational areas
- Effect on areas of unique interest or scenic beauty
- Aesthetic or visual intrusion
- Displacement of significant numbers of people
- Severance of communities

The Study Team should propose an action in a form of following statement, if applicable, in the Feasibility Study Report:

- (1) The environmental impact of the proposed Project
- (2) Any adverse environmental effects that could not be avoided if the proposed Project was implemented
- (3) Alternative to the proposed action
- (4) The relationship between local short term users of the environment and the enhancement of long term productivity
- (5) Any irreversible and irretrievable commitments of resources in the proposed action.
- (6) Any necessity for environmental monitoring system

5) FINANCIAL PLAN

The Study Team should make preliminary estimates of capital investment, anticipated revenues and the ability of users to pay costs attributable to proposed developments, and should prepare financial plans expressed in the following four principal areas:

1. Schedules of Proposed Development to indicate the short and intermediate term (Phases I & II) stagings of development, timed to coincide with demand estimates
2. Estimates of Development Costs staged to conform to the scheduled development Phases I & II
3. Economic Feasibility Analysis to examine whether the expected

revenue generation will cover the anticipated costs

After these steps have been taken during the development of the plans, the Study Team should make final evaluation of economic feasibility to establish what the financial prospectus of the airport will be when the plan is implemented and to establish a financial plan for the implementation of the proposed development/new construction for Phases I & II.

When the economic feasibility of the developments proposed in the master plan has been established, capital budget and a programme for financing those developments should be prepared. The Study Team should recommend realistic ways in which public financing of airport development can be accomplished such as from taxes, revenue bonds, government assistance, foreign loan or a combination thereof.

The Study Team should prepare a capital budget to be shown on an annual basis the requirement for capital funds and the source of funds with a determination of the projects to be constructed and their timing, so that the operation can make accurate estimation of the amount of interest to be earned on capital funds.

6. REPORT AND TIME SCHEDULE

It is desirable that the following reports written in English be submitted to the Thai Government according to the time schedule:

- | | |
|------------------------|---|
| (1) Inception report | 20 copies within one month from the Contract Date |
| (2) Progress report | 20 copies at the end of 1st Field Survey |
| (3) Interim report | 20 copies at the end of 1st Home Office Study but during 2nd Field Survey |
| (4) Draft final report | 20 copies at the end of 2nd Home Office Study but before 3rd Field Survey |
| (5) Final report | 40 copies at completion of the Services |

7. UNDERTAKING OF THE GOVERNMENT OF THE KINGDOM OF THAILAND

The Government of Kingdom of Thailand will undertake that the following expediences be provided to the Study Team:

- (1) To provide all available data and information necessary for the feasibility study.
- (2) To ensure that such documents are smoothly taken out of the country.
- (3) To exempt the taxes and duties on the materials and personal effects which the Study Team will bring into Thailand.
- (4) To assign the AAT's counterpart engineers timely for the Study.
- (5) To apply to the Japanese Government for technical cooperation

- assistance to train two (2) engineers in Japan during the Study.
- (6) To provide suitable office spaces and other services and utilities necessary for the Study Team.

SCOPE OF WORK
FOR
THE STUDY
ON
PHUKET INTERNATIONAL AIRPORT DEVELOPMENT PLAN
IN
THE KINGDOM OF THAILAND

AGREED UPON BETWEEN
THE AIRPORTS AUTHORITY OF THAILAND
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

BANGKOK, JANUARY, 30TH, 1992



Air Marshal Taworn KERDSIN,
Managing Director,
Airports Authority of
Thailand



Mr. Makoto TAKAHASHI,
Leader,
Preparatory Study Team,
Japan International
Cooperation Agency

I. INTRODUCTION

In response to a request from the Government of the Kingdom of Thailand (hereinafter referred to as "the Government of Thailand"), the Government of Japan decided to conduct the Study on the Phuket International Airport Development Plan in the Kingdom of Thailand (hereinafter referred to as "the Study"), within the general framework of technical cooperation between Japan and Thailand, which is set forth in the Agreement on Technical Cooperation between the Government of Japan and the Government of the Thailand signed on November 5, 1981.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for implementing technical cooperation programmes of the Government of Japan, will undertake the Study in accordance with the relevant laws and regulations in force in Japan and in close cooperation with the authorities of the Kingdom of Thailand.

The Airports Authority of Thailand (hereinafter referred to as "AAT"), shall act as counterpart agency to the Japanese Study Team and also as coordinating body in relation with the other relevant organizations for the smooth implementation of the Study.

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 as follows:

- 2.1 To formulate a Master Plan for development of the Phuket International Airport, and
- 2.2 To evaluate the technical, economic, and financial feasibilities of a Short-Term Development Plan for the existing airport to be formulated within the framework of the Master Plan.

III. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall cover the following items;

r.k.d.

3.1 Evaluation of Existing Situation

- (1) Review of available data and information relevant to the Study,
- (2) Analysis of present air transport network and air transport demand,
- (3) Analysis of other relevant development plans such as tourism,
- (4) Evaluation of existing facilities and of their utilization, and
- (5) Observation of natural conditions.

3.2 Formulation of Master Plan

An appropriate Master Plan shall be prepared for the target year of 2010.

- (1) Forecast of future air transport demand,
- (2) Analysis of facilities requirements,
- (3) Study on the Possibility of a New Airport,
- (4) Formulation of alternative plans for airport development,
 - 1) Expansion of Existing Airport
 - 2) Upgrading of Existing Airport
 - 3) New Airport
- (5) Preliminary cost estimates,
- (6) Comparison of these alternatives and selection of an optimum plan,
- (7) Environmental study based on existing data and information, and
- (8) Formulation of a development plan.

3.3 Feasibility Study on Short-Term Development Plan

A Feasibility Study on a short-term development plan for the existing airport shall be formulated within the framework of the Master Plan for the target year of 2000 or other appropriate target year.

- (1) Preparation of a staged implementation plan,
- (2) Identification of a short-term development plan,
- (3) Preliminary design and construction schedule,
- (4) Cost estimates,
- (5) Economic and financial analysis,

T.Kd.

- (5) Economic and financial analysis,
- (6) Evaluation of a short-term development plan, and
- (7) Implementation programmes.

IV. SCHEDULE OF THE STUDY

The Study will be carried out in accordance with the attached tentative schedule as shown in the Appendix. This schedule, however, is subject to change according to circumstances.

V. REPORTS

JICA shall prepare and submit the following reports in English to the Government of the Kingdom of Thailand.

5.1 Inception Report (20 copies)

This report will be submitted at the beginning of the 1st work in Thailand.

5.2 Progress Report (20 copies)

This report will be submitted at the end of the 1st work in Thailand.

5.3 Interim Report (I) (20 copies)

This report will be submitted at the beginning of the 2nd work in Thailand.

5.4 Interim Report (II) (20 copies)

This report will be submitted at the beginning of the 3rd work in Thailand.

5.5 Draft Final Report (20 copies)

This report will be submitted at the beginning of the 4th work in Thailand.

AAT will provide comments on the Draft Final Report in English within 4 weeks after receipt of the report.

5.6 Final Report (50 copies)

This report will be submitted within 2 months after receipt of the above-mentioned comments on the Draft Final Report.

