

REPUBLIC OF INDONESIA

THE STUDY
ON
THE AIRPORT DEVELOPMENT PROJECT
IN
CENTRAL JAVA AND YOGYAKARTA

SUMMARY

NOVEMBER 1986

JAPAN INTERNATIONAL COOPERATION AGENCY

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JAPAN INTERNATIONAL COOPERATION AGENCY

國際協力事業團		
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PREFACE

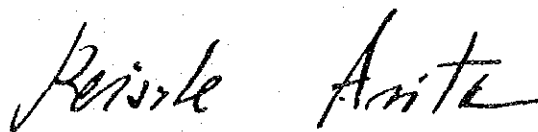
In response to the request of the Government of the Republic of Indonesia, the Japanese Government has decided to conduct feasibility studies on the Development of Airports in Central Java and Yogyakarta, and entrusted the studies to the Japan International Cooperation Agency. J.I.C.A. sent to Indonesia a study team headed by Mr. Makoto TANAKA of Pacific Consultants International between August 1985 and September 1986.

The team had discussions with the officials concerned of the Government of Indonesia and conducted a field survey. After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between our two countries.

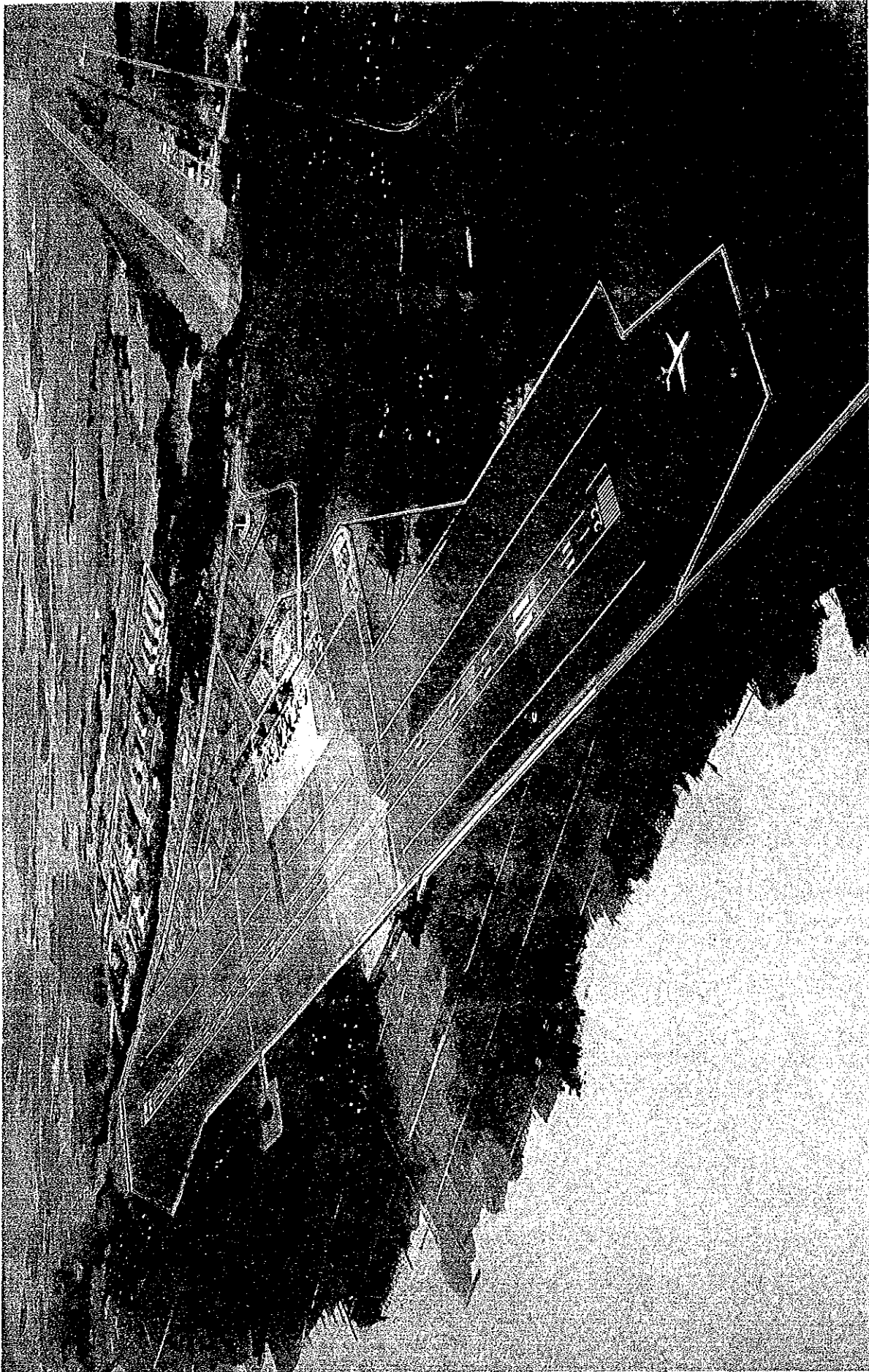
I wish to express my deep appreciation to the officials concerned of the Government of the Republic of Indonesia for their close cooperation extended to the team.

