社会開発協力部報告書

No. 4

REPORT ON TOPOGRAPHIC MAPPING OF BANGKOK METROPOLITAN AREA KINGDOM OF THAILAND

(SECOND YEAR WORK)

Aerial Triangulation
Stereo Plotting
Compilation
Field Completion
Drafting

MARCH 1988

JAPAN INTERNATIONAL COOPERATION AGENCY

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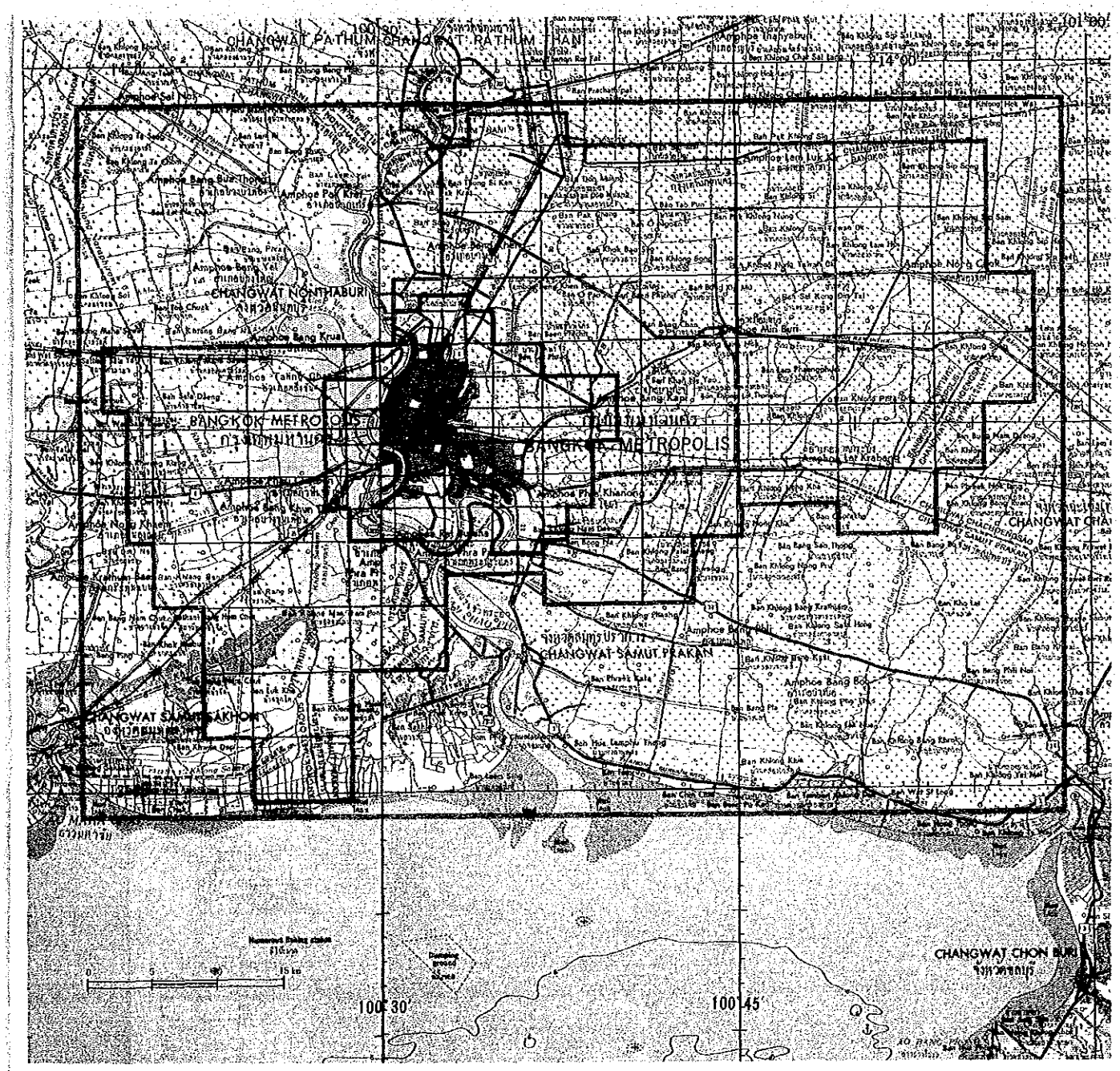
Location Map for Topographic Mapping
of Bangkok Metropolitan Area, Thailand