P. K. D.

VI. UNDERTAKING OF THE GOVERNMENT OF THE KINGDOM OF THAILAND

6.1 In accordance with the Agreement on Technical Cooperation between the Government of Japan and the Government of the Kingdom of Thailand dated November 5, 1981, the Government of the Kingdom of Thailand shall accord benefits to the Japanese Study Team as follows:

- 1) permit the members of the Japanese Study Team to enter, leave and sojourn in Thailand for the duration of their assignment therein and exempt them from alien registration requirements and consular fees,
- 2) exempt the members of the Japanese Study Team from taxes, duties and any other charges on equipment, machinery and other materials brought into Thailand for the conduct of the Study,
- 3) exempt the members of the Japanese Study Team from income taxes and charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Japanese Study Team for their services in connection with implementation of the Study, and
- 4) bear claims, if any arise, 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 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.

6.2 To facilitate smooth conduct of the Study, AAT shall take necessary measures in cooperation with other relevant organizations:

- 1) to secure permission as deemed appropriate for entry into private properties or restricted areas for the conduct of the Study,
- 2) to secure permission, as deemed necessary based on written requests from the Japanese Study Team, for the

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Japanese Study Team to take to necessary data and documents, including photographs out of the country for the purpose of the Study,

- 3) to provide the medical services as needed (its expense will be chargeable to the members of the Japanese Study Team), and
- 4) to ensure the safety of the members of the Japanese Study Team when and as it is required in the course of the Study.

6.3 AAT shall, at its own expenses, provide the Japanese Study Team with the following;

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

VII. UNDERTAKING OF JICA

For implementation of the Study, JICA shall take measures;

- 1) to dispatch, at its own expenses, the Study Team to Thailand, and
- 2) to pursue technology transfer to the Thai counterpart personnel in the course of the Study.

VIII. CONSULTATION

JICA and AAT shall consult with each other in respect of any matters that may arise from or in connection with the Study.

T. K. D.

Appendix

TENTATIVE STUDY SCHEDULE

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Work in Thailand		[Bar]					[Bar]			[Bar]			[Bar]					
Work in Japan	[Bar]			[Bar]				[Bar]			[Bar]			[Bar]				
Submission of Report	△ IC/R			△ P/R			△ IT/R(I)		△ IT/R(II)				△ DF/R				△ F/R	

(Legend)

- IC/R : Inception Report
- P/R : Progress Report
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- DF/R : Draft Final Report
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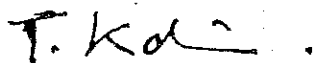
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MINUTES OF MEETING
OF
THE STUDY
ON
PHUKET INTERNATIONAL AIRPORT DEVELOPMENT PLAN
IN
THE KINGDOM OF THAILAND

AGREED UPON BETWEEN
THE AIRPORTS AUTHORITY OF THAILAND
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

BANGKOK, JANUARY, 30TH, 1992



Air Marshal Taworn KERDSIN,
Managing Director,
Airports Authority of
Thailand



Mr. Makoto TAKAHASHI,
Leader,
Preparatory Study Team,
Japan International
Cooperation Agency

The Japanese Preparatory Study Team (the Team) organized by the Japan International Cooperation Agency (JICA) and headed by Mr. Makoto TAKAHASHI, visited the Kingdom of Thailand from January 20th to January 31st, 1992 for the purpose of formulating the Scope of Work for the Study on Phuket International Airport Development Plan in the Kingdom of Thailand.

During the stay in Thailand, the Team carried out an on-site survey and had several meetings with officials of the Airports Authority of Thailand (AAT) on the Scope of Work and other related matters.

The main items which were understood by both sides are as follows:

1. Study on the Possibility of a New Airport (prescribed in S/W 3.2,(3)) includes following items

- (1) Preparing the topographical maps at candidate sites,
- (2) Study on airspace using the topographical map,
- (3) Analysis of geographical and environmental condition using existing data and information,
- (4) Selection of new airport sites,
- (5) Site reconnaissance,
- (6) Preparation of alternatives for a new airport plans, not in detail,
- (7) Rough cost estimates, and
- (8) Evaluation of the possibility of a new airport.

2. The examples of countermeasures for the Expansion of Existing Airport (prescribed in S/W 3.2,(4),1)) are as follows;

- (1) Extension of the Runway length, and
- (2) Expansion of the Terminal area.

3. The examples of countermeasures for the Upgrading of Existing Airport (prescribed in S/W 3.2,(4),2)) are as follows;

- (1) Extension of the Runway length,
- (2) Expansion of the Terminal area,
- (3) Widening of the Runway strip to 300m in width, and
- (4) Removal of obstacles interfering the limited surfaces.

T. K. d.

4. The Thai side requested to send two counterpart trainees to Japan in the course of the Study and to hold the workshop in Thailand in order to transfer technology to the Thai counterparts.

The Team promised to convey the request to JICA Head-Quarters.

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Attendant List

Thai side

Air Marshal Taworn Kerdsin--Managing Director of AAT
 Mr. Manoj Pornpibul-----Deputy Managing Director of AAT
 Mr. Phojana Simasathien-----Director, Airports Development
 Office
 Mr. Decha Uswarangsri-----Civil Engineer, Airports
 Development Office
 Mr. Somsak Chotikul-----Civil Engineer, Airports
 Development Office
 Mr. Songporn Wimolyai-----Mechanical Engineer, Airports
 Development Office

Japanese side

Mr. Makoto Takahashi-----Leader of the Mission
 Mr. Masaharu Ikegami-----Member of the Mission
 Mr. Yukio Hasebe-----Member of the Mission
 Mr. Junichi Takemura-----Member of the Mission
 Mr. Yukihiro Ejiri-----Member of the Mission
 Mr. Masashi Oshitari-----Member of the Mission
 Mr. Matsuhiro Ito-----First Secretary,
 Embassy of Japan
 Mr. Hidetaka Nishiwaki-----JICA, Thailand Office



T.K.D.

(D R A F T 1)

SCOPE OF WORK
FOR
THE STUDY
ON
PHUKET INTERNATIONAL AIRPORT DEVELOPMENT PLAN
IN
THE KINGDOM OF THAILAND

AGREED UPON BETWEEN
THE AIRPORTS AUTHORITY OF THAILAND
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

BANGKOK

Mr.
Managing Director,
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Mr. Makoto TAKAHASHI,
Leader,
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The Airports Authority of Thailand (hereinafter referred to as "AAT"), shall act as counterpart agency to the Japanese Study Team and also as coordinating body in relation with the other relevant organizations for smooth implementation of the Study.

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 as follows:

- 2.1 To formulate a Master Plan for long-term development of the existing Phuket International Airport.
- 2.2 To evaluate the technical, economic, and financial feasibilities of a Short-Term Development Plan to be formulated within the framework of the Master Plan.

III. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall cover the following items;

3.1 Evaluation of Existing Situation

- (1) Review of available data and information relevant to the Study
- (2) Analysis of present air transport network and air transport demand
- (3) Analysis of other relevant development plans such as tourism
- (4) Evaluation of existing facilities and of their utilization
- (5) Observation of natural conditions

3.2 Formulation of Master Plan

An appropriate Master Plan shall be prepared for the design target year 2010.