November, 1986

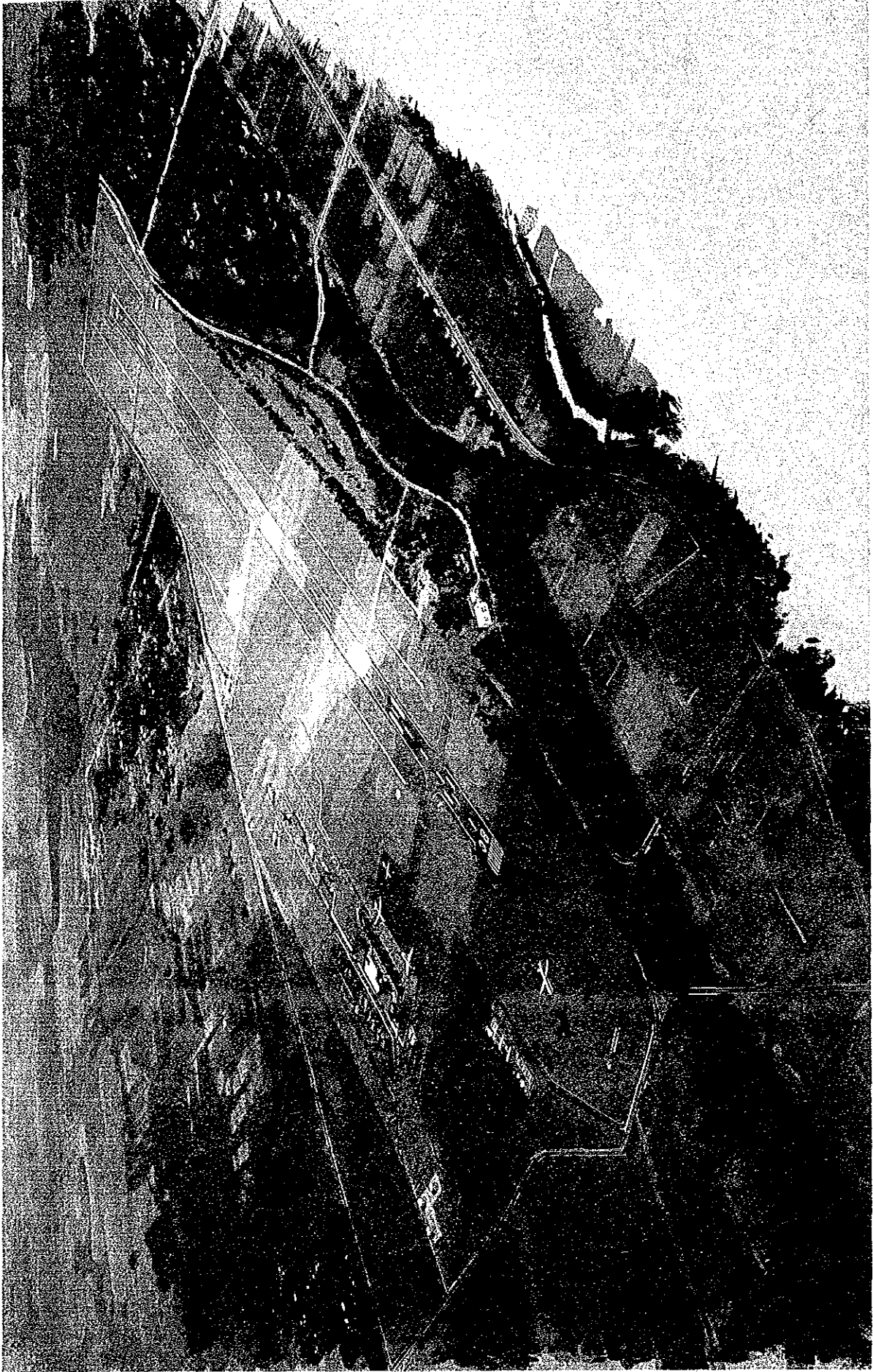


Keisuke Arita
President