Aerial Photography

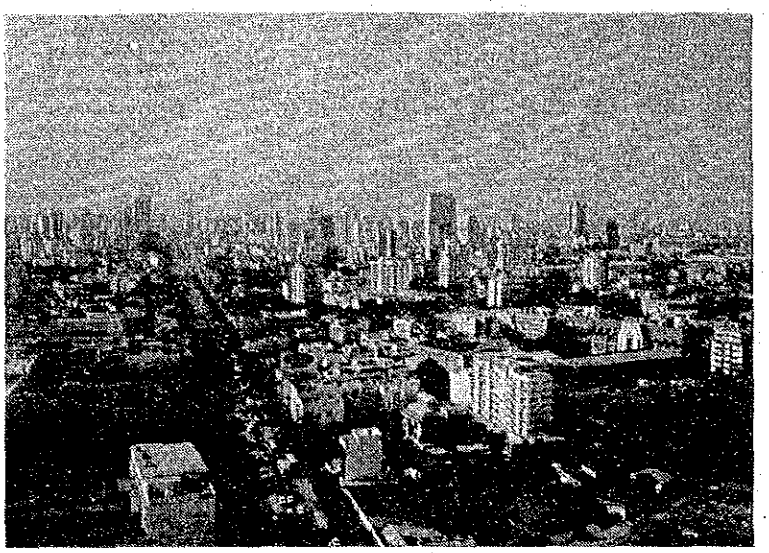
1 : 10,000 Topographic Map

1 : 4,000 Topographic Map

Index

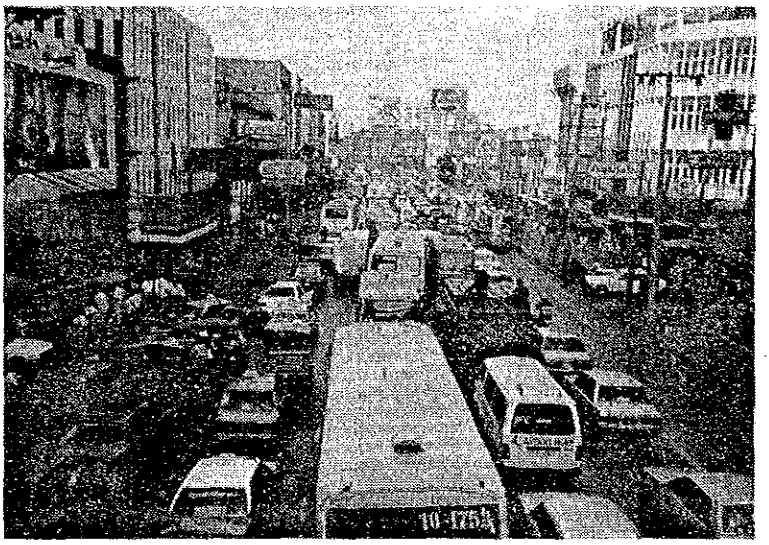


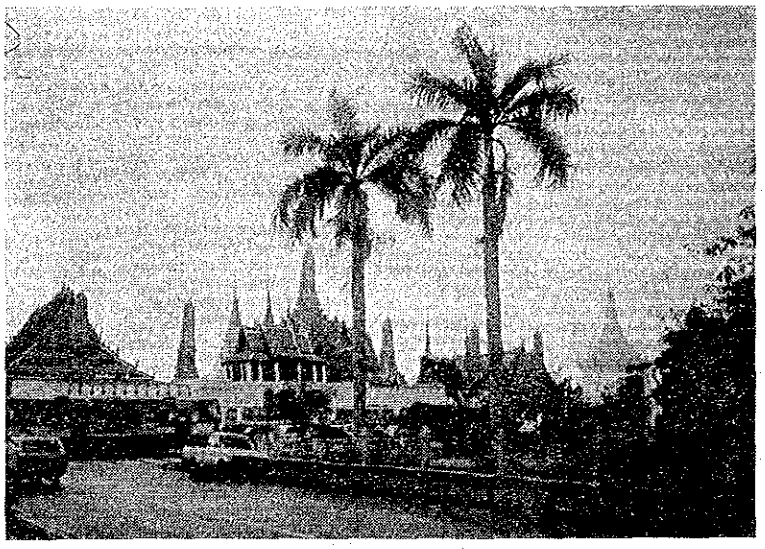
General View of Bangkok Metropolitan Area



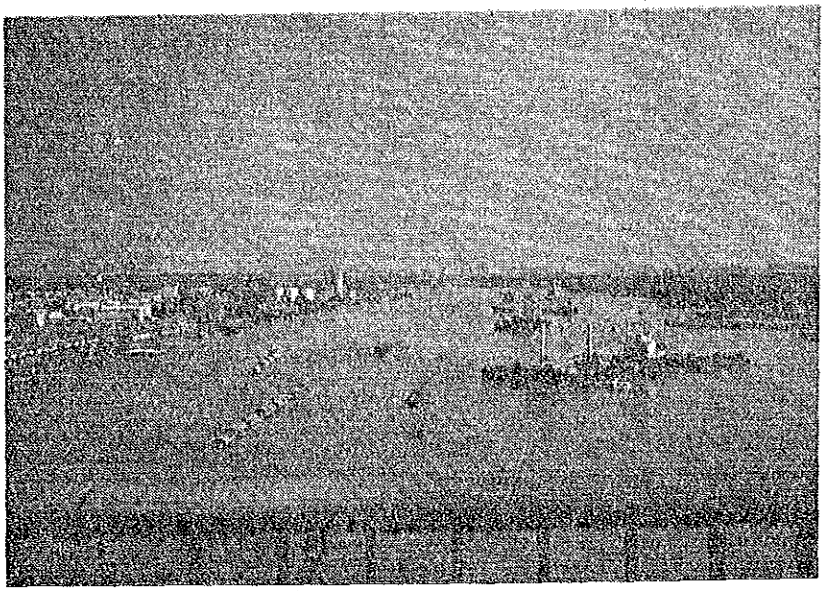
Business area
(View of the central area from Sukhumvit Street)