- (1) Forecast of future air transport demand
- (2) Analysis of facilities requirements
- (3) Formulation of alternative plans for airport development
- (4) Preliminary cost estimates
- (5) Comparison of these alternatives and selection of optimum plan
- (6) Environmental study based on existing data and information
- (7) Formulation of a long-term development Plan
- (8) Preparation of a staged implementation plan

3.3 Feasibility Study on Short-Term Development Plan

A Feasibility Study shall be conducted for a short-term development plan to be formulated within the framework of the Master Plan for the design target year 2000.

- (1) Identification of a short-term development plan
- (2) Preliminary design and construction schedule
- (3) Cost estimates
- (4) Economic and financial analysis
- (5) Evaluation of a short-term development plan
- (6) Implementation programmes

IV. SCHEDULE OF THE STUDY

The Study will be carried out in accordance with the attached tentative schedule as shown in the Appendix. This schedule, however, is subject to change according to circumstances.

V. REPORTS

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This report will be submitted at the beginning of the 3rd work in Thailand.

AAT will provide comments on the Draft Final Report in English within 4 weeks after receipt of the report.

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- 2) exempt the members of the Japanese Study Team from taxes, duties and any other charges on equipment, machinery and other materials brought into Thailand for the conduct of the Study,
- 3) exempt the members of the Japanese Study Team from income taxes and charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Japanese Study Team for their services in connection with implementation of the Study, and
- 4) bear claims, if any arise, 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 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.

6.2 To facilitate smooth conduct of the Study, AAT shall take necessary measures in cooperation with other relevant organizations:

- 1) to secure permission as deemed appropriate for entry into private properties or restricted areas for the conduct of the Study,
- 2) to secure permission, as deemed necessary based on written requests from the Japanese Study Team, for the Japanese Study Team to take necessary data and documents including photographs out of the country for the purpose of the Study,
- 3) to provide medical services as needed (costs thereof will be chargeable to the members of the Japanese Study Team), and
- 4) to ensure the safety of the members of the Japanese Study Team when and as it is required in the course of the

Study.

6.3 AAT shall, at its own expense, provide the Japanese Study Team with the following:

- 1) available data and information related to the Study,
- 2) counterpart personnel,
- 3) suitable office space with necessary equipment,
- 4) credentials or identification cards, and
- 5) appropriate number of vehicles with drivers.

VII. UNDERTAKING OF JICA

For implementation of the Study, JICA shall take measures:

- 1) to dispatch, at its own expense, the Study Team to Thailand, and
- 2) to pursue technology transfer to Thai counterpart personnel in the course of the Study.

VIII. CONSULTATION

JICA and AAT shall consult with each other in respect of any matters that may arise from or in connection with the Study.

Appendix

TENTATIVE STUDY SCHEDULE

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Work in Japan	[Bar]			[Bar]				[Bar]				[Bar]			
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(D R A F T 2)

SCOPE OF WORK
FOR
THE STUDY
ON
PHUKET INTERNATIONAL AIRPORT DEVELOPMENT PLAN
IN
THE KINGDOM OF THAILAND

AGREED UPON BETWEEN
THE AIRPORTS AUTHORITY OF THAILAND
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

BANGKOK

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I. INTRODUCTION

In response to a request from the Government of the Kingdom of Thailand (hereinafter referred to as "the Government of Thailand"), the Government of Japan decided to conduct the Study on the Phuket International Airport Development Plan in the Kingdom of Thailand (hereinafter referred to as "the Study"), within the general framework of technical cooperation between Japan and Thailand, which is set forth in the Agreement on Technical Cooperation between the Government of Japan and the Government of the Thailand signed on November 5, 1981.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for implementing technical cooperation programmes of the Government of Japan, will undertake the Study in accordance with the relevant laws and regulations in force in Japan and in close cooperation with the authorities of the Kingdom of Thailand.

The Airports Authority of Thailand (hereinafter referred to as "AAT"), shall act as counterpart agency to the Japanese Study Team and also as coordinating body in relation with the other relevant organizations for the smooth implementation of the Study.

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 as follows:

- 2.1 To formulate a Master Plan for development of the existing Phuket International Airport.
- 2.2 To study the possibility of a new airport.
- 2.3 To evaluate the technical, economic, and financial feasibilities of a Short-Term Development Plan for the existing airport to be formulated within the framework of the Master Plan.

III. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall cover the following items;

3.1 Evaluation of Existing Situation

- (1) Review of available data and information relevant to the Study
- (2) Analysis of present air transport network and air transport demand
- (3) Analysis of other relevant development plans such as tourism
- (4) Evaluation of existing facilities and of their utilization
- (5) Observation of natural conditions

3.2 Formulation of Master Plan

An appropriate Master Plan shall be prepared.

- (1) Forecast of future air transport demand
- (2) Analysis of facilities requirements
- (3) Formulation of alternative plans for airport development
- (4) Preliminary cost estimates
- (5) Comparison of these alternatives and selection of optimum plan
- (6) Environmental study based on existing data and information
- (7) Formulation of a development plan

3.3 Study on the Possibility of a New Airport

- (1) Drawing the topographical map
- (2) Study on airspace based on the topographical map
- (3) Analysis of geographical condition and environment survey using existing data and information
- (4) Selection of new airport site
- (5) Field survey
- (6) Preparation of alternative new airport plans not in detail
- (7) Rough cost estimates
- (8) Evaluation of possibility of a new airport

3.4 Feasibility Study on Short-Term Development Plan

A Feasibility Study shall be conducted for a short-term development plan to be formulated within the framework of the Master Plan for the design target year 2000.

- (1) Preparation of a staged implementation plan
- (2) Identification of a short-term development plan
- (3) Preliminary design and construction schedule
- (4) Cost estimates
- (5) Economic and financial analysis
- (6) Evaluation of a short-term development plan
- (7) Implementation programmes

IV. SCHEDULE OF THE STUDY

The Study will be carried out in accordance with the attached tentative schedule as shown in the Appendix. This schedule, however, is subject to change according to circumstances.

V. REPORTS

JICA shall prepare and submit the following reports in English to the Government of the Kingdom of Thailand.

5.1 Inception Report (20 copies)

This report will be submitted at the beginning of the 1st work in Thailand.

5.2 Progress Report (20 copies)

This report will be submitted at the end of the 1st work in Thailand.

5.3 Interim Report (I) (20 copies)

This report will be submitted at the beginning of the 2nd work in Thailand.

5.4 Interim Report (II) (20 copies)

This report will be submitted at the beginning of the 3rd work in Thailand.

5.5 Draft Final Report (20 copies)

This report will be submitted at the beginning of the 4th work in Thailand.

AAT will provide comments on the Draft Final Report in English within 4 weeks after receipt of the report.

5.6 Final Report (40 copies)

This report will be submitted within 2 months after receipt of the above-mentioned comments on the Draft Final Report.

