

the symbols and specifications agreed upon by the Study Team and SD.

The sheet size of the compiled topographic maps shall be 12.5km x 12.5 km on the ground and the final sheet number shall be 81 as in Figure 1.

- (5) Discussion on map symbols and specifications
Map symbols and the specifications shall be discussed confirmed by both sides.

3-2 The Working schedule for the second year

- (1) The working period for the field identification starts from September 11, 1991 to November 28, 1991.
- (2) All the schedules of the second year works are shown in Figure 2.
- (3) The flow chart for the production of the topographic map is shown in Figure 3.

3-3 The working group and their assignments

Following table shows the members of the Study Team and their assignments for the second year.

Table
List of Members of the Study Team and the assignments
Second year (Phase 2)

Name	Assignment	Duration	Contents
Hiroyuki MATSUDA	Leader	9.11-- 9.30 11.13--11.28	1. Total management 2. General Discussion
Takehiko HIRANO	Deputy Leader	9.11--11.28	1. Sub Management 2. General Discussion 3. Assistance of the Leader 4. General Supervision
Mainoru MURATA	Mapping Planner	9.11--11.28	1. Fundamental Map Planner 2. General Coordination 3. Report Making
Tomoharu Yokota	Chief Surveyor	9.11--11.28	1. Planning of Study 2. Supervision of work 3. Coordination of work 4. Quality Checking
Tadaji KURATA	Mechanical Engineer	9.11--11.28	1. Management of Vehicle 2. Maintenance of Vehicle
Katsuyuki KONDOH	Surveyor	9.15--11.28	Field Identification
Hideki HIGASHI	Surveyor	"	"
Toshiaki KANADA	Surveyor	"	"
Masashi SUZUKI	Surveyor	"	"
Sizuya TAKAYANAGI	Surveyor	"	"
Yoshinobu SANUKI	Surveyor	"	"
Katsushige HIRATA	Surveyor	"	"
Tsuyoshi SEINO	Surveyor	"	"
Kenichi NOZAKI	Surveyor	9.15--10.4	Drawing and Printing

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4. Report

A field report shall be prepared by the Study Team at the end of the field identification.

5. Undertaking of SD

5-1 In order to facilitate the Study smoothly, SD shall take the following arrangement for the Study Team in cooperation with other related organizations;

- (1) To secure permission for the use of the communication facilities, including transceivers.
- (2) To coordinate the workers and drivers for the Study Team at their expense, if the Study Team requests.
- (3) To secure permission for the Study Team to take out all necessary data and documents, including the aerial photographs in connection with the Study.

5-2 SD shall, at its own expense, provide the Study Team with the following;

- (1) Suitable office space and facilities in Kathmandu,
- (2) Counterpart personnel,
9 counterparts for field identification.
- (3) Credentials or identification cards,
for 14 Japanese.
- (4) Information on administrative boundaries and geographical names at its full responsibility,
- (5) Available data and information on roads, public facilities and others.

6. Undertaking of the Study Team

The undertaking of the Study Team are as follows;

- (1) To carry out field identification in Nepal,
- (2) To carry out aerial triangulation, stereo plotting, and compilation in Japan,
- (3) To pursue technology transfer to the counterpart personnel during the Study.

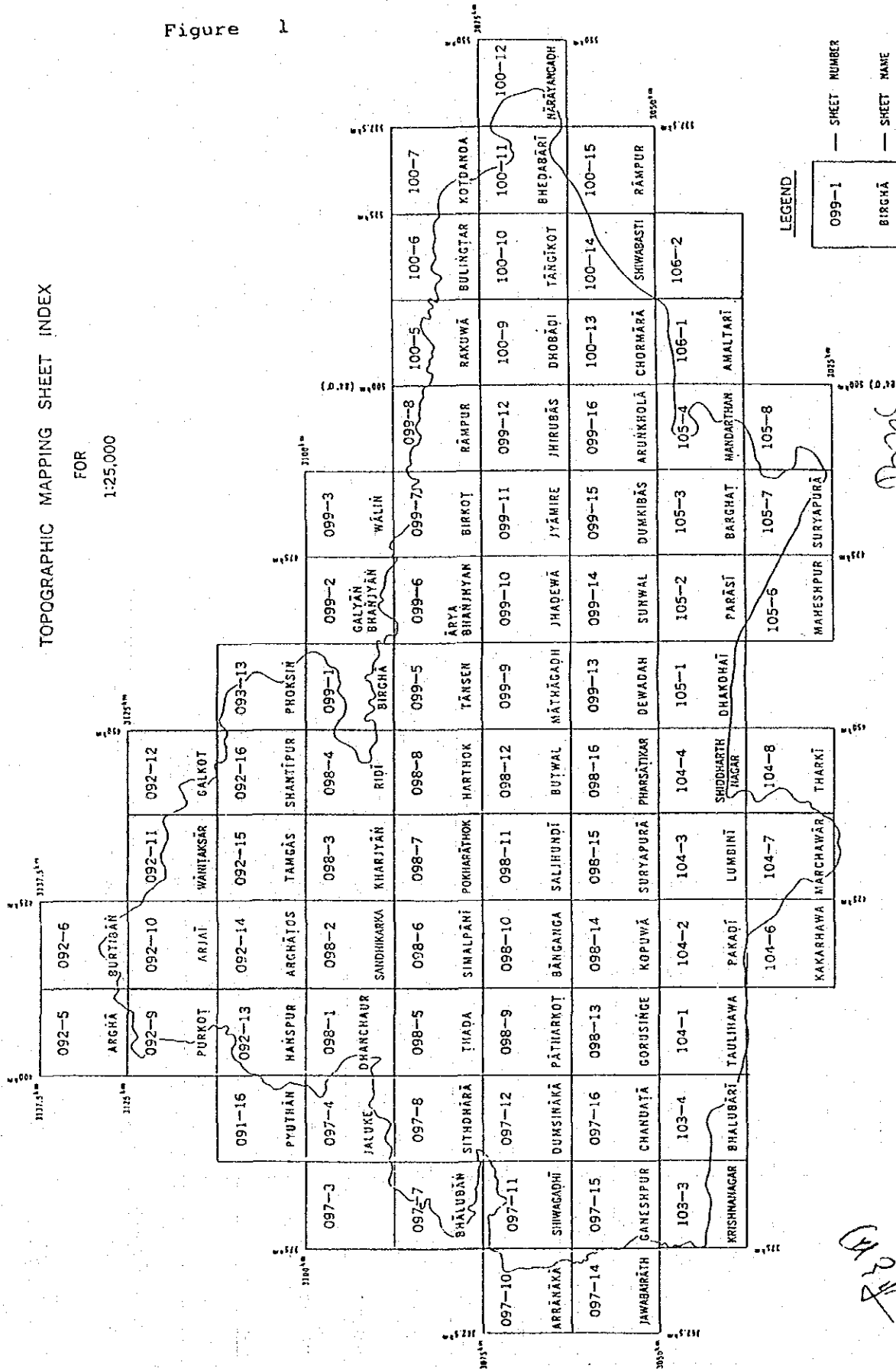
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TOPOGRAPHIC MAPPING SHEET INDEX

FOR
1:25,000

Figure 1



LEGEND
099-1 — SHEET NUMBER
BIRGHA — SHEET NAME

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G. P. S.

FIGURE 2 TENTATIVE WORKING SCHEDULE

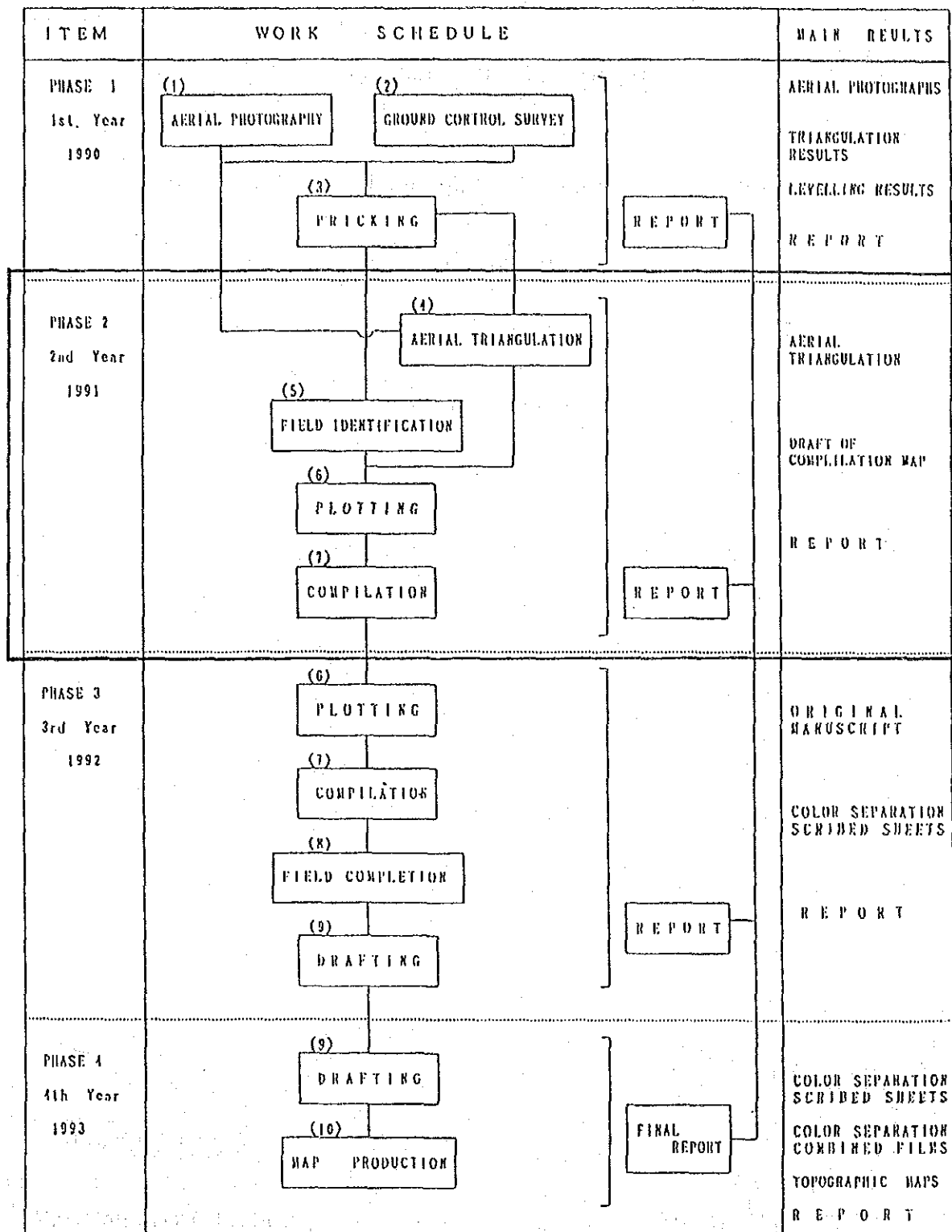
ITEMS	1990 (PHASE 1)			1991 (PHASE 2)			1992 (PHASE 3)			1993 (PHASE 4)															
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
AERIAL PHOTOGRAPHY																									
GROUND CONTROL SURVEY																									
LEVELLING, PRICKING																									
AERIAL TRIANGULATION																									
FIELD IDENTIFICATION																									
PLOTTING																									
COMPILATION																									
FIELD COMPLETION																									
DRAFTING																									
MAP PRODUCTION																									
INSPECTION																									
ANNUAL REPORT																									
DELIVERY OF GOODS																									