Shopping area
(Rachaprarop Road)



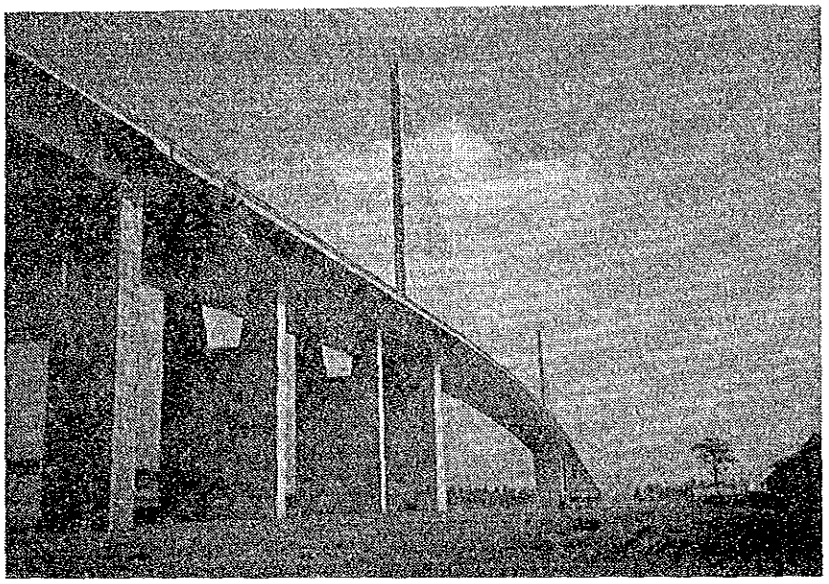


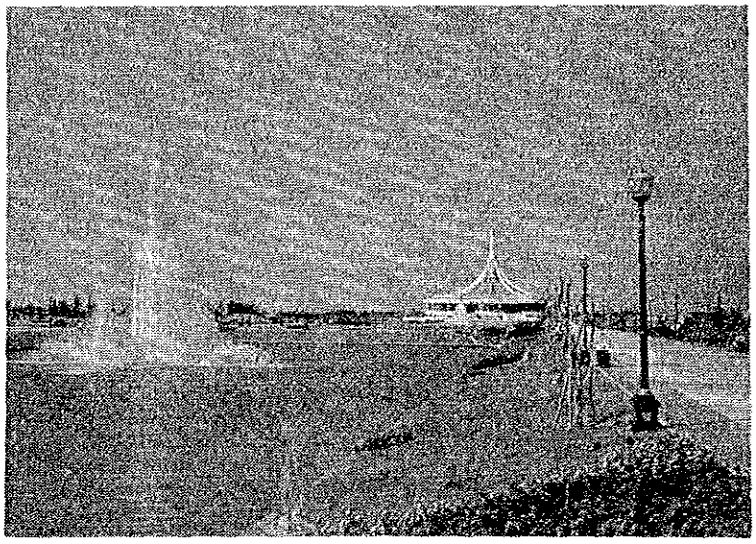
Wat Phra kaeo



Chaophraya River

Newly constructed
Rama 9 Bridge

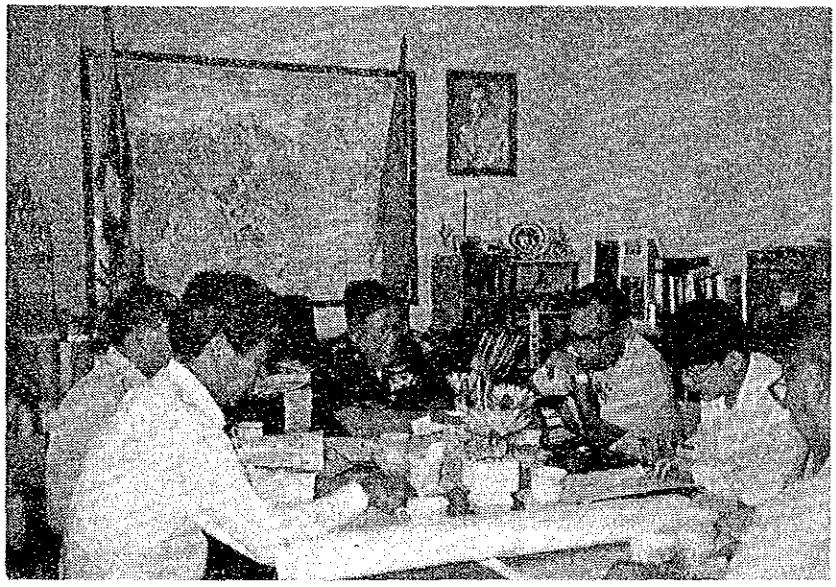




Rama 9 Park
(under construction)