VI. UNDERTAKING OF THE GOVERNMENT OF THE KINGDOM OF THAILAND

6.1 In accordance with the Agreement on Technical Cooperation between the Government of Japan and the Government of the Kingdom of Thailand dated November 5, 1981, the Government of the Kingdom of Thailand shall accord benefits to the Japanese Study Team as follows:

- 1) permit the members of the Japanese Study Team to enter, leave and sojourn in Thailand for the duration of their assignment therein and exempt them from alien registration requirements and consular fees,
- 2) exempt the members of the Japanese Study Team from taxes, duties and any other charges on equipment, machinery and other materials brought into Thailand for the conduct of the Study,
- 3) exempt the members of the Japanese Study Team from income taxes and charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Japanese Study Team for their services in connection with implementation of the Study, and
- 4) bear claims, if any arise, 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 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.

6.2 To facilitate smooth conduct of the Study, AAT shall take necessary measures in cooperation with other relevant organizations:

- 1) to secure permission as deemed appropriate for entry into private properties or restricted areas for the conduct of the Study,
- 2) to secure permission, as deemed necessary based on written requests from the Japanese Study Team, for the Japanese Study Team to take necessary data and documents, including photographs out of the country for the purpose of the Study,
- 3) to provide the medical services as needed (its expense will be chargeable to the members of the Japanese Study Team), and
- 4) to ensure the safety of the members of the Japanese Study Team when and as it is required in the course of the Study.

6.3 AAT shall, at its own expenses, provide the Japanese Study Team with the following:

- 1) available data and information related to the Study,
- 2) counterpart personnel,
- 3) suitable office space with necessary equipment in Phuket and Bangkok,
- 4) credentials or identification cards, and
- 5) appropriate number of vehicles with drivers

VII. UNDERTAKING OF JICA

For implementation of the Study, JICA shall take measures:

- 1) to dispatch, at its own expenses, the Study Team to Thailand, and

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

VIII. CONSULTATION

JICA and AAT shall consult with each other in respect of any matters that may arise from or in connection with the Study.

Appendix

TENTATIVE STUDY SCHEDULE

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Work in Thailand		[Bar]					[Bar]			[Bar]			[Bar]				
Work in Japan	[Bar]			[Bar]				[Bar]			[Bar]			[Bar]			
Submission of Report	△ IC/R			△ P/R			△ IT/R(I)		△ IT/R(II)				△ DF/R				△ F/R

{Legend}

- IC/R : Inception Report
- P/R : Progress Report
- IT/R(I) : Interim Report
- IT/R(II) : Interim Report
- DF/R : Draft Final Report
- F/R : Final Report

Memorandum of Discussion on the 21st Jan, 1992

Three alternatives of future M/P of the Phuket Airport were understood through discussion as follows:

- A. Expansion of Existing Airport for the purpose of meeting the future demand (not considering ICAO standard).
- B. Upgrading of Airport according to ICAO standard.

In case B, the Study cover B-1 and B-2 shown below in order to know which case is more reasonable through the cost study and effect analysis.

B-1. Upgrading of Existing Airport
(expansion of R/W and widening R/W strip to 300 m and cutting work of hills)

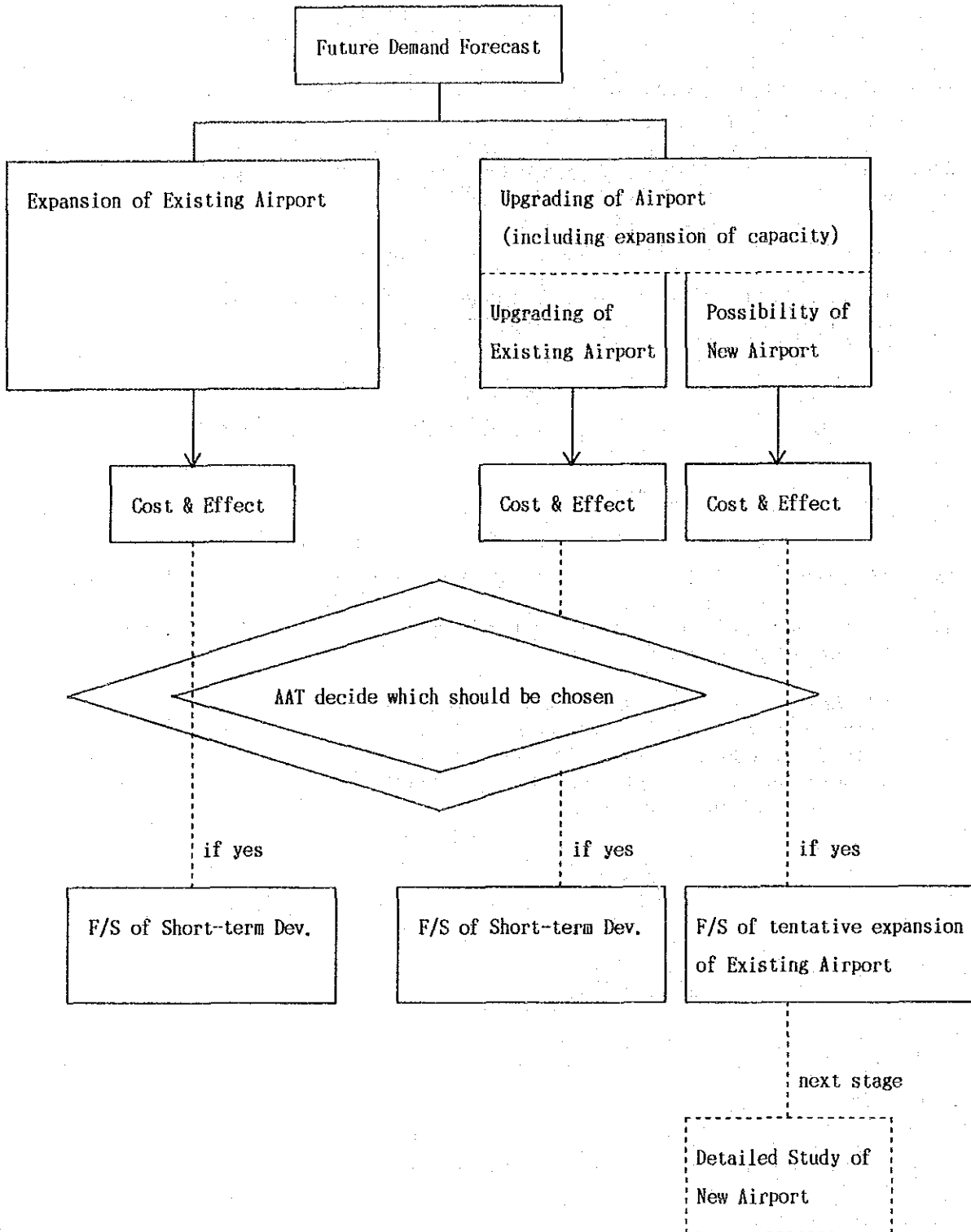
B-2. Construction of New Airport

Understanding of JICA mission through the first discussion

- 1. If AAT has no intention of upgrading the Airport, S/W Draft-1 (Case A) should be chosen.
- 2. If AAT envisages that future international airport should be planned and constructed under ICAO standard, S/W Draft-2 (Case B) should be chosen. And in the case, AAT will decide whether the Airport shall be upgraded or not, based on the result of the cost study and effect analysis.