LEGEND : PREPARATION FIELD SURVEY WORK IN JAPAN DELIVERY

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FIGURE 3 FLOYCHART FOR THE PRODUCTION OF TOPOGRAPHIC MAPS



Remarks: 1. Field works in Nepal ; 2. Works in Japan

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MINUTES OF DISCUSSION

THE STUDY OF TOPOGRAPHIC MAPPING OF LUMBINI ZONE

IN NEPAL

BETWEEN

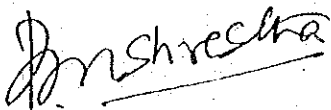
HMG SURVEY DEPARTMENT

AND

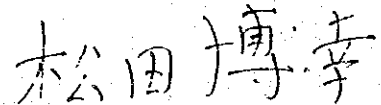
JAPAN INTERNATIONAL COOPERATION AGENCY

NOVEMBER 25, 1991

KATHMANDU



BUDDHI N. SHRESTHA
Director General
HMG SURVEY DEPARTMENT
NEPAL



HIROYUKI MATSUDA
Leader of Study Team
JAPAN INTERNATIONAL
COOPERATION AGENCY
JAPAN (JICA)

At the end of the field survey, as a part of Phase II activities joint meetings were held between HMG Survey Department and JICA Study Team during the period of November 21 to 25, 1991 at the office of HMG Survey Department, and the following items were discussed and agreed upon by both sides.

1. The Study Team expressed its sincere gratitude to SD and related organizations for their close cooperations.

SD expressed its appreciation and gratitude to the Study Team for the cooperations provided to SD.

2. JICA Study Team submitted the progress report to the second year survey works on Topographic Mapping in Lumbini Zone in Nepal (attached as Appendix 1).

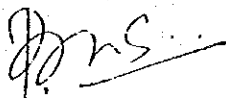
Both side discussed on the Report and confirmed that the field work was successfully conducted.

3. It was confirmed by both sides that officials nominated by SD and Study Team discussed and agreed on following items from September 18 to November 10, 1991 (attached as Annex 1-3):

- 3-1 The Map Specification and Symbols for 1:25,000 scale,
- 3-2 Topographic Map Sheet Index,
- 3-3 List of Sheet Number and Sheet Name,
- 3-4 The Marginal Information and Legend,
- 3-5 The Names of Colour applied for Printing.

4. SD requested the Study Team to complete the following sheet:
092-10, 092-16, 097-08, 097-12, 099-06, 5 sheets
The Study Team stated to make efforts as possible.

5. The Study Team requested SD to provide the geographical names already collected by SD by the middle of January 1992. SD stated to make efforts to provide on time.



6. It was discussed that some area which was not surveyed equally in the field identification, will be surveyed in the field completion period next year.

7. SD requested to arrange more trainings and observations for Nepalese counterpart personnel, at least two persons a year, in Japan through the project.

Study Team stated to convey the request to concerned JICA officials.



The list of attendants of the meeting

NEPALESE SIDE

(SURVEY DEPARTMENT)

1. MR. BUDDHI N. SHRESTHA	DIRECTOR GENERAL
2. MR. RAM N. SINGH	DEPUTY DIRECTOR GENERAL
3. MR. PUNYA P. OLI	PROJECT DIRECTOR
4. MR. RAJENDRA P. MARATHA	CHEIF SURVEY OFFICER
5. MR. RAJA RAM CHHATKULI	SENIOR SURVEY OFFICER

JAPANESE SIDE

(JICA STUDY TEAM)

1. MR. HIROYUKI MATSUDA	LEADER
2. MR. TAKEHIKO HIRANO	DEPUTY LEADER
3. MR. MAMORU MURATA	MAPPING PLANNER
4. MR. TOMOHARU YOKOTA	CHIEF SURVEYOR

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APPENDIX 1

PROGRESS REPORT
FOR
TOPOGRAPHIC MAPPING
OF
LUMBINI ZONE
IN
NEPAL

(SECOND YEAR FIELD WORK)

Field Identification

NOVEMBER 1991

JICA STUDY TEAM

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1. Outline of the Second Year Study

1-1 Background

Topographic Mapping of Lumbini Zone was set forth upon in the agreement on Technical Cooperation between the His Majesty's Government of Nepal and the Government of Japan signed on February 28, 1990 for 38 months.

The first year works of the Study have been already carried out as aerial photography, ground control points survey, leveling and pricking from October 1990 to March 1991.

This second year works consist of aerial triangulation, field identification, stereo plotting and compilation.

The aerial triangulation was already carried out in Japan.

1-2 Period of Survey Work

Field Work

(Headquarters) 11 September - 28 November, 1991

(Field Identification) 15 September - 28 November, 1991

(Home Office Work)

Aerial Triangulation 17 July - 10 September, 1991

Map Plotting and Complition 29 November - 26 March, 1992

1-3 Formation of Study Team

Leader Mr. Hiroyuki MATSUDA 11 Sept. - 30 Sept., 1991
14 Nov. - 28 Nov., 1991

Deputy Leader Mr. Takehiko HIRANO 11 Sept. - 28 Nov., 1991

Mapping Planner Mr. Mamoru MURATA 11 Sept. - 28 Nov., 1991

Chief Surveyor Mr. Tomoharu YOKOTA 11 Sept. - 28 Nov., 1991

DMS

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Mechanical Engineer Mr.Tadaji KURATA 11 Sept.-28 Nov. ,1991

Field Identification

Surveyor Mr.Katsuyuki KONDO 15 Sept.-28 Nov. ,1991

Surveyor Mr.Toshiaki KANADA 15 Sept.-28 Nov. ,1991

Surveyor Mr.Masashi SUZUKI 15 Sept.-28 Nov. ,1991

Surveyor Mr.Hideki HIGASHI 15 Sept.-28 Nov. ,1991

Surveyor Mr.Shizuya TAKAYANAGI 15 Sept.-28 Nov. ,1991

Surveyor Mr.Nobuyoshi SANUKI 15 Sept.-28 Nov. ,1991

Surveyor Mr.Katsushige HIRATA 15 Sept.-28 Nov. ,1991

Surveyor Mr.Tsuyoshi SEINO 15 Sept.-28 Nov. ,1991

Cartographer Mr.Ken-ichi NOZAKI 15 Sept.- 4 Oct. ,1991

1-4 Supervision of the Field Work

During the second year field work, the following advisers were sent to Nepal by JICA for a technical meeting with SD and the supervision of the field work.

Mr.Mitsuo IWASE Staff, Planning Department,
Geographical Survey Institute,
Ministry of Construction

24 September, 1991 - 3 October, 1991

Mr.Masayuki FUKUMURA Staff, General Affair Division,
Hachioji International
Training Center, JICA

24 September, 1991 - 3 October, 1991

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1-5 Cooperation of Counterparts of SD

Project Director	Mr. Punya P. Oli
Survey Officer	Mr. Dilip Kumar Verma
Survey Officer	Mr. Shashi Kant Jha
Survey Officer	Mr. Krishna Kant Chaudhary
Survey Officer	Mr. Bhoja Raj Bastola
Surveyor	Mr. Ghan Shyan Shukla
Surveyor	Mr. Ram Bilash Manohar
Surveyor	Mr. Rama Kant Acharya
Surveyor	Mr. Dhirendra Prasad Dev
Surveyor	Mr. Ram Shrestha Kapad
Surveyor	Mr. Dhruva Narayan Sing Thapa
Surveyor	Mr. Biswanath Bhandari

1-6 Amount of the Survey Work (Plan and Result)

Works executed upto date are shown in Table-1 and area of the Field Identification is shown in Figure 1.

Table-1

Item	Original Plan	Results
Aerial Triangulation	448 models	501 models
Field Identification	9,000 sq.km	9,000 sq.km
Plotting and Compilation	3,500 sq.km	--- sq.km

Ans

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2. Field Work

2-1 Field identification

The topographic features, land use, vegetation and other information necessary for terrain representation were identified in the field using aerial photographs by Japanese and Nepalese surveyors. All the items to be indicated on the maps have been checked and confirmed successfully in whole project area.

2-2 Boundaries and Geographical Names

Some part of administrative boundaries and geographical names were also collected by Nepalese counterparts.

3. Technical discussions

Map symbols, the specifications, marginal information, printing colors and others, have been discussed and finalized on the materials provided by both sides.

4. Domestic works in Japan

4-1 Aerial triangulation

Aerial triangulation, 501 models (whole area), was carried out in July, 1991 by analytical block adjustment method.

4-2 Stereo plotting

Stereo plotting shall be carried out at a scale of 1:25,000 with stereo plotter, total area 3,500 sq km. The UTM (3 degree zone) shall be applied for the projection. Height control points shall be used as check points in a model.

4-3 Compilation

Map compilation shall be executed in accordance with the symbols and specifications agreed upon by the Study Team and SD.

The sheet size of the compiled topographic maps shall be 12.5km x 12.5km on the ground and the final sheet number shall be 81 sheets as in Figure 1.

All of the above works shall be carried out by the end of March, 1992.