Meeting

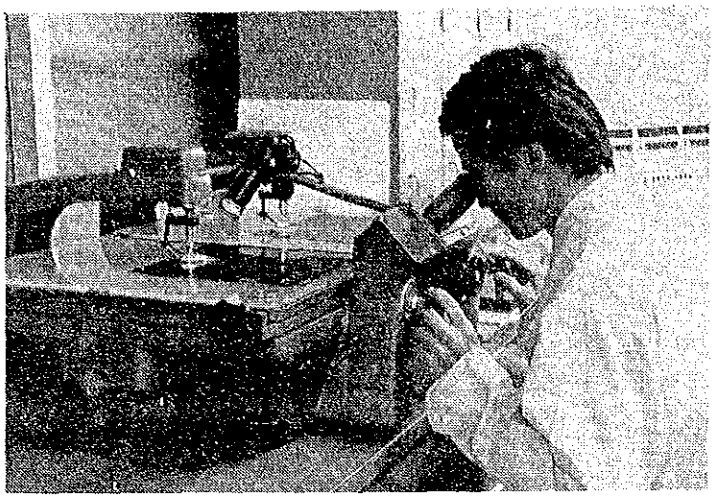
Meeting at BMA



Meeting at RTSD

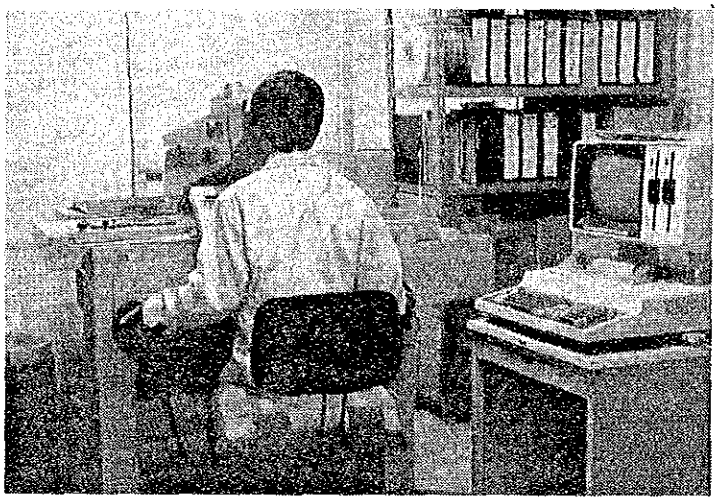
Signing on Minutes of Discussion

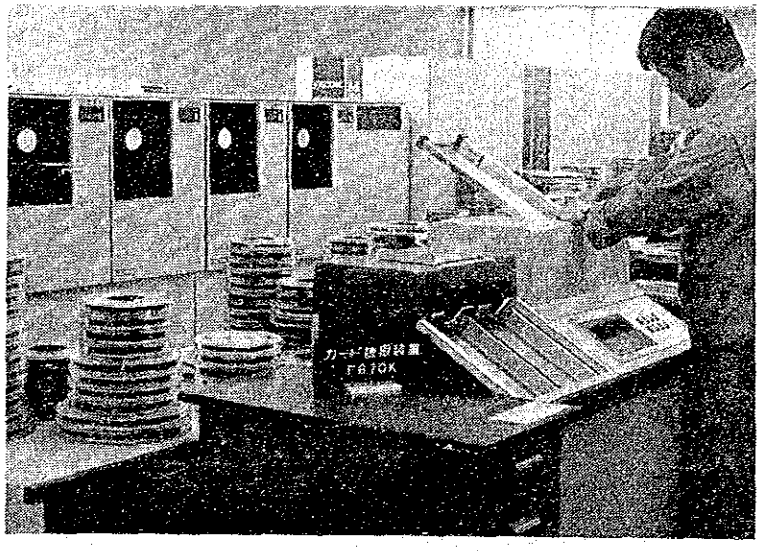
Aerial Triangulation



Pricking device
(PUG-II)

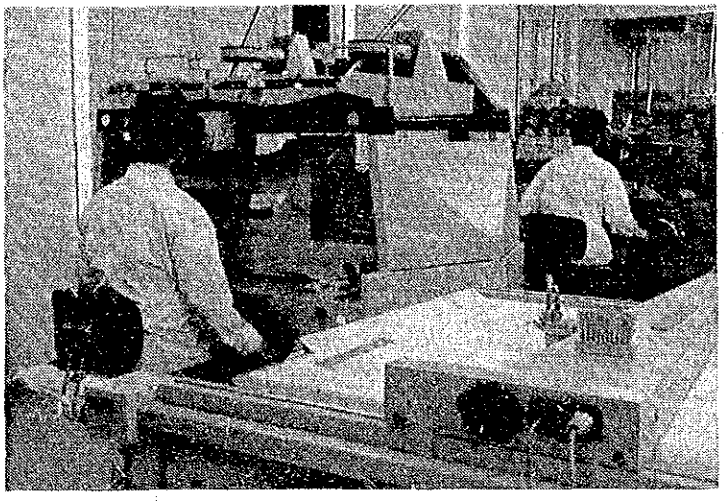
Stereo comparator
(STECOMETER)