Flowchart of the Study

(S/W Draft-2)



Memorandum about the importance of airport up-grading (observing ICAO Standard or Recommendation for International Airport)

1. Int'l airport shall be planned and constructed taking into full consideration to the safety of aircraft flights.

- * Obstruct surface shall be secured. [ICAO Standard]
At Phuket Airport, transitional surface and horizontal surface are not secured.

Transitional surface keeps safety of aircraft flights even in the case of missed-approach.

Horizontal surface keeps safety of aircraft flights even in the case of circling landing or missed-approach.

2. Int'l Airport should be planned and conducted taking into consideration of regularity of flights.

- * A strip including a precision approach runway shall have 300 m in width (for 3,000 m R/W). [ICAO Standard]

At Phuket airport, runway strip is 150 m in width.

3. Others

- * Separation distance between the center line of precision approach runway and the center line of parallel taxiway shall be 182.5 m. [ICAO Standard]

At Phuket Airport, separation distance is 150 m.

- * It is desirable to keep the angle of glide slope less than 3 degree.

At Phuket Airport, angle of glide slope is 3.2 degree.

タイ国 プーケット国際空港整備計画調査
事前調査(S/W)対処方針(案)

項 目	対処方針	備 考
<p>1. 事前調査の目的 及び今後の予定 (1) 目的</p> <p>(2) 今後の予定</p>	<p>本事前調査は、タイ国政府の要請に基づき実施予定のプーケット国際空港整備計画調査に関し、先方政府の要請内容及び意向の確認、資料収集及び現地調査を行い、本格調査のS/Wを協議、署名することを目的とする。</p> <p>調査の項目及び内容は以下のとおりとする。</p> <p>①先方政府の要請内容及び意向の確認 ②本格調査の実施方針及びS/W(案)の説明・協議 ③先方受け入れ体制の確認 ④S/W、M/M締結 ⑤現地踏査 ⑥Q/Nに基づく資料及び情報の収集 ⑦本格調査実施に必要な情報収集</p> <p>調査予定の確認 平成4年6月本格調査開始予定</p>	<p>(SCOPE OF THE STUDY)</p> <p>(ローカルコンサルタントの能力、現地単価等)</p> <p>最も早い時期</p>
<p>2. 協議機関</p>	<p>タイ空港公社 (Airports Authority of Thailand, AAT) 運輸通信省 (Ministry of Transport and Communications, MOTC) その他適宜現地で対応する。</p>	<p>(要請機関)</p>

項 目	対処方針	備 考
<p>3. 具体的作業内容 (1) 要請内容及 び意向の確認 1) 全般</p> <p>2) 協力範囲</p> <p>(2) Q/N に基づく 情報収集</p>	<p>①日本側の本件調査協力に関する考え方を説明・協議し、当ミッションとタイ側との合意事項については、先方と事前調査団とがS/W、M/Mに署名し確認する。</p> <p>・現空港拡張計画のみを対象とする案1及び新空港立地可能性についても調査対象に含めた案2を提示し、タイ側と十分に説明・協議を行い、意向を確認した後にS/Wを決定する。</p> <p>②タイ側が技術移転について強く要望した場合は、C/P研修制度及び調査結果を説明するためのセミナー実施等の方法があり、これらにより技術移転が期待できることを説明する。</p> <p>タイ国のプーケット国際空港の現状調査及び問題点の把握を行なうとともに、輸送需要の増大に対応するため、現空港の拡張計画にかかるM/Pの策定及び短期整備計画についてのF/Sを実施する。 (案2の場合)新空港の立地可能性について調査を行なう。</p> <p><背景> 現空港の拡張計画は地理的条件が悪く、拡張には多額の事業費を要する可能性が強い。したがって、現空港拡張計画を事業化する際には、新空港の可能性について明確にしておく必要がある。</p> <p>別途作成するQ/Nに基づき情報収集を行う。</p>	<p>(詳細は別紙)</p> <p>(Q/N)</p>

項 目	対処方針	備 考
(3) 本格調査の実施方針及びS/W 内容協議	下記の項目について協議を行ない、その結果をS/W または M/Mで確認する。	
	<ul style="list-style-type: none"> ・ INTRODUCTION ・ OBJECTIVE OF STUDY ・ SCOPE OF STUDY ・ SCHEDULE OF STUDY ・ REPORTS ・ UNDERTAKING ・ CONSULTATION 	
1) 本格調査の目的	<p>①プーケット国際空港の2, 010年を目標年次とする整備計画M/Pの策定</p> <p>②M/Pに基づく短期整備計画についてのF/S (2, 000年目標年次)</p>	<p>案1 現空港の拡張計画に限定したM/Pの策定</p> <p>案2 ①同左 ②新空港立地可能性調査 ③左記② 同</p>
2) 本格調査の内容と項目	<p>案1</p> <p>①既存資料・情報の収集、分析</p> <p>a. 関連資料・情報の収集、レビュー</p> <p>b. 航空網及び航空需要の現況分析</p> <p>c. 関連開発計画（土地利用計画、観光開発計画等）の把握</p> <p>d. 現空港施設調査及び評価</p> <p>e. 自然条件調査（地形測量、障害物件調査、土質調査）</p> <p>②マスタープランの策定</p> <p>a. 将来航空需要予測</p> <p>b. 必要施設規模の算定</p> <p>c. 全体施設配置計画（代替案含む）</p> <p>d. 費用概算見積もり</p> <p>e. 全体施設配置計画案の評価</p> <p>f. 既存資料による環境調査</p> <p>g. 長期整備計画の策定</p> <p>h. 段階別整備計画の策定</p> <p>③短期整備計画についてのF/S実施</p> <p>a. 短期整備計画の詳細な検討</p> <p>b. 概略設計、施工計画の立案</p> <p>c. 概算工事費積算</p>	<p>案2</p> <p>①a. ~e. 案1 同</p> <p>②a. ~g. 案1 同h. 削除</p> <p>③新空港立地可能性調査</p> <p>a. 詳細地形図作成 (1:10,000程度)</p> <p>b. 地形図による空域・地形の検討</p> <p>c. 既存資料による環境及び地質等の調査</p> <p>d. 新空港候補地選定</p> <p>e. 現地踏査</p> <p>f. 概略整備計画策定</p> <p>g. 概算工事費算定</p> <p>h. 総合評価</p> <p>④短期整備計画F/S実施</p> <p>a. 段階別整備計画策定</p> <p>b. ~g. 案1 のa. ~f. 同</p>

項 目	対処方針	備 考
3) 調査期間	d. 経済分析、財務分析 e. 総合評価 f. 事業実施計画策定 案1 約13ヶ月程度 (S/W参照) 技術移転を現地で実施してほしい旨の要望が出た場合には現地作業期間を長くした調査スケジュールに変更する。	案2 約16ヶ月程度 同左
4) 報告書	案1 ①Inception Report (第1次現地作業開始時提出) ・調査実施方針・スケジュールを記載 ②Progress Report (第1次現地作業終了時提出) ・第1次現地作業結果の概要 ③Interim Report (第2次現地作業開始時提出) ・M/P (代替案含む) の概要及び評価 ④Draft Final Report (第3次現地作業開始時提出) ・すべての結果 ⑤Final Report (④に対するコメント受領後2ヶ月後に提出) ・④に対するタイ側コメントを踏まえた最終報告書 ⑥報告書は英文とする。	案2 ①Inception Report ②Progress Report ③Interim Report I ・現空港M/P (代替案含む) の概要 ・新空港計画案 (代替案含む) の概要 ④Interim Report II (第3次現地作業開始時提出) ・現空港M/P の評価 ・新空港立地可能性調査結果 ⑤Draft Final Report (第4次現地作業開始時提出) ⑥Final Report