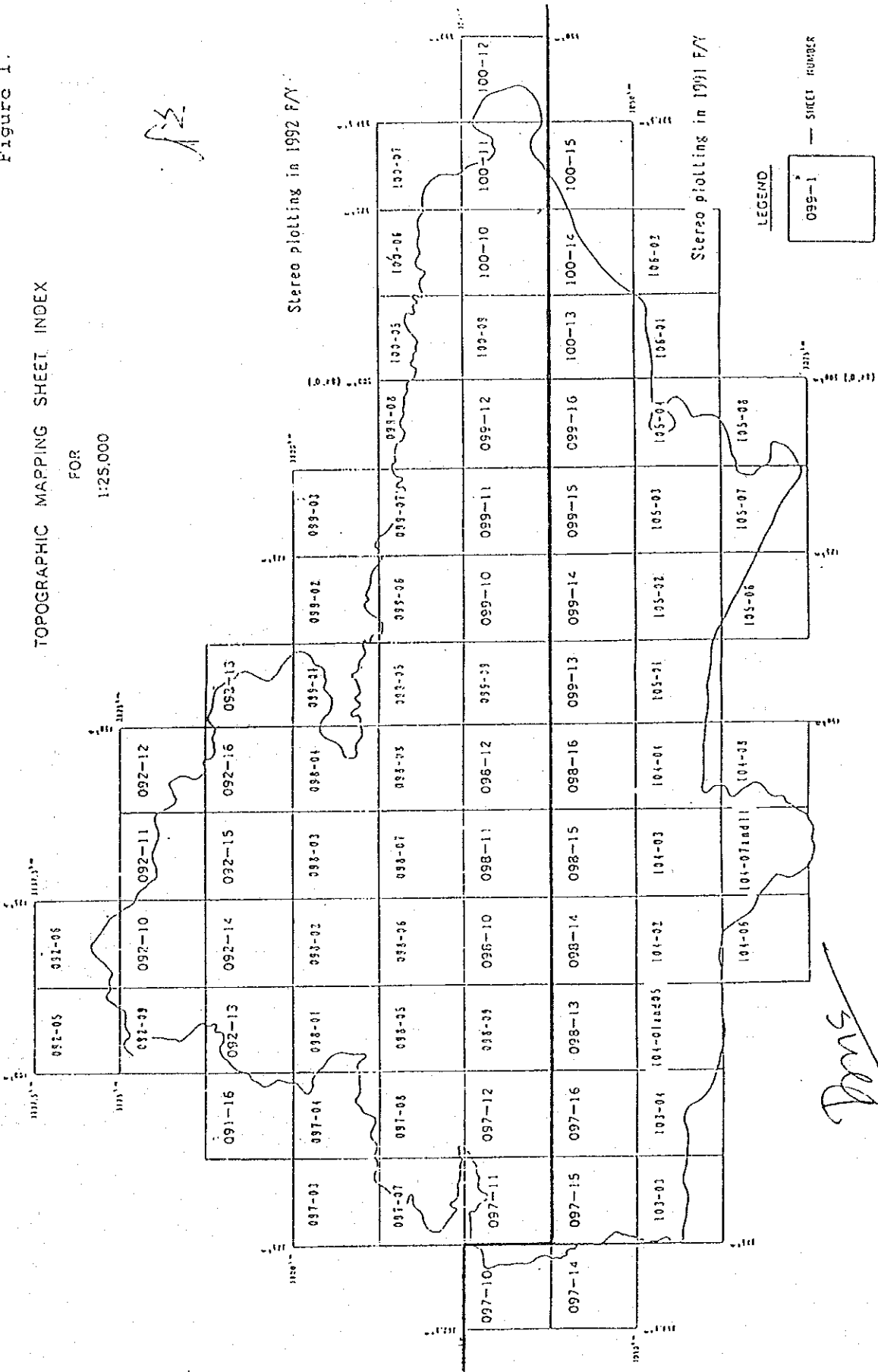
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Figure 1.

TOPOGRAPHIC MAPPING SHEET INDEX

FOR
1:25,000



The Study of Topographic Mapping of Lumbini Zone in Nepal

Symbol and Specification

NOVEMBER 1991

Dr. S. S. S. S.

松田博之

Japan International Cooperation Agency

The Symbol design and specifications of the study of Topographic Mapping of Lumbini Zone in Nepal are based on the following materials and principle.

I. Referential Symbols

1. Existing Nepalese topographic Symbols
ICM Survey Department
2. 1/25,000 topographic map symbols
Geographical Survey Institute, Ministry of Construction (enacted 1986)
3. 1/25,000 National basic map symbols
Made by JICA
4. 1/25,000 Philippine topographic map symbols

II. Principle of Color Expression used in 1/25,000 Topographic Map.

Control points, Road, Railway, Buildings, Building symbols, Other constructions, National Boundary	Black
Administrative boundary, Annotation, Special area, Flow arrow, Fords,	Black
Contour, Earthen escarpment, Rocky escarpment, Cliffs	Brown
1st and 2nd class roads, National park boundary	Red
Rivers, Lakes and Ponds, Swamp, Well, Fountain, Water tap, Contour lines on the glacier water fall	Blue
Vegetation	Green

III. Line thickness and width

Line No.	Thickness of line	Remark
No. 0 (Special)	0.08mm	Permissible error in delineation shall be ± 0.01 mm in each line number.
No. 1	0.10mm	
No. 1 (Special)	0.15mm	
No. 2	0.20mm	
No. 3	0.30mm	



















IV. Basic conditions for expression

1. The shapes of lakes, ponds, etc., shall be indicated in accordance with the photographs taken at the time of aerial photography.
2. Roads, rivers, transmission lines etc., which are thin and difficult to interpret in the aerial photos, shall not be indicated.

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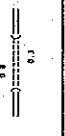
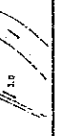
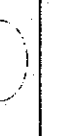
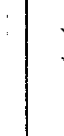
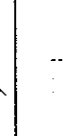


(17)

圖式および圖式適用規程表 (MAP SYMBOL AND APPLICATION RULES)

ITEMS 分類	No.	NAME 名称	MAP SYMBOL 地圖記号	LINE/POINT 線号	COLOR 色	CLASSIFICATION 現況記号	PLOTTING 圖化記号	EDITING 編集記号	APPLICATION RULES 圖式適用規定
1		三角点 Triangulation point		Dot 0.2mm Line 0.1mm	Black	△	△	△	1st and 2nd order triangulation points and newly established control points measured in this project shall be indicated.
2		水没点 Flood mark		Dot 0.2mm Line 0.1mm	Black	□	□	□	Search marks printed in this project shall be indicated.
3		標高の測定点 Spot height		Dot 0.3mm	Black	Photogrammetrical plotting		○	Elevation points measured by the stereo plotter shall be indicated in meters.
4		水面高さ Water surface elevation		0.1mm	Blue	Photogrammetrical plotting		○	Water surface elevation shall be indicated at the time of aerial photography. The height shall be in meters.
5		等高線 Contour		Intermediate contour line 0.08mm Index contour line 0.15mm Supplementary contour line 0.08mm	Brown Blue (factor)	Photogrammetrical plotting		○	1. Contour on the snow covered area shall be indicated in blue. 2. The adjoining contours on the steep area can be omitted if they are less than 0.2mm on the map.
6		窪地 Depression (large) (small)		0.08-0.15mm	Brown	Photogrammetrical plotting		○	Land surface partially depressed to some extent, which can be expressed by contour lines, shall be indicated by this symbol.
7		土切り Soil cliff 崖 Cliff (rock)		Large 0.1mm Small 0.1-0.3mm	Brown Brown	Photogrammetrical plotting		○	Cliff (soil) symbols shall be used to land slide slopes, cuttings, embankments, etc. Bigger ones 3.0m in height and 3.0mm in length shall be indicated as (large). Cliffs with a width within 0.5mm shall be indicated as 0.5mm on the map.
8		岩 Rocks (large) (small)		0.1mm	Brown	Photogrammetrical plotting		○	Cliff (rock) symbols shall be used to land slide slopes, cuttings, embankments, etc. Those bigger than 10.0m in height and longer than 5.0mm shall be indicated on the map. Smaller ones shall be indicated as 0.5mm on the map.
9		砂 Sand and gravel areas		Large dots 0.15mm Small dots 0.1mm	Brown	Photogrammetrical plotting		○	1. Rocks bigger than 2.0m x 2.0m on the map shall be indicated as (large), and rocks smaller than these but bigger than 1.0m x 1.0m on the map shall be indicated as (small). 2. Rocks indicated on the slope shall be partly omitted from the higher side of the line.
10		砂と砂地 Sand and gravel areas		Large dots 0.15mm Small dots 0.1mm	Brown	Photogrammetrical plotting		○	1. The areas covered with sand and gravel shall be indicated by (big) or small dots, according to its position. 2. Those larger than 5.0m x 5.0m or 3.0m x 3.0m shall be indicated on the map. But, the ones smaller than this criteria shall be indicated.

図式および図式適用規程表 (MAP SYMBOL AND APPLICATION RULES)

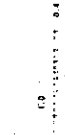
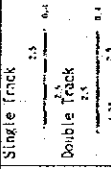
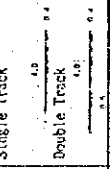
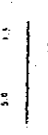
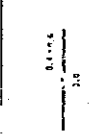
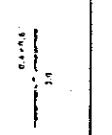
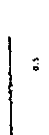