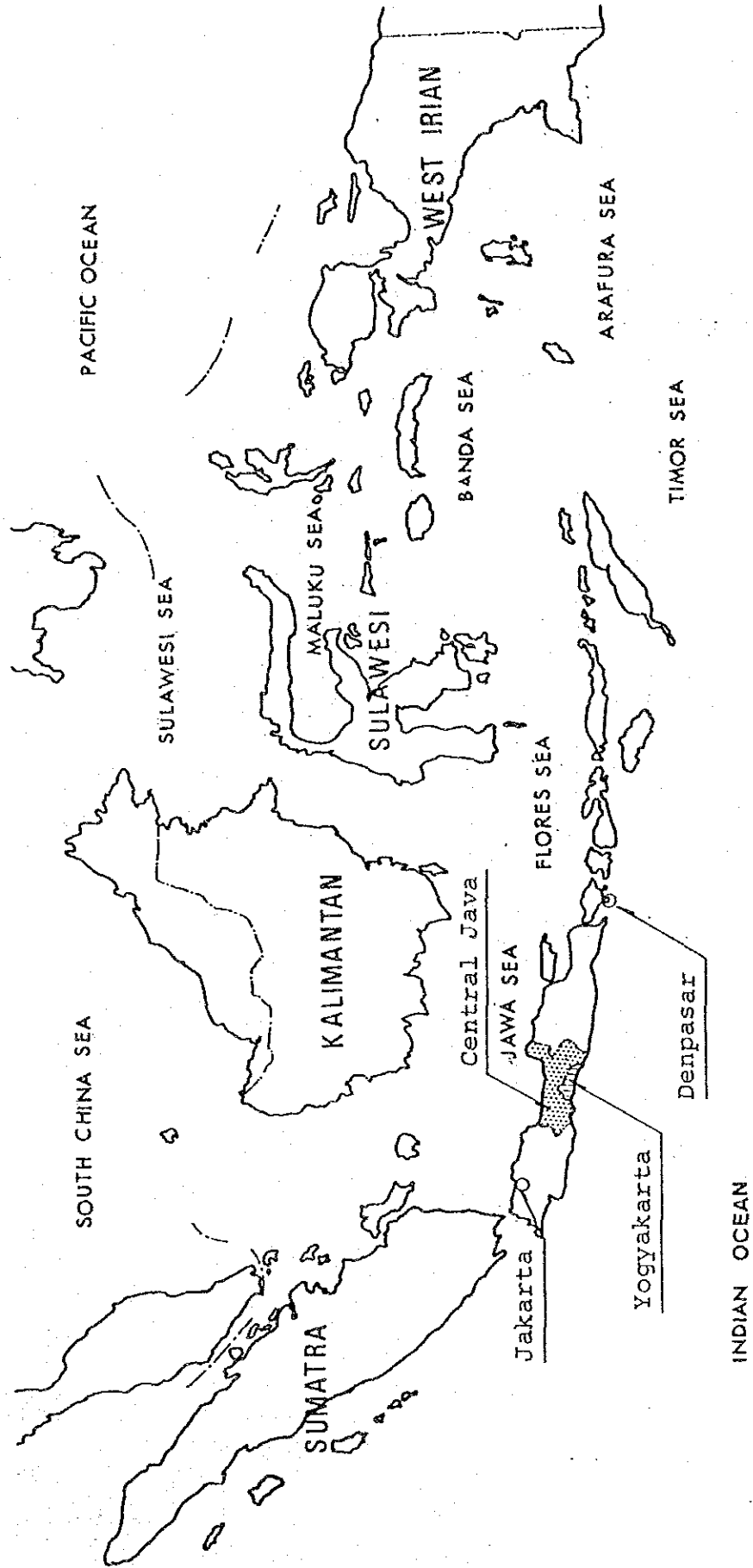
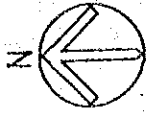
Japan International Cooperation Agency