項 目	対処方針	備 考
<p>(4) 相手側受け入れ体制の確認</p> <p>1) 相手側の実施すべき事項</p> <p>2) 相手側カウンターパート機関</p>	<p>タイ国において既に実施済の J I C A 調査案件でもちいた S/W 及び M/M を基に協議する。</p> <p>① タイ政府の行政機構の中でのカウンターパート機関の位置付けの確認</p> <p>② 関係機関の協力体制（役割と機能）の確認</p> <p>③ 調整委員会（Steering Committee）の必要性の有無とそのメンバー及び役割の確認</p>	<p>運輸通信省</p> <p>A A T の意向確認</p>
<p>(5) 協議内容に基づく M/M、S/W の締結</p>	<p>サイン権者</p> <p>① 日本側 調査団長</p> <p>② タイ側 局長クラス以上</p>	<p>運輸通信省、A A T 連名で署名</p>
<p>(6) 本格調査に必要な確認事項</p>	<p>① 航空輸送実績、航空路線体系及び陸上交通体系との関連</p> <p>② 空港施設の問題点</p> <p>③ 航空行政の概要</p> <p>④ 乗り入れ航空会社</p> <p>⑤ 新空港候補地の有無</p> <p>⑥ 5 年計画等の国家計画、観光開発計画、周辺地域の土地利用計画等の関連計画</p> <p>⑦ 気象観測、土質調査、地形測量等の自然条件及び環境についての既存資料・データの有無、整理状況</p> <p>⑧ 自然条件調査の実施規模、必要期間、ローカルコンサルタントの能力</p> <p>⑨ 本格調査の実施時期（自然条件、現地事情等を勘案して決定）</p> <p>⑩ 現地単価（傭人費、資機材費等）</p> <p>⑪ 本格調査における A A T の協力範囲・協力内容の確認（貨物・旅客流動実態調査実施、地形図作成等）</p> <p>・上記の成果品の提出時期確認（本格調査開始前）</p>	<p>主として Questionnaire で対応</p> <p>確認事項を M/M に記載</p>

項 目	対処方針	備 考
4. 請訓事項	①Undertakingsの内容に係る事項については必要に応じて請訓する。 ②調査内容については大幅な変更以外は調査団で対応する。	(外務省)
5. 議事録等	①あらかじめ作成したS/W (案) を基に説明協議し、合意の後、双方の代表者が署名する。 ②S/W 及び調査の実施に関する協議内容をM/M としてとりまとめ、双方の代表者が署名、確認する。 ③C/P 研修、セミナーの開催については要請の伝達にとどめる。(M/Mに記載は可とする)	
6. 団員業務分担	別紙事前調査団員業務分掌表による。	
7. 報告書	別紙目次(案) にしたがって、各担当者により作成する。	

QUESTIONNAIRE

JANUARY, 1992

JAPANESE PREPARATORY STUDY TEAM

THE STUDY
ON
PHUKET INTERNATIONAL AIRPORT DEVELOPMENT PLAN
IN
THE KINGDOM OF THAILAND

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

This questionnaire is prepared by the Japanese Preliminary Study Team for the Study on Phuket International Airports Development Plan in the Kingdom of Thailand (the Study) to get basic information and data necessary to the Study. Please answer all the questions in English and also attach materials requested in this questionnaire. Answers need not be too much in detail but should be brief and precise.

However, it should be recognized that because of the preliminary characteristic of this questionnaire, the Study Team would like to ask for additional data/information on the occasion of discussion with the Thai side.

Thank you for your cooperation.

I. GENERAL

1. The Preparatory Study Team would like to obtain general explanation and related information, if any, on the followings:

(1) Background and necessity of this Study.

(2) Actions having been taken/being taken by the Thai side to solve the all or part of existing problems of the Phuket Airport

(3) Present nationwide and regional development plans and other plans which possibly influence on airport development (i.e. tourism development plan).

(4) Present budget allocation for aviation-related administration

(5) Present plans of Phuket airport development

(6) Present problems of Phuket airport

- (7) Present status, problems, and future prospects of the role played by Phuket airports as a transport means in comparison with surface transport
- (8) Present status, problems, and future prospects of its role as a transfer airport in international air route network
- (9) Present status, problems, and future prospects of its role as a hub or a transfer airport in domestic
- (10) Present status, problems, and future prospects of its role played in promoting regional development

2. The Study Team would like to grasp institutional framework of Phuket airports. (i.e. planning, financing, construction, and operation aspects) Since main items are listed in the attached Table-1, please fill in each column.

(Note: The term "organization charged in" includes ministries, other public organizations, and private bodies, which are mainly responsible for planning, financing, construction, and operation aspects of the airport.)

3. The Study Team would like to obtain the detailed explanation about Air Navigation Rules in Phuket airport by air navigation expert (of Aerothai?).

Especially, we would like to know which factor fix the decision height in CAT-1 straight-in approach for 438 feet, which would be 200 feet in Standard.

We suppose that obstacles in obstacle clearance area for approach or missed approach fix the decision height so high. This factor will have serious influence on M/P of Phuket Airport.

II. NECESSARY DATA

The Preparatory Study Team would like to collect documents or maps listed in the attached Table-2, during the Study Teams' stay in Thailand. Please provide us with the data and information to enable us to smoothly execute the Preparatory Study for Pheket International Airport Development Plan. If there are any data or information unavailable at this time, please enter the applicable symbol letter a, b, or c in the space provided to indicate whether we can expect the answer;

- a) by the time of commencing the detailed survey;
- b) during the detailed survey after a certain progress has been made; or
- c) the answer is not likely to become available.

Table-1 INSTITUTIONAL FRAMEWORK OF AVIATION-RELATED ADMINISTRATION
(PLANNING, FINANCING, CONSTRUCTION, AND OPERATION ASPECTS OF THE AIRPORTS BY FACILITIES)

If organization concerned is ministry or other public organization, please write down the name of the organization. In case of private body, please write "P.B"

(1)

I T E M	ORGZNIZATION CHARGED IN			
	PLANNING	FINANCING	CONSTRUCTION	OPERATION
1. Runway, Taxiway, Apron, Holding Area	AAT	AAT	AAT	AAT
2. Passenger Terminal building	AAT	AAT	AAT	AAT
3. Cargo handling facilities	AAT	AAT	AAT	AAT
4. Residential Quarter for the Airport Staff	AAT	AAT	AAT	AAT
5. Operation Tower	Aerothai	Aerothai	Aerothai	Aerothai
6. Administration Building	AAT	AAT	AAT	AAT
7. Air Navigational Aids	Aerothai	Aerothai	Aerothai	Aerothai
8. Lighting System	AAT	AAT	AAT	AAT
9. Communication system	AAT	AAT	AAT	AAT
10. Customs	AAT	AAT	AAT	Custom Dept.
11. Immigration	AAT	AAT	AAT	Police Dept.