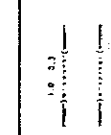

No. 2

ITEMS 分類	MAP SYMBOL 地圖記号	LINE/POINT 線号	COLOR 色	CLASSIFICATION 分類記号	PLOTTING 圖化記号	EDITTING 填寫記号	APPLICATION RULES 圖式適用規程
11	沼地 Swamp 	0.1mm	Blue	Green Blue	Green Blue	Green Blue	Swamp, as referred to here, is always wet and has a soft bottom with water vegetation. It shall be indicated larger one than 0.5cm x 0.5cm on the map.
12	水跡線 (河川) Water's edge (River) 	0.1~0.3mm	Blue	Blue	Blue	Blue	Water edge, as referred to here, is a line which distinguishes the land from water area, and the river area shall be indicated through photogrammetrical plotting. Small concave-convey areas can be neglected. Water edge shall not be indicated if the rocks of the wall are adjacent to the water area.
13	河川 River 	0.1~0.3mm	Blue Surface Blue not 30%	Blue	Blue	Blue	Rivers with a width of over 0.3mm on the map shall be indicated as double line streams, and those under 0.3mm on the map, as single stream line. Those a width of 40.0mm on the map and a width of 1.5m at the time of aerial photography shall be indicated.
14	地下の水路 Underground aqueduct 	0.2mm	Blue	Blue	Blue	Blue	Underground aqueduct shall be indicated with the entrance and exit symbols, and based on 30% materials, the underground part shall be indicated with a dashed line.
15	流水方向 Direction of flow 	0.2mm	Black	Black	Black	Black	1. Direction of flow shall be indicated at the area where the flow direction is difficult to read on the map. 2. If it is difficult to indicate the flow arrow symbol in the river because of lack of space, it shall be indicated at the outer area of the river.
16	湖・池等 lake, Pond 	0.1cm	Blue Surface Blue not 30%	Blue	Blue	Blue	Lake and ponds shall be indicated as generally larger than 1.0mm x 1.0mm on the map
17	かれ池等 Non-perennial lakes, ponds 	0.1cm Dot 0.15mm	Blue Brown	Blue	Blue	Blue	1. This symbol shall be used to indicate non-perennial lakes and ponds which are full of water in the wet season. 2. Non-perennial lakes and ponds shall be indicated as generally larger than 1.0mm x 1.0mm on the map.
18	陥 Fall (大) (large) (小) (small) 	Line 0.2mm Dot 0.2mm	Black	Black	Black	Black	Falls with a height of more than 10m shall be indicated. Falls which are 300m landmarks or famous, in spite of a height of less than 10m, shall be indicated.
19	河川 In intermittent river 	Line 0.1cm Dot 0.2mm	Blue Brown	Blue	Blue	Blue	1. This symbol shall be used to indicate the non-perennial river and streams. 2. Non-perennial rivers longer than 10.0mm on the map shall be indicated like the river symbol.
20	1級道路 (幅員 7.0~25.0m) 1st class road (width 7.0~25.0m) 	Line 0.2mm	Black Highway Red not 50%	A: Highway B: Important connecting road	A: Highway B: Important connecting road	A: Highway B: Important connecting road	Used to indicate a road with a width of 7.0m to 25m

図式および図式適用規程表 (MAP SYMBOL AND APPLICATION RULES)

ITEM 分類	NAME 名 称	MAP SYMBOL 地図記号	LINE/POINT 線 号	COLOR 色	CLASSIFICATION 現況記号	PLOTTING 図化記号	EDITING 編集記号	APPLICATION RULES 図式適用規程
21	2級道路 (幅員 4.0~7.0m) 2nd class road (width 4.0~7.0m)		Line: 0.1mm	Black Red ver 50%	II B A: Highway B: Important connecting road	II B Red	A B A: Highway B: Important connecting road Black	Used to indicate a road with a width of 4.0m to less than 7.0m.
22	3級道路 (幅員 2.0~4.0m) 3rd class road (width 2.0~4.0m)		0.1mm	Black	III Red	III Red	III Black	Used to indicate a road with a width of 2.0m to less than 4.0m.
23	4級道路 (幅員 1.5~2.0m) 4th class road (width 1.5~2.0m)		0.25mm	Black	IV Red	IV Red	IV Black	Used to indicate a road with a width of 1.5m to less than 2.0m.
24	その他道路 (幅員 1.5m未満) Main trail Footpath		0.25mm 0.15mm	Black	M: Main trail 2 Red	M 2 Red	M 2 Red	Used to indicate a road with a width of less than 1.5m.
25	建設中の道路 Road under construction		0.1mm~0.25mm	Black	IA, IB, II, III A: Highway B: Important connecting road Red	II, B, III Red	IA, IB, II, III Black	Used to indicate a road more than 2m wide constructed during the field identification. The completion of this road shall take more than one year.
26	道路橋 (1級~3級道路) Road bridge (1st ~ 3rd road)		0.1mm 0.2mm	Black	IA, IB, III Red	IA, II, B, Black III Red	IA, II, B, Black III Brown	Road bridges of more than 20.0m in length shall be indicated. Those in a two-level crossing, suspension bridges, those crossing over the rivers through bents or walls, and those which are famous, shall also be indicated, in spite of a width of less than 20.0m.
27	道路橋 (4級~その他道路) Road bridge (4th ~ Other road)		0.1mm 0.2mm	Black	IV 2 Red	IV Red	IV Black Red	Entrance and exit of the tunnel shall be indicated by this symbol.
28	トンネル Tunnel		Line: 0.1mm 0.25mm 0.2mm	Black	III Red	III Black	III Black	The level crossing shall be indicated according to the class width of each road.
29	平面交差 Level crossing		0.1~0.25mm	Black	Same as map symbol Red	Same as map symbol Black	Same as map symbol Black, Red	Same as tunnel symbol 28.
30	立体交差 Over pass Under pass		0.1~0.25mm	Black	Red	Black	Black	

図式および図式適用規程表 (MAP SYMBOL AND APPLICATION RULES)

ITEMS 分類	NAME 名	MAP SYMBOL 地図記号	LINE/POINT 線号	COLOR 色	CLASSIFICATION 分類記号	PLOTTING 図化記号	EDITTING 図式記号	APPLICATION RULES 図式適用規定
31	遊歩道 Park lane		0.4mm	Black	IP	III P	III P	The park lanes, residential area lanes, factory lanes and other lanes not in service shall be indicated as roads with a width of 0.4mm unit. But, park lanes with a width of less than 0.4mm on the map shall be indicated as 0.4mm.
32	普通軌道 Normal gauge		0.4mm	Black	FI 1: Single Track 2: Double Track	—	—	1. Normal gauge shall be distinguished as single track and double track. 2. Double track symbol shall start from the next station if it is constructed between both stations. 3. Symbol line and railway center line shall be indicated as coincident.
33	狭軌道 Narrow gauge		0.4mm	Black	KI 1: Single Track 2: Double Track	—	—	
34	索道 Aerial cable lift		0.4mm	Black	SR	—	—	1. Aerial cable lifts refer to ropeway, goods lift, belt conveyor etc. A durable aerial cable shall be indicated for map usage. 2. If the aerial cable lift intersects the railway or the road, symbols shall coincide each other. 3. If the aerial cable lift and the road are in the same area, the aerial cable lift shall be indicated on the side of the road symbols.
35	普通軌道駅 Normal gauge station		Line 0.4mm 0.4X0.6mm	Black	FI 1: Simple Station 2: Platform Station	—	—	1. Stations, here, refer to common and simple stations. 2. Through photogrammetrical plotting, stations shall be indicated in platform shape. 3. Signal station, shunting station, freight station, all without platforms, shall be indicated with a very small symbol.
36	狭軌道駅 Narrow gauge station		Line 0.4mm 0.4X0.6mm	Black	KI 1: Simple Station 2: Platform Station	—	—	
37	索道駅 Aerial cable lift station		0.4mm	Black	SR	—	—	Stations, here, refer to common and simple stations.
38	鉄道橋 Railway bridge		0.2mm	Black	FI 1: Simple Bridge 2: Platform Bridge	—	—	The symbol that shall indicate the railway bridge shall be the same as the road bridge symbol 2b.
39	鉄道トンネル Railway tunnel		Line 0.1mm 0.2mm	Black	—	—	—	The railway tunnel symbol shall be the same as the road tunnel.
40	渡船 Ferry boat (大) (中) (小) (small)		0.4mm	Black	—	—	—	Ferries crossing rivers or lakes as transportation service for passengers cars, etc., shall be indicated.

図式および図式適用規程表 (MAP SYMBOL AND APPLICATION RULES)











ITEMS 分類	No.	NAME 名称	MAP SYMBOL 地図記号	LINE/POINT 線号	COLOR 色	CLASSIFICATION 現用記号	PLOTTING 図化記号	EDITING 編集記号	APPLICATION RULES 適用規定
11		渡り場 ford	June 15 ~ Oct. 1 	Dx1 0.3cm	Black			Same as map symbol	Used to indicate fords that can be crossed only during the dry season. This period shall be indicated through the 3D materials.
12		せき (大) Dam (小) (Small)		0.1mm	Black			Same as map symbol	1. Piers placed across the river bed for water flow control or water intake, shall be indicated. Their width a length of more than 1.0mm on the map shall be indicated as (large), and smaller ones as (small).
13		独立建物 Separate buildings			Black			Same as map symbol	Separate buildings, which are more than 0.4mm at the shorter side on the map, shall be indicated. Those smaller than this shall be indicated as 0.4mm on the map, if necessary.
14		総括建物 Generalized buildings		0.1mm	Black for screen 30%		Shall be indicated as separate, at the plotting		Generalized building symbols shall be used if the buildings are located close to each other and are difficult to indicate as independent ones.
15		中高層建物 High-rise buildings		0.1mm	Black			Same as map symbol	High-rise buildings which have more than five floors shall be indicated by this symbol.
16		建物周辺の構造物 Sheds, greenhouses etc.		0.1mm	Black			Same as map symbol	Structures resembling buildings such as sheds, greenhouses, oil tanks, etc., shall be indicated by this symbol.
17		石公署等の建物 Administrative office		0.1mm	Black			Same as map symbol	Administrative offices shall be indicated with abbreviated notes.
18		保健所 Health center		0.1mm	Black			Same as map symbol	Used to indicate health centers. Big ones shall be annotated.
19		学校 School		0.1mm	Black			Same as map symbol	Used to indicate primary, middle, high school and university.
20		病院 Hospital		0.1mm	Black			Same as map symbol	Used to indicate hospitals and clinics.

図式および図式適用規程表 (MAP SYMBOL AND APPLICATION RULES)

No. 4

ITEMS 分類	MAP SYMBOL 地図記号	LINE/POINT 線号	COLOR 色	CLASSIFICATION 現用記号	PLOTTING 図化記号	EDITTING 盛装記号	APPLICATION RULES 図式適用規定
51	製粉所 Mill/Factory	0.1mm	Black	⌘	⌘	Same as map symbol	1. Used to indicate mills. 2. Large ones shall be annotated.
52	ヒンドウ教寺院 Temple/Shrine	0.1mm	Black	⌘	⌘	Same as map symbol	1. Used to indicate Hindu Temples. 2. Symbol shall be indicated upright against the bottom margin.
53							Strike out a section
54	イスラム教寺院 (モスク) Mosque	0.1mm	Black	⌘	⌘	Same as map symbol	1. Used to indicate Islamic mosques. 2. Symbol shall be indicated upright against the bottom margin.
55	キリスト教寺院 (教会、礼拝堂) Church	0.1mm	Black	⌘	⌘	Same as map symbol	1. Used to indicate Christian churches. 2. Symbol shall be indicated upright against the bottom margin.
56	変電所 Transformer station	0.1mm	Black	⌘	⌘	Same as map symbol	1. Transformer stations which are good landmarks shall be indicated. The circumference of the transformer station larger than 1.5mm the shorter side of the map shall be encircled with the transmission line symbol 70.
57	送電塔 Electric Pylon	0.1mm	Black	⌘	⌘	Same as map symbol	1. The electric pylon shall be indicated through photogrammetrical plotting.
58	電波塔 Radiotransmission tower	0.1mm	Black	⌘	⌘	Same as map symbol	1. The important radio wave towers used for the transmission and reception of the radio, TV, wireless telegram etc. shall be indicated. 2. It's real location shall be indicated in the central part at the bottom of the symbol.
59	観望塔 View tower	0.1mm	Black	⌘	⌘	Same as map symbol	1. A circle which is more than 0.9mm in diameter shall indicate the view tower on the map. 2. The view tower's shape shall be indicated with a circle and a foundation.
60	給水塔 Water tower	0.15mm	Black Min: 100%	⌘	⌘	W O	Used to indicate high water tower and water tank etc. seen on the ground.