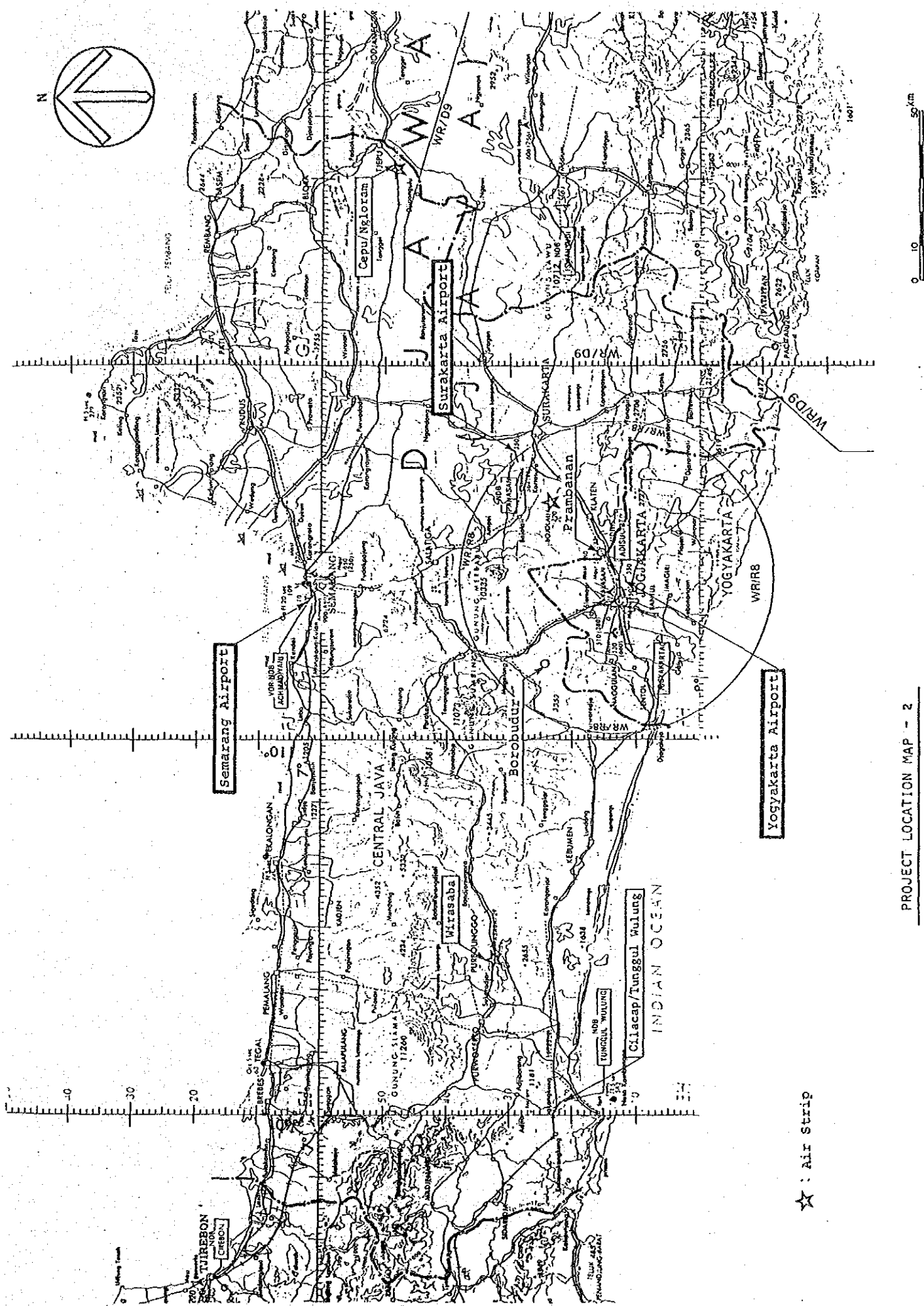
NEW YOGYAKARTA AIRPORT DEVELOPMENT PLAN



SURAKARTA AIRPORT REDEVELOPMENT PLAN



PROJECT LOCATION MAP - 1



☆ : Air Strip

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CHAPTER 1 INTRODUCTION

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1.1 Background of the Project

Indonesia is the largest archipelago in the world consisting of 13,677 islands, of which about 6,000 are inhabited and are spread over some 5,100 km from east to west and some 1,900 km from north to south.

Due to its geographical nature, air transportation in Indonesia plays an important role in promoting national integration, economic activities and regional economic balance.

In REPELITA IV (The Fourth Five-Year National Development Plan, 1984/85 - 1989/90), the Government of Indonesia declared its intention to continue its effort in the development of air transportation facilities to be able to cope with the increasing air traffic demand.

The Central Java and Yogyakarta areas are the second most densely populated area other than the metropolis Jakarta, but the GRDP per capita of the area is only about one-half of the national average.

In these areas, there are three main commercial airports (Yogyakarta, Surakarta and Semarang), and due to the insufficient length of the existing runways, even small size jetliners such as currently operating DC-9s or F-28s are subject to weight restriction.

Unrestrained civil air transport service is very essential in Central Java and Yogyakarta in order to promote the economic activities and lessen such disparity of per capita income. Improved quality transport service will also help the promotion of cultural and educational activities in Yogyakarta and Central Java.

In REPELITA IV, the Government of Indonesia sets forth a plan to introduce DC-10/A300s in Semarang airport, and DC-9s in Yogyakarta and Surakarta airports. However, as these airports are located so close to each other, it is considered necessary to establish safe, efficient and economical airport development master plans within the framework of the possible future airport system in the region.