Computer
(FACOM M-360R)

Stereo Plotting



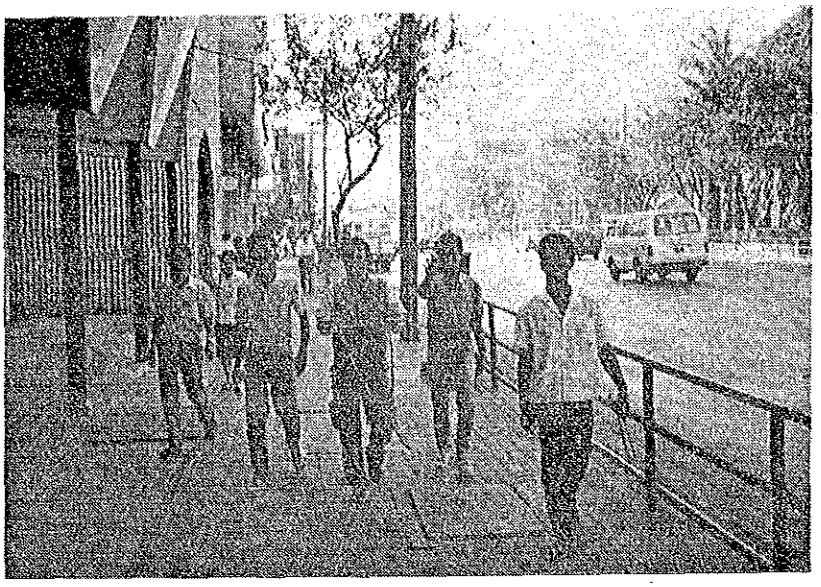
Stereo plotter
(PLANICART E2)

Stereo plotter
(STEREO PLOTTER A8)