图式符号图式通用规范表 (MAP SYMBOL AND APPLICATION RULES)

ITEM No.	NAME	MAP SYMBOL	LINE/POINT	COLOR	CLASSIFICATION	PLOTTING	EDITTING	APPLICATION RULES
项号	名称	地图符号	线/点	色	图式编号	图式编号	图式编号	应用规定
61	貯水槽 (池) Water tank		0.15mm	Black Blue 100%	W □	W □	Black, Blue	used to indicate water tank, swimming pool, open on the ground.
62	纪念碑 Monument		0.15mm	Black	△	△	Black	1. Used to indicate good landmarks such as monuments, clock tower and statue. 2. Real positions shall be indicated in the central part at the bottom of the symbol.
63	煙突 Chimney		0.1mm	Black	┆	┆	Black	1. Only big chimneys shall be indicated on the map. 2. Real positions shall be indicated in the central part at the bottom of the symbol except for the shadow. 3. Movable chimneys such as those used for burning bricks shall not be indicated.
64	井·泉 Well / Fountain Spring		0.1mm	Blue	○	○	Blue	Only used to indicate the publicly important ones.
65	水塔 Water top		Line 0.3mm	Blue	○	○	Blue	Only used to indicate the publicly important ones.
66	水处理设施 Water treatment plant		0.15mm	Blue Blue oblique line	▭	▭	Blue	Only used to indicate the publicly important ones.
67	栅栏 Fence		0.2mm	Black	—	—	Black	Used to indicate fences made of bricks, concrete and other materials. The fence shall be indicated as more than 2.0m in height and 5.0 cm in length on the map.
68	牆壁 (大) (B14) (小) (Small)		0.1mm	Black	—	—	Black	1. Used to indicate walls which are constructed from concrete or stones to protect the river shores or slopes. It shall be indicated as more than 2.0m in height and 5.0cm in length on the map. 2. If the width of the wall is less than 0.5cm on the map, it shall be indicated as (Small). If the width is more than 0.5cm, it shall be indicated as (Big).
69	坑口 (洞口) (entrance)		0.15mm	Black	—	—	Black	Used to indicate the cave entrance, formed naturally, such as mining entrance, tunnel (road, railway, canal etc.)
70	送电线路 (杆塔) Transmission line		0.1mm	Black	—	—	Black	Used to indicate transmission lines with high towers. This symbol shall not be indicated, if the intervals are less than 0.5cm on the map from the road or the railway symbol line.

图式符号式通用规程表 (MAP SYMBOL AND APPLICATION RULES)

ITEMS 分列	NAME 名称	MAP SYMBOL 地图符号	LINE/POINT 线/点	COLOR 颜色	CLASSIFICATION 分类符号	PLOTTING 图式符号	EDITING 编图符号	APPLICATION RULES 应用规则
71	管道符号 Pipeline (single)	Surface 0.1 Underground 0.3	Tick 0.1mm Thick line 0.2mm	Water ... Blue Petroleum ... Blue Gas ... Black	Water Petroleum Gas	Blue Red	Same as map symbol	1. Pipeline shall be adopted to transport water, petroleum, gas, etc. Pipeline shall be classified on the ground or under the ground, and it shall be indicated as a good landmark in the fields with few man-made works. 2. If the under ground pipeline overlaps with other symbols identical to its color on the ground, its symbol shall be omitted by other overlapping identically colored symbols. 3. Under ground pipeline shall be indicated by a dotted line based on 30's materials. 4. Multiple pipelines, as referred to here, are constructed in parallel conditions.
72	管道符号 Pipeline (Multiple)	Surface 0.2 Underground 0.3	0.1mm	Water ... Blue Petroleum ... Blue Gas ... Black	Water Petroleum Gas	Blue Red	Same as map symbol	Dams constructed across the river for flood control or water intake, shall be indicated by this symbol. Dams more than 3.0m in height and 0.1mm in length on the map, shall be indicated as large.
73	水闸 Dam (Big) (A) (small)		0.1mm	Black	(Big) (small)	Green	Same as map symbol	
74	水利 Groin		0.2mm	Black	water	Black	Same as map symbol	Groins, as referred to here, are constructed to protect the shores and control running water. Regardless of their types, groins which are exposed over the water surface at ordinary water level, shall be indicated as more than 2.0mm on the map.
75	防波堤 Breakwater		0.3mm	Black		Black	Same as map symbol	1. Breakwaters, here, include piers quay, etc. and shall be indicated as more than 1.0mm in length on the map. 2. Map symbol (99/101) shall indicate those with a width of 0.2mm on the map.
76	植被界 Vegetation boundary		0.1mm	Green		Green	Same as map symbol	1. Vegetation boundary shall be adopted for the classification boundary of the different kinds of vegetation. 2. The boundary shall be indicated as more than 1.0cm x 1.0cm or 5.0mm x 10.0mm on the map.
77	耕地 Cultivated land		Green and 10%	Green		Green	Same as map symbol	1. Cultivated lands shall be adopted for paddy fields, upland fields, etc. and other seasonal farm products. 2. An area larger than 1.0cm x 1.0cm or 5.0mm x 10.0mm on the map shall be indicated.
78	果园 Orchard		Green dot pattern (Large dot)	Green		Green	Same as map symbol	1. The fruit orchard symbol shall be used to indicate lands where apples, oranges, pineapples, grapes, etc. are planted. 2. An area larger than 1.0cm x 1.0cm or 5.0mm x 10.0mm on the map shall be indicated.
79		Green dot pattern (Small dot)	Green		Green	Same as map symbol	1. The nursery symbol shall be used to indicate the land where saplings for afforestation are planted. 2. An area larger than 1.0cm x 1.0cm or 5.0mm x 10.0mm on the map shall be indicated.	
80	森林 Wood (Thicket forest)		Green and 50% 0.1mm	Green		Green	Same as map symbol	1. The dense forest symbol shall be used to indicate the land where broad-leaved trees and needle-leaved trees grow thickly. 2. An area larger than 3.0cm x 3.0cm or 1.5cm x 5.0cm on the map shall be indicated.

图式および图式適用規程 (MAP SYMBOL AND APPLICATION RULES)

ITEM No	NAME	MAP SYMBOL 地圖記号	LINE/POINT 線号	COLOR 色	CLASSIFICATION 現況記号	PLOTTING 圖化記号	EDITING 編集記号	APPLICATION RULES 圖式適用規程
81	神林 Wood (Open wood)		Green, not 30% 0.1mm	Green	S	S	S	1. The open forest symbol shall be used to indicate the land where broad-leaved trees and needle-leaved trees grow apart from each other and some of the parts that are not covered with trees. 2. An area larger than 3.0cm x 3.0cm or 1.5cm x 5.0cm on the map shall be indicated.
82	小水が通じつた空地 Shrub		Green, not 30% 0.1mm	Green	ih	ih	ih	1. The scrub symbol shall be used to indicate the land where few trees, grasslands, bare lands, etc. are scattered. 2. An area larger than 3.0cm x 3.0cm or 1.5cm x 5.0cm on the map shall be indicated.
83	防風林 Row trees		0.1mm	Green	a	a	a	Used to indicate road side trees, border trees of village, wind-protection trees, etc.
84	独立樹 Single tree		0.1mm	Green	Q	Q	Q	Used to indicate high and big trees which are remarkable landmark in the park, cultivated land, etc.
85	特定地区界 Individual area boundary		0.1mm	Black	-----	-----	-----	This symbol shall be used to indicate special areas such as meadows, golf courses etc. which are not symbolized. Annotations shall be added, if necessary.
86	競技場 Sports ground		0.15mm	Black				1. Only famous sports ground shall be indicated and this area shall be enclosed with the individual area boundary symbol 87. The shape of the track etc. shall be outlined by the symbol inside of the sports ground. 2. Sports ground with stands shall be indicated with building symbol 46.
87	墓地 Cemetery / Crematory		0.1mm	Black	1	1	1	Large cemeteries, 3.0cm x 3.0cm on the map, shall be indicated by this symbol with the individual area boundary symbol 85.
88	熱水 Hot springs		0.1mm	Black	♨	♨	♨	1. Only famous hot springs shall be indicated. 2. The symbol shall be indicated at the location of the source. If there are many sources, the main sources shall be indicated.
89	採石地 Quarry		0.1mm	Brown		Same as map symbol	Same as map symbol	1. A quarry is a place where construction materials for building and engineering works are mined. Only important ones shall be indicated. 2. The symbol shall be indicated in the central part of the quarry. 3. The symbol shall be indicated with the cliff symbol 3 in accordance with the top conditions.
90	砂河・粘土採取地 Gravel, clay pit		Dot 0.1mm 0.2mm	Brown		Same as map symbol	Same as map symbol	Used to indicate the gravel and clay pit where construction materials for building and engineering works are mined. Only important ones shall be indicated.