The Government of Indonesia and the Government of Japan agreed that the Japanese Government would render technical assistance for the study on the airport development project in Central Java and Yogyakarta (hereinafter referred to as the Study). The Scope of Work was agreed upon between both Governments in February, 1985.

Based on this agreement, the Japan International Cooperation Agency (hereinafter referred to as JICA), an official agency responsible for the implementation of the technical cooperation programs of the Japanese Government, was entrusted to carry out the Study.

JICA organized the Study Team and officially commenced the Study in August, 1985.

1.2 Objectives of the Study

The objectives of the Study are to form a long-term airports development concept in Central Java and D.I. Yogyakarta and to examine the technical and economic feasibility of the airport development project within the framework of the long-term development concept.

The Study was carried out in the following two stages.

Stage I : Formation of the airports development concept
in Central Java and D.I. Yogyakarta

Stage II : Feasibility Study on the selected airport(s)
development project

1.3 Executing Method and Reporting System

The Study Team organized by JICA mobilized into Indonesia in August 1985, and carried out the Study with the full cooperation of Directorate General of Air Communications (hereinafter referred to as DGAC) during their 3 month period of stay. The Progress Report, in which 3 alternatives were established for further comparison as airports development concepts in Central Java and Yogyakarta areas was submitted to DGAC in November, 1985. The Study Team proceeded with the comparative evaluation of the above 3 concepts in Japan, and summarized Interim Report (I) in February, 1986, incorporating the comments by DGAC derived from the meeting held in December, 1985.

Successively, the Study Team executed the Study in Indonesia necessary for the preparation of the feasibility studies on new Yogyakarta airport development and Surakarta airport redevelopment, which constitute the airports development concept selected in Interim Report (I). The Interim results of the Study were submitted in Interim Report(II) in June, 1986, following their activities in Japan.