I T E M	ORGANIZATION CHARGED IN			
	PLANNING	FINANCING	CONSTRUCTION	OPERATION
12. Quarantine	AAT	AAT	AAT	Ministry of Agriculture
13. Fire Station	AAT	AAT	AAT	AAT
14. Rescue Station	AAT	AAT	AAT	AAT
15. Car Parking area	AAT	AAT	AAT	AAT
16. Fuel Supply system	AAT	AAT	AAT	AAT
17. Drainage system	AAT	AAT	AAT	AAT
18. Water Supply system	AAT	AAT	AAT	AAT
19. Sewage system	AAT	AAT	AAT	AAT
20. Power Supply system	AAT	AAT	AAT	AAT
21. Access Road	Highway Dept.	Highway Dept.	Highway Dept.	Highway Dept.
22. Perimeter fence	AAT	AAT	AAT	AAT

Table-2 THE LIST OF NECESSARY DATA / INFORMATION

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
	<p>1. Authorities and Government Agencies Concerned & Counter parts Administrative Organization Chart with jurisdictional responsibilities and brief explanation</p> <p>a) Ministry of Transport and Communications b) Airports Authority of Thailand (AAT) in Detail c) Aerothai d) Other concerned organization</p>	<p>○ ○ ○ ○</p>	<p>MTC AAT Aerothai MTC ○</p>	<p>Annual Report</p>
	<p>2. Nationwide Socio Economic Data of Thailand</p> <p>(1) Statistics of the last 15 years and forecast on national economy and economic indicators</p> <p>a) GNP (if unavailable, GDP) b) Population c) Industrial products (by main sort) d) Foreign trade (export and import) values. e) The number of emigrants and immigrants</p> <p>(2) Materials of latest national economic development</p> <p>a) Authorized development plans of economics, industry, agriculture and tourism. b) Development programs of transportation facilities (road, rail ways, etc.) c) Long term forecast of economic indicators (GDP: if revised, other indicator: if any)</p> <p>(3) Annual budget (national total and by sector) (4) Public investment by sector (results and plan) (5) Tourism resources</p> <p>a) Locations and descriptions of major tourism resources b) The number of Tourists of the last 15 years and forecast c) Tourism development program</p>	<p>○</p>	<p>AAT NESDB NATIONAL STATISTICAL OFFICE</p>	<p>STATISTICAL YEAR BOOK</p>
		<p>○</p>	<p>MTC</p>	<p>Annual Report</p>
		<p>a not a</p>		

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
	<p>3. Regional Socio Economic Data of Phuket Island</p> <p>(1) Statistics of the last 15 years and forecast on regional economy and economic indicators</p> <p>a) Population (by region)</p> <p>b) Industrial Products (by region)</p> <p>(2) Indicator/Statistics and Development Plan</p> <p>a) Industries</p> <p>b) Transportation (other than air)</p> <p>(3) Tourism Resources</p> <p>a) Locations and Capacities of the Hotels</p> <p>b) The Number of Tourists of last 15 years by Nations and forecast</p> <p>c) New Hotels Development Plans</p> <p>(4) Map</p> <p>a) Topographical Map (1/10,000) (if None, possibility of drawing from Aerial Photograph)</p> <p>b) Geographical Map</p> <p>c) Land use</p> <p>d) Chart</p> <p>(5) National Conditions</p> <p>a) Meteorological Data in some other Places than Airport</p> <p>- Wind Rose</p> <p>- Visibility and cloud height (if possible)</p> <p>(6) Environmental Conditions</p> <p>a) Regulation on Environment Conditions</p> <p>b) Development Restriction Area</p> <p>c) National parks</p>	<p>○</p> <p>a) }</p> <p>not</p> <p>a) }</p> <p>○</p> <p>○</p> <p>not</p> <p>a) }</p>	<p>NESDB</p> <p>JICA</p> <p>AAI</p> <p>Meteorological Dept.</p>	<p>- Annual Climatological Data of Thailand</p> <p>- Weather Report</p>

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
	<p>4. Air Transport</p> <p>(1) Major Agency Related to Air Transport</p> <p>a) Name of each agency</p> <p>b) Role of each agency.</p> <p>(2) Air Route Network</p> <p>a) Map of international air route network, characteristics and future prospects of the network</p> <p>b) Map of domestic air route network, characteristics and future prospects of the network</p> <p>c) Future plan/policy for air route network</p> <p>(3) Airport in Thailand</p> <p>a) Geographical distribution of airports</p> <p>b) Major facilities of each airport</p> <p>c) Function and capacities of each airport</p> <p>d) Future development plan (by airport)</p> <p>e) Design and planning criteria</p> <p>f) Establishing and Administrating Body</p> <p>(4) Airport-related budget</p> <p>a) Airport construction budget (last 10 years)</p> <p>b) Airport maintenance budget (last 10 years)</p> <p>(5) Statistics (at least last 10 years) (national total and by airport)</p> <p>a) International and domestic passengers</p> <p>b) International and domestic cargo</p> <p>c) Military aircraft activities</p> <p>d) Number of takeoffs and landings (including general aviation)</p> <p>e) Annual Report of AAT</p> <p>f) International Charter Flights</p> <p>(6) Airline Company</p> <p>a) Name of airline companies in Thailand</p> <p>b) International and domestic route map and timetable (by airline)</p> <p>c) Air fleet (actual and future plan)</p> <p>d) Foreign airline companies desiring to serve the airport in Thailand</p>	<p>○</p> <p>a)</p> <p>○</p> <p>not</p> <p>a)</p> <p>a)</p> <p>○</p> <p>a)</p> <p>a)</p> <p>not</p>	<p>AAT</p> <p>AAT</p> <p>AAT</p>	<p>Annual Report</p> <p>AAT ANNUAL REPORT</p>

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
	e) Major airline maintenance facilities in Thailand f) National Policy on Airline (7) General Aviation a) Statistics of activities (8) Demand Forecast of Air Transportation (total and by airport) (9) Air Traffic Control a) ALP b) Control area map c) Distribution of navigational facilities d) Control method e) Responsible body (enroute, approach, tower) f) Published Basic Rules for Air Traffic Control 5. Phuket Airport (1) Airport Facilities a) Facilities layout of the existing airport (on scale of 1/5000) b) Inventory of facilities c) Construction history of airport d) Actual strength of runway, taxiway and apron pavement e) Actual supply/disposal volume of following facilities -Water supply -Electric power supply -Sewage -Fuel supply f) Profile and cross section of runways and places where cracking and other defects have arisen g) Profile and cross section of taxiways and places where cracking and other defects have arisen h) Profile and cross section of aprons and places where cracking and other defects have arisen	not ○ a) } ○ a) a) not a) } a) not }		