图式符号图式通用规范 (MAP SYMBOL AND APPLICATION RULES)

ITEMS 分组	No.	NAME 名称	MAP SYMBOL 地图符号	LINE/POINT 线/点	COLOR 色	CLASSIFICATION 规范符号	PLOTTING 图式符号	EDITING 图式符号	APPLICATION RULES 图式通用规范
91		废墟 Ruins		0.1mm	Black			Same as map symbol	1. Ruins, here, refer to castle ruins, camp ruins and historical remains, which keep stone walls, steps etc. 2. Famous historical places that are difficult to recognize as ruins or remains, shall be indicated on the map. 3. The historical remains shall be enclosed with the individual.
92		滑道 (索道) Runway (Harp)		0.1mm	Black			Same as map symbol	Runway (Harp) shall be indicated by this symbol with the airport facilities, and shall be annotated.
93		滑道 (索道) Runway (Grass)		0.15mm	Black			Same as map symbol	"
94		西墙 International boundary		0.2mm	Black	Indicated on the photo and overlay		Same as map symbol	This symbol shall be indicated by the map's materials. The unified part shall not be indicated.
95		界 Zonal boundary		0.2mm	Black	Ditto		Same as map symbol	"
96		界 District boundary		0.2mm	Black	Ditto		Same as map symbol	"
97		市界 Village/municipality		0.2mm	Black	Ditto		Same as map symbol	"
98		界 National park boundary		Pattern	Red	Ditto		Same as map symbol	"
99		点 Identification point			Black			Same as map symbol	Identification point shall show the position of the objects which have not special symbol but necessary to be shown its position.
100		水门 Stone gate		0.1mm	Black			Same as map symbol	

CARTOGRAPHIC DETAILS

D. M. Shrestha

松田博幸

1. Point Symbols

Point symbols shall be placed on position and all symbols shall stand up right.

2. Destination Annotation

Destination annotation of road and maintrail shall be stated.

3. Route Number of Road

The route number shall be placed at terminals, junctions and close to built up area and neat line. In built-up area, route number may be omitted. They shall be drawn in accordance with Appendix-1.

4. Boundary

If the administrative boundary is running through a linear feature, boundary line shall be drawn in accordance with Appendix-2.

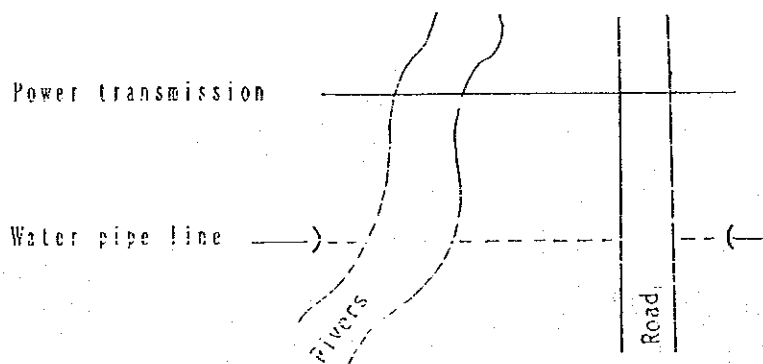
5. Elevated intersections shall be depicted in accordance with Appendix-3.

6. Small depression

Small depression considered to be expressed may be indicated in exaggerated form as following symbol.



7. Indication of power transmission line, water pipe line etc, when across double line road or double line river, shall be shown as follows.



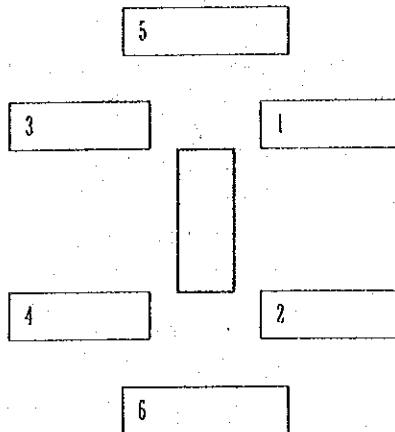
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8. Placement of annotation.

Position of annotation shall be in the following order of preference.



9. Annotation of linear feature shall be shown as indicated Appendix-4.

10. Annotation of District, Zone and Country names shall be done near the boundary line and on other place, they shall only be shown in Administrative Index.

11. The following five colours shall be used for final printing and detailed application of colour are described in Annex-1.

- (1) Black
- (2) Red
- (3) Blue
- (4) Green
- (5) Brown

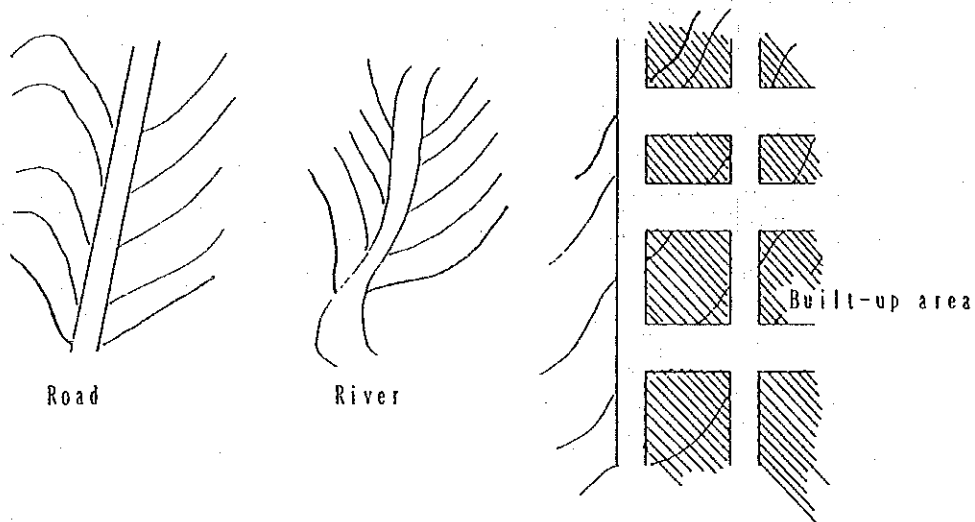
12. The lettering size and style is shown in accordance with Appendix-5. Lettering type of photo-typesetting machine, shall be used for this project.

13. The format of sheet number 104-01 shall be extended southward to cover small portion of area of sheet number 104-05. Consequently this map sheet is numbered as 104-01 and 05, and sheet name is TAULIHAWA shall be as in indicated Appendix-6.

The format of sheet number 104-07 shall be extended southward to cover

small portion of area of sheet number 104-11. Consequently this map sheet is numbered as 104-07 and 11, and sheet name is MARCHAWAR shall be as indicated Appendix-6.

14. Contour lines crossing double line road or river shall be shown as follows.



15. The map sheet dimension shall be shown in accordance with Annex-2.

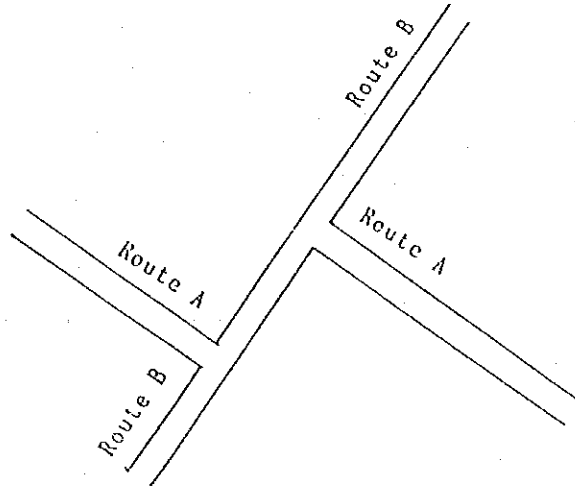
16. The 1st class road and 2nd class road shall be tinted red, when hard topped, but the dirt road shall not be tinted.

17. The intensity of green colour shall be in the following order.

- 1) Dense Forest
- 2) Open Woods
- 3) Orchard
- 4) Shrub
- 5) Nursery
- 6) Cultivated land

18. The rule for transliteration of vernacular names into Roman script shall be done in accordance with Annex-3

Road numbering

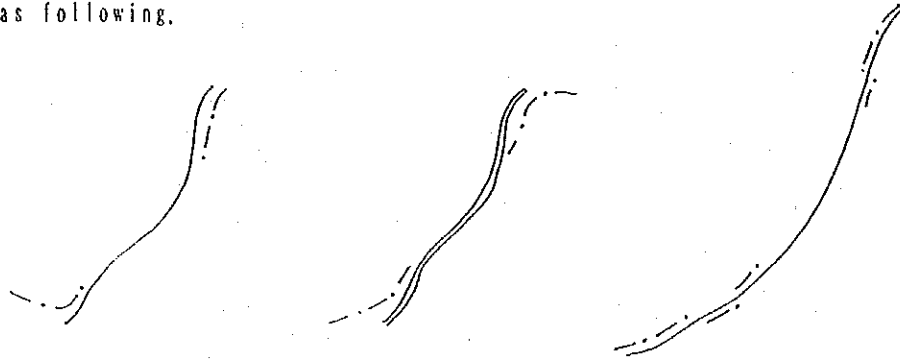


ly

45

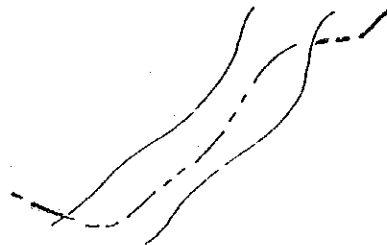
Drawing Administrative Boundary

- A) Boundary line running through the single or narrow double lines shall be shown as following.

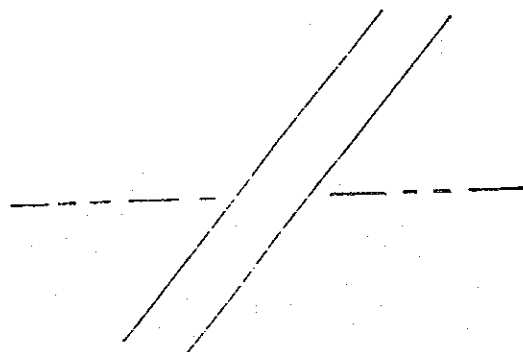


However when such lines are of considerable length the symbol shall be drawn alternatively for clarity.

- b) Boundary line running in the wide double lines river shall be expressed along the center of the river.



- c) Boundary line crossing the planimetric features (road, pipe line, etc.) shall be omitted on the features.