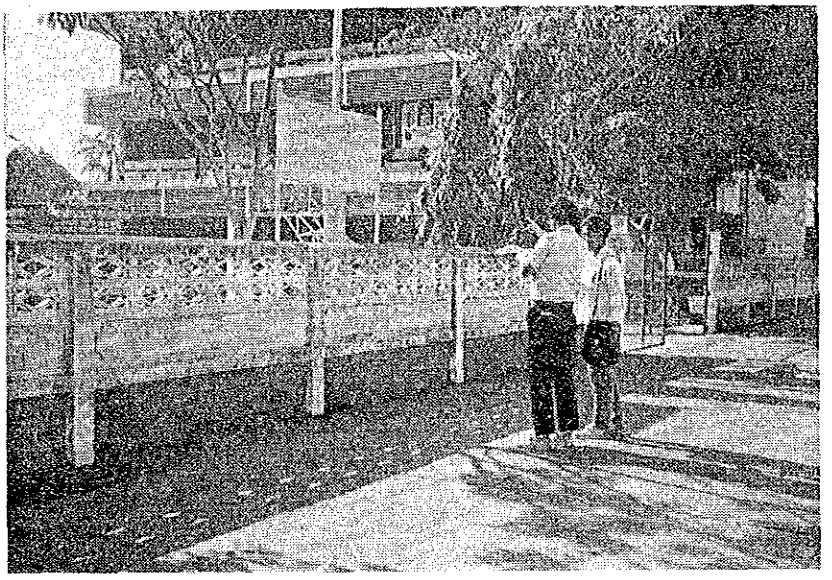
Compilation

Compilation work for
1:4,000 topographic map

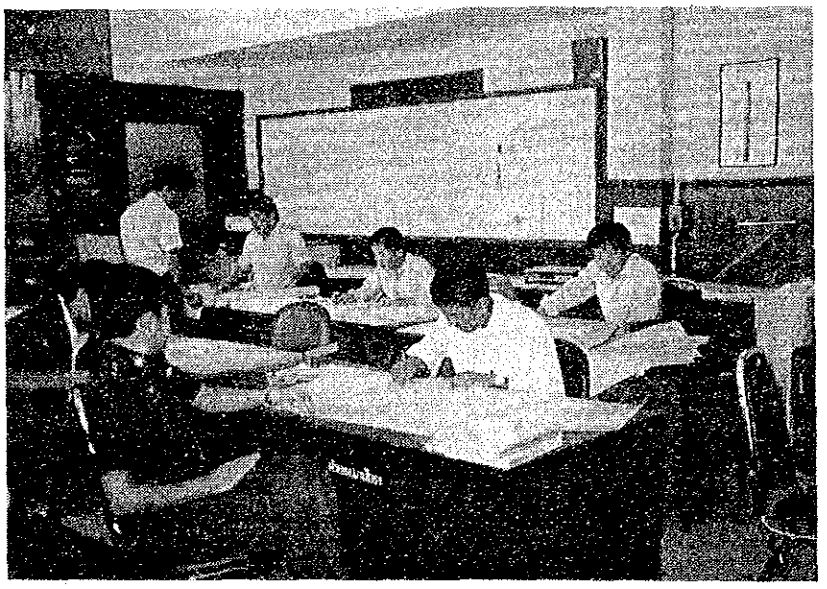
Field Completion



Field confirmation of planimetric features



Confirmation of building name

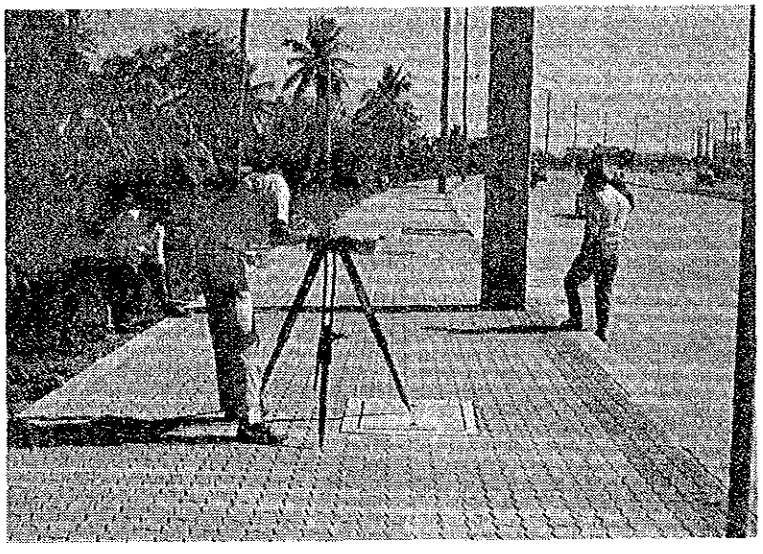


Data arrangement and confirmation of geographical names (Headquarters at BMA)

Checking Survey

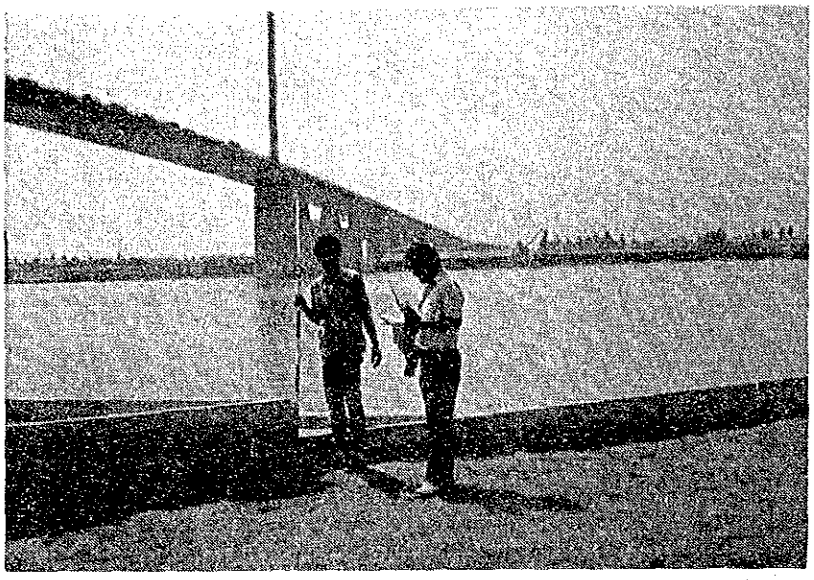
Checking of planimetry
(TOTAL STATION SET-III
and plane table)

Checking of road
width
(Plane table and
measuring tape)

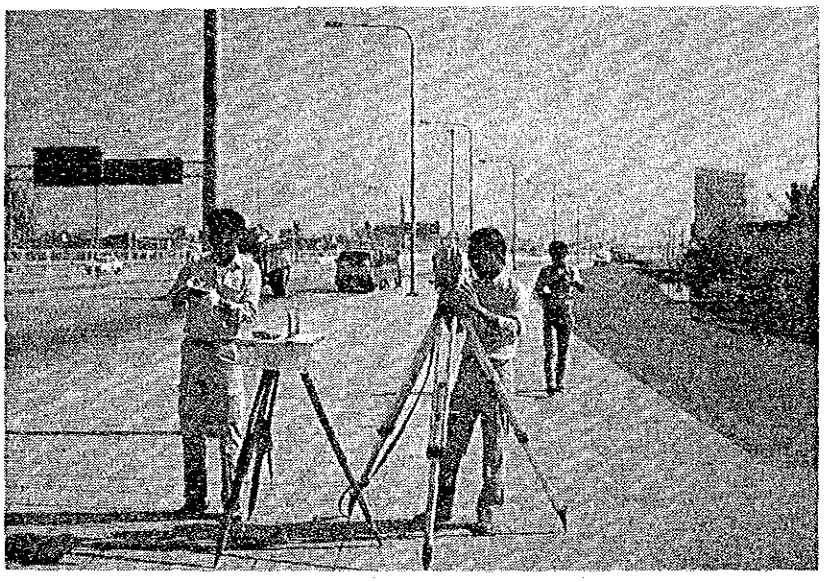


Checking of height
(AUTO LEVEL AE)