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
	<p>i) Utilization status of aprons</p> <ul style="list-style-type: none"> -Layout of apron spots by type of aircraft -Service categories (scheduled domestic, scheduled international, cargo, small aircraft, etc.) -Tabulation of apron spots occupancy table for a typical week -Types of aircraft maneuvering (self-propelled, push-back, etc.) -Number and distribution of the GSE vehicles -Method and capacity of fueling (hydrant or refueller) <p>j) Terminal facilities</p> <ul style="list-style-type: none"> -Floor plans and sections of each floor level of the terminal building -Layout plan of terminal facilities (baggage claim, X-ray check, CIQ, etc.) -Fire station and the number and the size of fire engines -Size, layout and utilization status of parking lots -Maximum handling capacity of passengers <p>k) Drainage facilities</p> <ul style="list-style-type: none"> -Rainwater drainage system diagram -Method of treating sewage generated in the terminal area <p>l) The date opened for service, problems (degree of congestion, deterioration through aging, etc.), and requests made by users (airline companies, passengers, etc.) of each of the facilities enumerated in g) through k) above.</p> <p>(2) Air Navigation Facilities</p> <p>a) List of the following facilities</p> <ul style="list-style-type: none"> -Lighting facilities -Air-to-ground telecommunication facilities -Radio navigation facilities -Air traffic control radar facilities -Meteorological facilities 	not	AAT	

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
	<p>b) Agencies responsible for the operation of each of the facilities a) above, and their organization chart as well as brief explanation.</p> <p>c) The date opened for service, problems (deterioration through aging, etc.) and requests made by the users (airline companies, etc.) of each of the facilities a) above.</p> <p>(3) Approach and Departure Procedure a) Instrumental Approach Procedure (Minima) b) Determination factor of the Minima for ILS approach (Missed Approach Area?)</p> <p>(4) Utilization a) Map of obstacle limitation surface b) Report of obstacles for limitation surface c) Activities of Military d) Weight restriction of air craft e) Access transportation volume from vicinal city f) Location of residential quarter for airport staff and number of residence</p> <p>(5) Statistics a) International and domestic passengers b) International and domestic cargo c) Military aircraft activities d) Number of take offs and landings e) Method of approach-departure f) Weighted Equivalent Continuous Perceived noise level g) Percentage of Hight Canceled due to the Weather condition h) Charter Flights by Airline, destination (origin)</p> <p>(6) Other matters relevant to the Study a) Conditions in, and development plans for the area surrounding the Airport ① Present conditions and future plans of land use ② Conditions of rivers and river improvement plans, if any ③ Present conditions and future plans of roads and railways</p>			

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
	<ul style="list-style-type: none"> (d) Land ownership b) Natural conditions (a) Meteorological conditions <ul style="list-style-type: none"> -Wind rose -Visibility and cloud height (Frequency of occurrence by range) -Atmospheric temperature and precipitation (b) Earthquakes (Year of occurrence, magnitude, etc.) (c) Floods (Year of occurrence, extent of damages, amount of rainfall at time of each flood) (d) Topographical map (1/5,000) (e) Underground conditions (f) Boring data (g) Soil data c) Maps <ul style="list-style-type: none"> (a) Nationwide, each of its states (b) Aerial photograph of each facilities (c) Geographic map (d) Sightseeing map 6. Laws and Regulations <ul style="list-style-type: none"> (1) Civil aviation Laws and related regulations (2) Aircraft noise standards (3) Tariff structure (4) Agreement on the use of airport by the other Organization (5) Environmental Regulations 7. Others <ul style="list-style-type: none"> (1) Past aircraft accidents (2) Local Consultants which can conduct seismic survey and boring. 	<p>not</p> <p>a)</p> <p>not</p> <p><input type="radio"/></p> <p><input type="radio"/></p> <p>not</p> <p>a)</p>	<p>Meteorological Dept.</p> <p>AAT</p> <p>DOA AEC Soil Test Co.</p>	<p>Annual Climatological Data of Thailand -Weather Report</p> <p>Designated Report for parallel Taxiway "AEC. Co."</p>

資料リスト (収集資料) (1/2)

平成 年 月 日作成

主査部長	管理部長	三管理部長

地域	東南アジア	調査国名又は専門家氏名	9個アジア国際空港整備計画調査 (事前調査)	調査の種類又は対象科目	事前調査	作成部署	
国名	タイ	配属機関名		現地調査期間又は派遣期間	4年1月20日～4年1月31日	担当者氏名	

番号	資料の名称	形態	版数	ページ数	オリジナルコピーの部数	部数	収集先名称又は発元	寄附・購入 (価格) の別	取込区分	利用表示	利用者所属氏名	納入日	納入場所
1	AIP	本	A4	500	1	1	PI091						
2	BANGKOK INTERNATIONAL AIRPORT Annual Report 1970 AAT.	本	A4	256	1	1	AAT						
3		報告書	A4	70	1	1							
4	Annual Report 1988 Amhat			55	1	1	PI091						
5	Annual Report 1989 Aerothai			66	1	1							
6	70-75 国際空港年報-1970-(分誌)		A5	30	1	1	AAT.						
7	Phuket International Airport		A4	16	1	1							
8	AAT News Letter No.12			8	1	1							
9				8	1	1							
10				8	1	1							
11	Air Traffic Service Route	図	A1	1	1	1	PI091						
12	Spraying Plan & New Chain Linked Fence		B0	1	1	1	AAT						
13	Grading and Drainage Layout Section 1			1	1	1							
14				2	1	1							
15				3	1	1							
16	List of Drawings			1	1	1							
17	General Location Layout			1	1	1							
18	General Land Use Plan		B4	1	1	1							
19	Grading and Drainage Layout Sections			1	1	1	AAT (Part 1)						
20	Ban K Long 1:50000		B0	1	1	1	AAT						
21	Amphoe Thap Muang 1:50000			1	1	1	AAT						

国際協力事業団

文書管理課

資料リスト (収集資料) (2/2)

平成

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国名	9. 1	配属機関名		現地調査期間 又は派遣期間	今年 / 月20日 ~ 今年 / 月3 / 日	担当者氏名

番号	資料の名称	形態	版数	ページ数	オリジナル コピーの別	部数	複製 発行 枚数	複製 又は 他 の 別	取込区分	利用表示	利用者所属氏名	納入 予定日	納入 機名
22	Ban Mek	図	B0	1	コピー	1	7	AAT					
23	Changwat Phangnga	?	?	?	?	1	?	?					
24	Changwat Krabi	?	?	?	?	1	?	?					
25	Amphoe Thalang	?	?	?	?	1	?	?					
26	Changwat Phuket	?	?	?	?	1	?	?					
27	Organization Chart (HOTC)	?	A4	?	?	1	?	?					
28	(AAT)	?	B4	?	?	1	?	?					
29	(71094)	?	?	?	?	1	?	?					
30	Charter Flight Schedule - Phuket (1/6)	表	A4	2	?	1	?	?					
31	Phuket International Airport Inventory	表	A4	6	?	1	?	?					
32	Tourism Development Centers of Southern Region	図	A3	1	?	1	?	?					
33	タイ南部の観光地指標 (SPP) (9倍)	表	A4	6	?	1	?	?					
34	International Passengers 1985-1991	?	?	1	?	1	?	?					
35	Chennai	?	?	1	?	1	?	?					
36	Hanoi	?	?	1	?	1	?	?					
37	Phnom Penh	?	?	1	?	1	?	?					
38	制限表	図	A3	2	?	2	?	?					
39	Institutional Framework of Aviation	表	A4	2	?	1	?	?					
40	Drive Map	図		1	?	1	?	?					

JICA