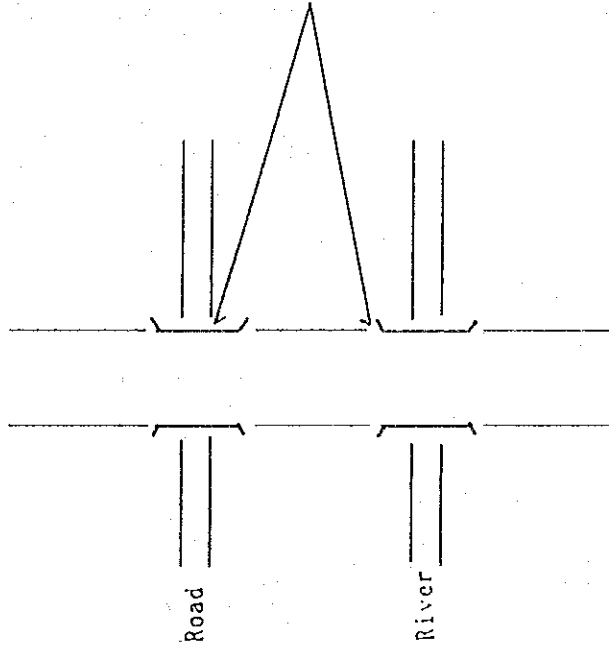
ym

106

Depiction of Intersections

Under pass and over pass

Lines to be non-connected



yuy

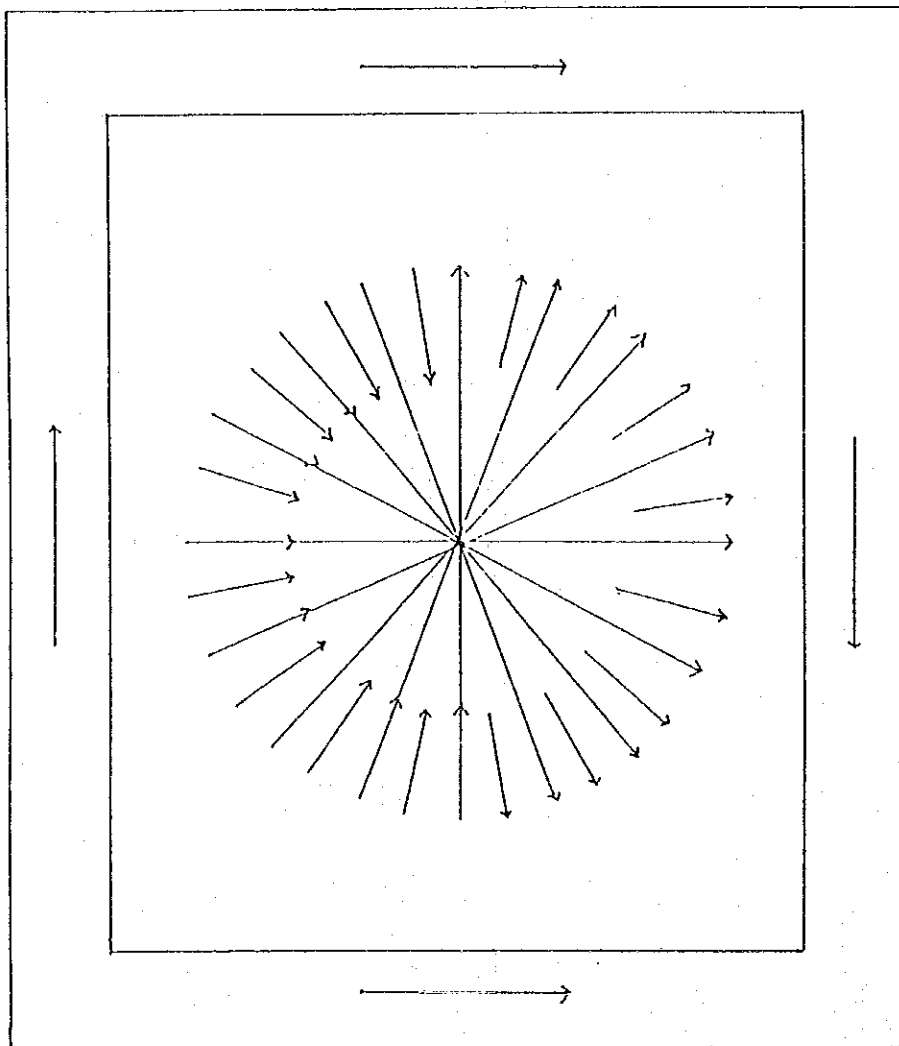
(107)

Annotation of linear features

General rule for annotation of geographic name of linear feature shall be indicated as follows.

Annotation of natural area such as mountains hills, table lands, sand dunes, uncultivated plans, waste lands, etc shall be applied with this rule.

Direction of lettering —————>



yn

56

Lettering Size and Style

Appendix-5

No.	Settlement Name	Letter Size	Large(C) Small(L)	Letter Style	Size Rank
No. 1	Nation	7.00 mm	C	E 100-24	32 Q
No. 2	Capital	6.00	C	E 100-24	28 Q
No. 3	Zonal head quarters	5.00	C	E 100-24	24
No. 4	District head quarters	3.75	C	E 100-24	18
No. 5	Municipality	3.12	C	E 100-24	16
No. 6	Town - Village	3.12	C/L	E 100-24	16
No. 7	Hamlet	2.25	C/L	E 100-24	12
National Park, Individual Area, Reserve Area Name					
No. 10	Above 30 sq. km	3.75 mm	C	E 100-34	18 Q
No. 11	10-30 sq. km	3.12	C	E 100-34	16
No. 12	0.5-9 sq. km	2.75	C	E 100-34	14
River, Canal, Glacier Name					
No. 15	Above 50 km	4.00 mm	C	E 102-25	20 Q
No. 16	20-50 km	3.75	C/L	E 102-25	18
No. 17	5-19 km	3.12	C/L	E 102-25	16
No. 18	Under 5 km	2.25	C/L	E 102-25	12
Lake Name					
No. 20	Above 30 sq. km	4.00 mm	C	E 102-25	20 Q
No. 21	10-30 sq. km	3.12	C/L	E 102-25	16
No. 22	Under 10 sq. km	2.25	C/L	E 102-25	12
Name of Place (Mountain, Plateau, Valley, Island)					
No. 25	Above 30 sq. km	4.00 mm	C	E 100-35	20 Q
No. 26	10-30 sq. km	3.12	C	E 100-35	16
No. 27	Under 10 sq. km	2.25	C/L	E 100-35	12
No. 28	Zone	5.00	C	E 100-24	24 Q
No. 29	District	3.75	C	E 100-24	18 Q
No. 30	Village D. C./Muu.	3.75	C	E 100-24	18

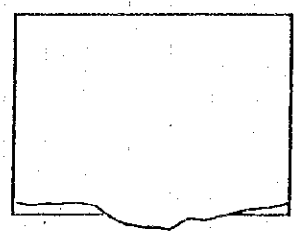
Name of Buildings		Letter Size	Large(C) Small(L)	Letter Style	Size Rank
Police Station; Post Office, Meteorological Station, Jail, Court, Custom Office, etc.	Office	1.50mm	C/L	E 100-14	8 Q
Abbreviation for Public Buildings					
Office	Abbreviation				
Police Station	P.S.	1.50 mm	C	E 100-14	8 Q
Post Office	P.O.	1.50	C	E 100-14	8
Telecom Office	T.O.	1.50	C	E 100-14	8
Custom Office	C.O.	1.50	C	E 100-14	8
District Office	D.O. / D.O. GH	1.50	C	E 100-14	8
Bus Station	B.S. / R	1.50	C	E 100-14	8
Municipal Office	M.O.	1.50	C	E 100-14	8
Village Office	V.O.	1.50	C	E 100-14	8
Stadium	ST.	1.50	C	E 100-14	8
Court	CT.	1.50	C	E 100-14	8
Jail	JL	1.50	C	E 100-14	8
Theater/Cinema Hall	CH	1.50	C	E 100-14	8
Petroleum Pump	PP, PK	1.50	C	E 100-14	8
Arabic Figures					
Triangulation Point	302	1.75 mm		E 100-34	9 Q
Bench Mark	362	1.75		E 100-34	9
Spot Height	443 -275-	1.75		E 100-24	9
Contour Value	300	1.50		E 102-15	8 Q
Road Name and Number	Wabcedra at Wabich Road, AT	2.25	C/L	E 102-25	12
Destination	Katmandu, Kathmandu, Kathmandu, Kathmandu	1.75 mm	C/L	E 100-25	9 Q
Vegetation Classification	Dense mixed jungle mainly sal Dense mixed jungle mainly sal Dense mixed jungle mainly sal	3.0 3.75	C/L	E 100-32 inclination-2 45	14 Q 18 Q