Supplementary Survey



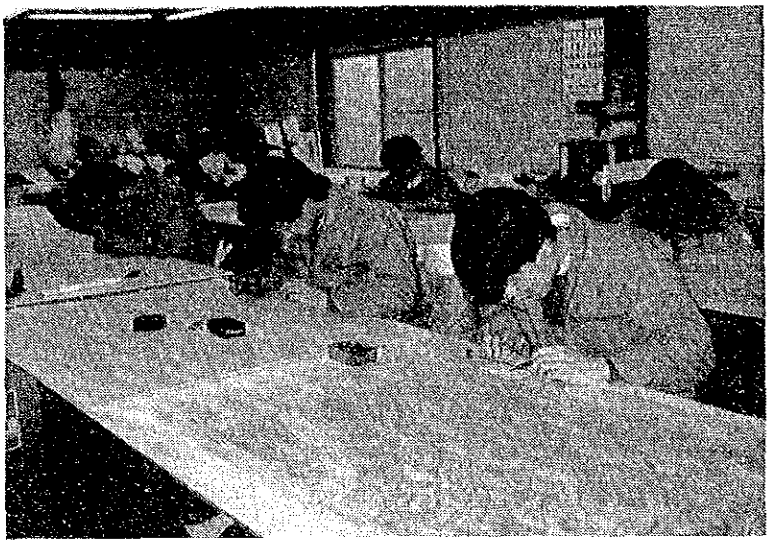
At the approach
to the new bridge



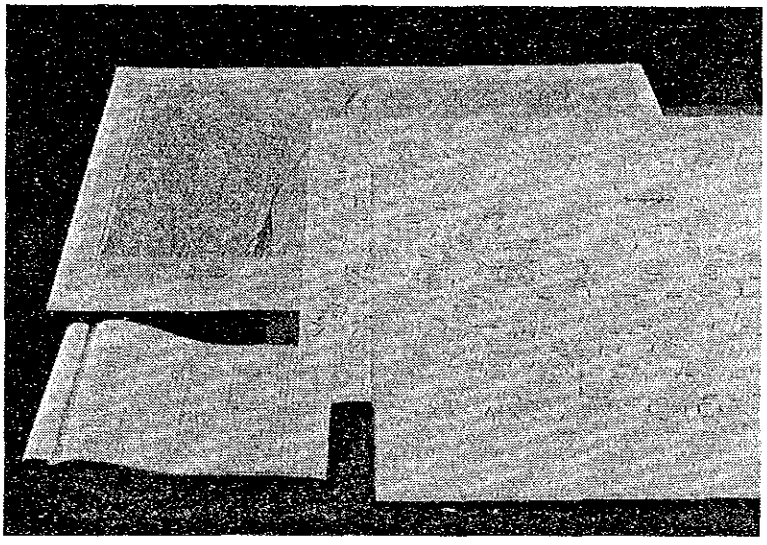
At the widened
part of road

At the construction
site of park

Drafting

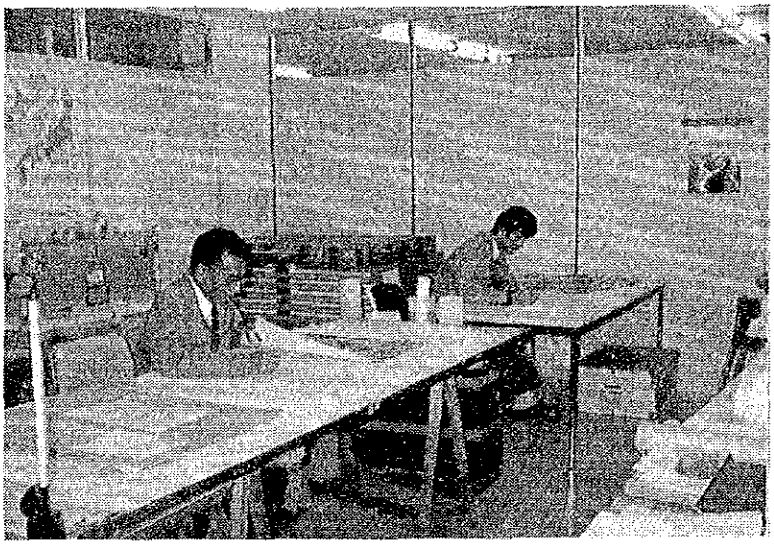


Drafting of 1:4,000 topographic map



Final drafting sheet, English annotation sheet, Thai annotation sheet and annotation list

Accuracy Control



Inspection of the results

CONTENTS

APPENDICES

1. Background

Bangkok metropolitan area, political, economic and cultural center of Thailand, has been suffering since 1960 the prevailing urban problems caused by drastic increase of population in the area such as over-population in the urban area, traffic congestion, inadequate housing development, increase of slum area, insufficient sewarage system, and further, chronic inundation owing to frequent floods of the Chaophraya river running through the center of the area.

The Royal Thai Government has been making efforts to prepare drastic and comprehensive urban plannings and to implement development programs on a priority basis, in order to improve such unfavourable conditions in the area and establish its sound environment.