The Draft Final Report, containing the comprehensive results of the Study, was prepared by adding the final results of the feasibility study to Interim Reports (I) and (II), and was submitted in September, 1986.

This Final Report is prepared incorporating the comments of DGAC on the Draft Final Report, and consists of the following 5 parts.

1. Summary
2. Part I Formation of the Airports Development Concept
3. Part II Vol. 1 Feasibility Study for New Yogyakarta Airport
Development Project
4. Part II Vol. 2 Feasibility Study for Surakarta Airport
Development Project
5. Appendix

CHAPTER 2 BASIC ASSUMPTIONS

CHAPTER 2 BASIC ASSUMPTIONS

2.1 General

Air traffic demand was forecast to cover up to the year 2010 which is established as the design year for the long-term development, in 5 year intervals.

Air traffic demand was also forecast only for the domestic traffic, based on the Indonesian Government policy which intends to develop airports in this area as domestic airports. The estimation was also limited to the items concerning civil aviation, though the airports in the Study area are jointly utilized with Indonesian Air Force (IAF).

Airport facility requirements were estimated based on the demand forecast and in compliance with the relevant standards, recommended practices, and/or regulations of International Civil Aviation Organization (ICAO), Civil Aviation Bureau of Japan (JCAB) and Federal Aviation Administration of the United States (FAA).

2.2 Demand Forecast and Airport Facility Requirements

Traffic demand and facility requirements were estimated for the following cases, which are necessary as basic assumptions for each airports development concept. These are shown in Table 2.1.

- (1) Yogyakarta Airport
- (2) Surakarta Airport
- (3) Combined Case of Yogyakarta and Surakarta Airports
- (4) Semarang Airport

Other than the above major airports, traffic demands for the Cilacap airstrip, and internal and potential air passengers in the Study area were estimated as shown in Table 2.2 in order to evaluate the regional air transport network.

Table 2.1 Air Traffic Demand and Facility Requirements

ITEMS	YOGYAKARTA AIRPORT					SURAKARTA AIRPORT				
	Present Condition (as of 1984)	1990	1995	2000 (Phase I)	2010 (Phase II)	Present Condition (as of 1984)	1990	1995	2000 (Phase I)	2010 (Phase II)
1. Annual Passengers	290,279	486,000	697,000	908,000	1,610,000	97,746	189,000	299,000	408,000	776,000
2. Annual Cargo (ton)	830	1,250	1,730	2,210	3,820	550	1,180	1,870	2,570	4,850
3. Annual Aircraft Movements	6,336	7,700	7,100	9,600	11,000	3,193	3,800	3,900	4,500	6,400
4. Peak Hour Passengers (Arr. + Dep.)	300 ^{*1}	480	710	800	1,310	180 ^{*1}	250	400	510	810
5. Peak Hour Aircraft Movements (one way)	4	4.1	3.8	4.5	4.7	2	2.9	2.9	3.1	3.7
6. Largest Aircraft in Service	DC-9-32	MD-82/A320	A300/DC-10			F-28-4000	F-28-4000	MD-82/A320		B-767/A310
7. Runway (m x m)	1,850 x 40	2,150 x 45	2,500 x 45			1,900 ^{*3} x 45	1,800 x 45	2,150 x 45		
8. Runway Strip (m x m)	1,970 x 150	2,270 x 300	2,620 x 300			2,020 x 150	1,920 x 300	2,270 x 300		
9. Taxiway	-	Parallel Taxiway Justified		Parallel Taxiway Not Necessary		-				
10. Passenger Terminal Apron (stands)	DC-9 : 6	MJ : 4 SP : 1 STOL : 1	WB : 2 MJ : 2 SP : 1 STOL : 1	WB : 2 MJ : 3 SP : 1 STOL : 1	WB/NMJ : 5 SJ : 1 SP : 1 STOL : 1	F28 : 4	SJ : 4	MJ : 3 SU : 1	MJ : 3 SU : 1	NMJ : 4 SU : 2
11. Passenger Terminal Building	2,850 ^{*2}	7,200	10,700	12,000	19,700	670	3,800	6,000	7,700	12,200
12. Air Navigation Systems	Instrument, Non-Precision	Precision Approach Category-I		Precision Approach Category-I		Instrument, Non-Precision	Precision Approach Category-I			

Note *1 : Estimated figure
 *2 : Expansion works was completed in 1985.
 *3 : Runway extension work was completed in 1986.

Aircraft Category
 WB : A300/DC-10 class
 NMJ : B-767/A310 class
 MJ : MD-82/A320 class
 SJ : F-28 class
 SP : F27/AT784 class
 STOL : DHC-6/CS2 class

Table 2.1 (Cont'd)

AIRPORT	COMBINED CASE OF YOGYAKARTA AND SURAKARTA AIRPORTS					SEMARANG AIRPORT					
	Present Condition (as of 1984)	1990	1995	2000 (Phase I)	2010 (Phase II)	Present Condition (as of 1984)	1990	1995	2000 (Phase I)	2010 (Phase II)	
AIR TRAFFIC DEMAND											
1. Annual Passengers	388,025*1	675,000	996,000	1,316,000	2,386,000	344,422	609,000	911,000	1,214,000	2,222,000	
2. Annual Cargo (ton)	1,380*1	2,430	3,600	4,780	8,670	1,159	1,990	2,920	3,840	6,930	
3. Annual Aircraft Movements	9,529*1	8,300	8,900	10,900	13,000	10,221	6,600	8,700	9,400	11,500	
4. Peak Hour Passengers (Arr. + Dep.)	-	630	900	1,070	1,810	300*2	590	780	1,000	1,660	
5. Peak Hour Aircraft Movements (one way)	-	4.2	4.4	4.9	5.2	4	3.7	4.3	4.4	4.9	
6. Largest Aircraft in Service	-	A300/DC-10				E-28-4000	A300/DC-10				B-747
7. Runway (m x m)	-	2,500 x 45				1,650*3 x 45	2,500 x 45				
8. Runway Strip (m x m)	-	2,620 x 300				1,770 x 150	2,620 x 300				
9. Taxiway	-	Parallel Taxiway Justified				-	-	Parallel Taxiway Not Necessary			
10. Passenger Loading Apron (stands)	-	WB : 2 MJ : 1 SJ : 2 SP : 1 STOL : 1	WB : 4 MJ : 1 SJ : 1 SP : 1 STOL : 1	WB : 4 MJ : 1 SJ : 1 SP : 1 STOL : 1	J : 4 NWJ : 2 MJ : 1 SJ : 1 SP : 1 STOL : 1	F28 : 4	WB : 2 MJ : 1 SJ : 1 SP : 1	WB : 2 MJ : 2 SJ : 1 SP : 1	WB : 4 MJ : 1 SP : 1	J : 4 MJ : 2 SJ : 1	
11. Passenger Terminal Building	-	9,500	13,500	16,100	27,200	1,540	8,900	11,700	15,000	24,900	
12. Air Navigation Systems	-	Precision Approach Category-I				Instrument, Non-Precision	Precision Approach Category-I				

Note *1 : Total of Yogyakarta and Surakarta airports
 *2 : Estimated figure
 *3 : Runway extension work was completed in 1985.

Aircraft Category
 J : B-747 class
 WB : A300/DC10 class
 NWJ : B-767/A310 class
 MJ : MD-82/A320 class
 SJ : F-28 class
 SP : F-27/55784 class
 STOL : DHC-6/CS2 class

Table 2.2 Air Traffic Demand for Cilacap Airstrip, and Internal and Potential Passengers in the Study Area

Zone \ Year	Present Condition (as of 1984)	1990	2000	2010
Gilacap Airport (Jakarta Route)	7,877	13,000	26,300	48,000
Internal and Potential Passengers in the Study Area				
• Cilacap	--	1,570	2,930	5,230
• Magelang	--	1,030	1,930	3,430
• Surakarta	--	2,200	4,830	9,130
• Semarang	--	2,870	5,630	10,230
• Pati	--	5,770	11,270	20,460
• Tegal	--	9,430	18,400	33,500
• Yogyakarta	--	1,070	2,030	3,600