To formulate correct, rational and comprehensive urban development plan, it is necessary to grasp actual state of the present Bangkok metropolitan area in detail and accurately, and urgently to prepare urban base map. The Royal Thai Government, thus, requested the Japanese Government in May 1985 for technical cooperation in topographical mapping of the Bangkok metropolitan area.

In response to the request for the technical cooperation, the Japanese Government sent preliminary survey missions in January and March 1986 to Thailand to discuss with the Bangkok Metropolitan Administration (hereinafter to be referred to as "BMA") on the proposed technical cooperation. As a result, scope of work for the topographic mapping of the Bangkok metropolitan area was agreed and signed by the Governments of Japan and Thailand. Based on the scope of work, the topographic mapping of the Bangkok metropolitan area (hereinafter to be referred to as "the project") was decided to be implemented under 3-year program starting in 1986 as the first year.

Outline of the project is as follows:

1:20,000	Aerial Photography (approx. 75 km x 54 km)	4,000 km^2
1:10,000	Topographic Mapping (Bangkok metropolitan area)	2,000 km^2
1:4,000	Topographic Mapping (principle area of Bangkok City)	300 km^2

In the above work, the following was conducted in the first year:

Aerial photography (1:20,000)	17 courses	4,000 km^2
Ground control point survey	67 points	
Leveling		
3rd order	50 km	
Minor order	250 km	
Pricking		
Control points	70 points	
Leveling points	400 points	
Field identification		
1:4,000 topographic map	300 km^2	
1:10,000 topographic map	1,700 km^2	

2. Outline of Second Year Work

2-1 Outline of Survey Work

In the second year work, following the first year, the indoor work such as the aerial triangulation, the stereo plotting and compilation of 1:4,000 and 1:10,000 topographic maps as well as the field completion in Thailand were carried out, and the original manuscripts were completed for the 1:4,000 and 1:10,000 topographic maps.

As for the 1:4,000 topographic map, furthermore, drafting (inking) was carried out in Japan and the annotation sheets (English and Thai versions) were completed for the final drafting sheets.

2-2 Outline of Project Area

Bangkok metropolitan area, the project area, consists of 24 administrative districts. The project area is lowlying land formed by floods of the Chaophraya River and has flat surface with average elevation of less than 2 m.

Bangkok City has developed outwards from the old city as the core, whee palaces and large temples (Wat) are located. Central area of the city is modernized with many multi-storey buildings.

Trunk roads radiate from Bangkok. However, roads in the city are not satisfactorily maintained with many blind alleys that were spontaneously formed. Canal networks develop extensively and form one of major transportation facilities together with roads and railways. Recently, part of canals are reclaimed for road use and construction of modernized highways is in progress.

Suburban area of Bangkok is generally agricultural land, where major product is rice, and other cultivation of vegetables, fruits, flowers including fish cultivation (particularly shrimp) and salt production are being made. Recently, along with drastic expansion of the urban area, part of the agricultural land is being transformed to residential area or industrial area for rice mills, sawmills, etc.

2-3 Period of Survey Work

Field Work

(Headquarters)	December 1, 1987 - January 29, 1988
(Field Completion)	December 4, 1987 - January 27, 1988

Home Office Work

(Aerial Triangulation)	August 11, 1987 - August 31, 1987
(Stereo Plotting)	September 1, 1987 - November 16, 1987
(Compilation)	September 16, 1987 - November 30, 1987
(Drafting)	December 1, 1987 - March 27, 1988

2-4 Formation of Survey Team and Field Work Period

Leader:	Tositomo KANAKUBO	December 1, 1987 - December 10, 1987
		January 20, 1988 - January 29, 1988
Deputy Leader:	Isao IKESHIMA	December 1, 1987 - January 29, 1988
Mapping Plannner:	Chozo OBARA	December 1, 1987 - January 29, 1988
Chief Surveyor:	Yoshikazu IBUSUKI	December 1, 1987 - January 29, 1988
Field Completion:	Kazuo FURUKATA	December 4, 1987 - January 27, 1988
Field Completion:	Mitsuo SUNAOSHI	December 4, 1987 - January 27, 1988
Field Completion:	Kazuya TABUCHI	December 4, 1987 - January 27, 1988
Field Completion:	Yasuo HONGO	December 4, 1987 - January 27, 1988
Field Completion:	Mitsuyoshi TAKASAKI	December 4, 1987 - January 27, 1988
Field Completion:	Kazuhiro ISHIZUKA	December 4, 1987 - January 27, 1988
Field Completion:	Hiroshi SAITO	December 4, 1987 - January 27, 1988
Field Completion:	Yasuki KONDO	December 4, 1987 - January 27, 1988
Field Completion:	Akimasa TAKAHASHI	December 4, 1987 - January 27, 1988
Field Completion:	Masashi KITA	December 4, 1987 - January 27, 1988

2-5 Work Volume

(1)	Aerial triangulation	17 courses	425 models
(2)	Stereo plotting	1:4,000	300 km^2 (40 sheets)
		1:10,000	1,700 km^2 (57 sheets)