FF

just

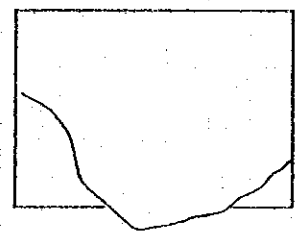
Sheet Extension

Extension of sheet number 104-01 and 05



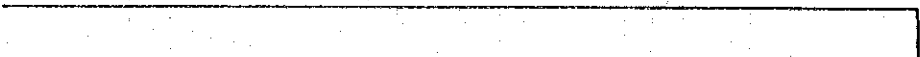
This portion shall be extended

Extension of sheet number 104-07 and 11



This portion shall be extended

Sheet No. 104-04 and 11

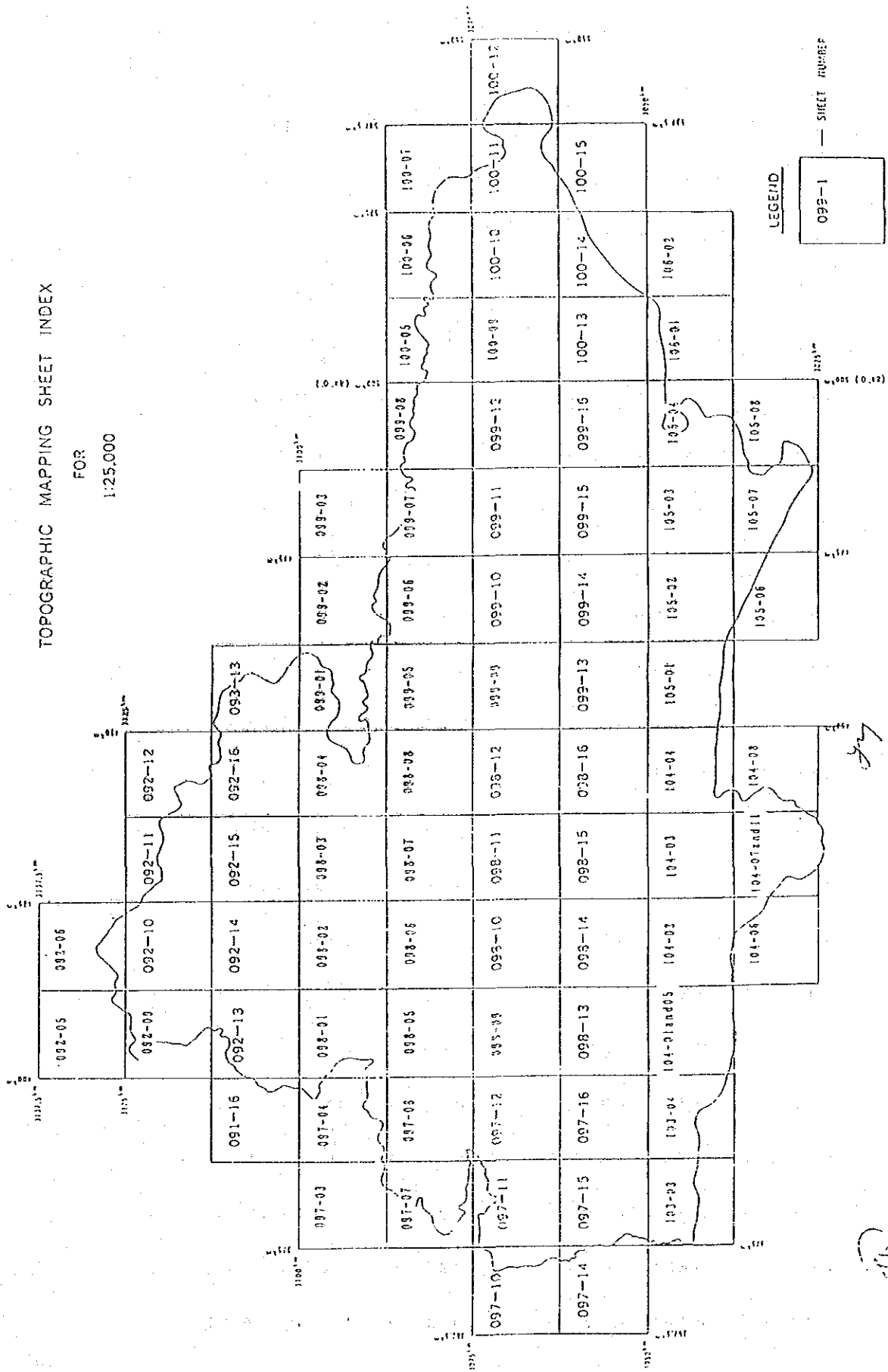


yy

(A.6)

TOPOGRAPHIC MAPPING SHEET INDEX

FOR
1:25,000



List of Sheet Number and Name

Sheet No.	Map Name	Sheet No.	Map Name
091-16	PYUṬHĀN	098-02	SANDHIKHKARKA
092-05	ARKHĀ	098-03	KHARJYĀN
092-06	BURTIBĀN	098-04	RIDĪ
092-09	PURKOT	098-05	ṬHĀDĀ
092-10	ARJĀṬ	098-06	SIMALPĀNĪ
092-11	WĀMITAKSĀR	098-07	POKHARĀTHOK
092-12	CALKOT	098-08	HARTHOK
092-13	HANṢAPUR	098-09	PATTHARKOT
092-14	ARGHĀTOS	098-10	BĀNGAṄGĀ
092-15	TAMGHĀS	098-11	SĀLJHUNDĪ
092-16	SHĀNTĪPUR	098-12	BUTWAL
093-13	PHOKSIN	098-13	GORUSINGE
097-03	BARDĀDĀ	098-14	KOPUWĀ
097-04	JALUKE	098-15	SURYAPURĀ
097-07	BHĀLUBĀN	098-16	PHARSĀṬIKAR
097-08	SIDDHĀRĀ	099-01	BIRGHĀ
097-10	ARRĀNĀKĀ	099-02	GALYĀN BHANJYĀN
097-11	SHIWAGADHĪ	099-03	WĀLIN
097-12	DUMSĪNĀKĀ	099-05	TĀNSEN
097-14	JAWĀBAIRĀṬH	099-06	ĀRYA BHANJYĀN
097-15	GANESHPUR	099-07	BIRKOT
097-16	CHANUATĀ	099-08	RAMPUR
098-01	DHANCHAUR	099-09	MĀTHĀGADH

ym

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Sheet No.	Map Name	Sheet No.	Map Name
099-10	JHADEWĀ	104-06	KAKARHAWĀ
099-11	JYĀMIRE	104-07 and 11	MARCHAWĀR
099-12	JHIRUBĀS	104-08	THARKĪ
099-13	DEWADHA	105-01	DHAKDHAĪ
099-14	SUNWAL	105-02	PARĀSĪ
099-15	DUMKIBĀS	105-03	BARGHĀṬ
099-16	ARUNKHOLĀ	105-04	MANDARTHĀN
100-05	RAKUWĀ	105-06	MAHESHPUR
100-06	BULINTĀR	105-07	SURAJPURĀ
100-07	KOTDĀDĀ	105-08	TRIBENĪ
100-09	DHOBĀDĪ	106-01	AMALTĀRĪ
100-10	TĀGĪKOT	106-02	DEWĪTĀL
100-11	BHEDĀBĀRĪ		
100-12	NĀRĀYANGADH		
100-13	CHORMĀRĀ		
100-14	SHIWABASTĪ		
100-15	RĀMPUR		
103-03	KRIṢṆANĀGAR		
103-04	BHALUBĀRĪ		
104-01 and 05	TAULIHAWĀ		
104-02	PAKADĪ		
104-03	LUMBINĪ		
104-04	SHIDDHĀRTH NĀGAR		

※ 104-05 this map shall be extended to map number 104-01

※ 104-11 this map shall be extended to map number 104-07

gm

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धौ ५ को सरकार
नापी विभाग

Survey Department, HMG Nepal

नेपालीबाट नामान्तरण गर्ने तरिका

Transliteration System for Nepali

१) व्यञ्जन वर्ण

नेपाली	रोमन	नेपाली	रोमन
क	k	घ	dh
ख	kh	भ	n
ग	g	प	p
घ	gh	फ	ph
ङ	n	ब	b
च	ch	भ	bh
छ	chh	म	m
ज	j	य	y
झ	jh	र	r
ञ	n̄	ल	l
ट	t	व	w
ठ	th	श	sh
ड	d	ष	s
ढ	dh	स	s
ण	n̄	ह	h
त	t	धा	ks
थ	th	त्र	tr
द	d	ज्ञ	jn̄

१. यी व्यञ्जन वर्णहरूको शब्दको अन्त्यमा भए ड र ढ को उच्चारण हुन्छन् ।

तसर्थ तिनीहरूको नामान्तरण d र dh नै हुन्छ ।

These two consonants pronounce as ड and ढ at the end of word, hence they shall be transliterated as d and dh.

Manchanda

४५

४३

२) स्वर वर्ण

वर्ण	नेपाळी	मात्रा	रोमन
अ			a
आ		।	ā
इ		ि	i
ई		ी	ī
उ		ु	u
ऊ		ू	ū
ऋ		ॠ	rī
ए		े	e
ऐ		ै	ai
ओ		ो	o
औ		ौ	au

अरु संकेतहरू (Other signs)

• लाई h ले जनाउँछ ।

• लाई सम्बन्धी स्वर माथि ˘ ले जनाउँछ ।

• लाई क, ख, ग र घ को अगाडि ɲ ले; च, छ, ज र ङ को अगाडि ɲ̣ ले; ट, ठ, ड र ढ का अगाडि ɳ ले; त, थ, द र ध का अगाडि ɳ̣ र अरु सबै व्यंजन वर्णका अगाडि ɲ̣ ले जनाउँछ । नवशामा लेखिने नामहरूमा हलन्त राखिने छैन तर यस्ता नामको नामान्तरण गर्दा a राख्नु पर्दैन ।

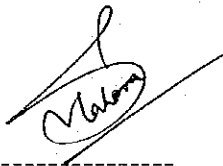
• Is rendered by h

• Is rendered by a tilde (˘) over the vowel affected.

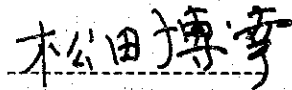
• Is rendered as ɲ before k, kh, g and gh; as ɲ̣ before ch, chh, j and jh; as ɳ before t, th, d, and dh; as ɳ̣ before t, th, d, and dh as ɲ̣ before all other consonants.

jam

MINUTES OF DISCUSSIONS ON THE PLAN OF OPERATION
FOR
THE STUDY ON TOPOGRAPHIC MAPPING OF THE LUMBINI ZONE
OF THE THIRD YEAR WORKS
IN NEPAL
BETWEEN
HMG SURVEY DEPARTMENT
AND
JAPAN INTERNATIONAL COOPERATION AGENCY
NOVEMBER 1992
KATHMANDU



MR. S. P. MAHARA
PROJECT DIRECTOR
LUMBINI ZONE TOPO-MAPPING
PROJECT
HMG SURVEY DEPARTMENT
NEPAL



MR. HIROYUKI MATSUDA
LEADER OF THE STUDY TEAM
JAPAN INTERNATIONAL
COOPERATION AGENCY (JICA)

16 Nov. 1992

To,

Mr. Yasuyuki Kohori
JICA, Tripureshore, Kathmandu.

For your kind information, I would like to let you know that HMG ministry of Land Reform and Management has deputed to Mr. S. P. Mahara as a Project Director for Lumbini Zone Topographical Mapping Project. He is responsible for the Project Planing and execution. With regards, thanking you.

Yours sincerely

R. N. Singh

R. N. Singh
Director General
HMG Survey Department



The Japanese Study Team of the Japan International Cooperation Agency (JICA), headed by Mr. Hiroyuki MATSUDA, visited Nepal on the 10th, Oct. 1992 to carry out the third year works for the Study on Topographic Mapping of Lumbini Zone in Nepal.

Prior to the commencement of the third year survey works, a series of meetings were held from the 5th of Nov. to the 12th of Nov., 1992 and following items have been agreed upon by the HMG Survey Department (SD) and JICA Study Team.

(1)

Discussions and agreements were made on the Plan of Operation proposed by JICA Study Team, and are shown in Appendix 1.

(2)

The Study Team submitted to SD the printed map samples on marginal information, legend and names of colours for printing discussed by both sides during the second year field works in Nepal.

It was agreed that both sides shall discuss and conclude on the above matters by Dec. 17th, 1992.

SP.

SP

The list of attendants at the meeting

NEPALESE SIDE

SURVEY DEPARTMENT

- | | |
|------------------------|------------------|
| 1. MR. RAM N. SINGH | DIRECTOR GENERAL |
| 2. MR. D. JOSHI | DEPUTY DIRECTOR |
| 3. MR. S. P. MAHARA | PROJECT DIRECTOR |
| 4. MR. BABU R. ACHARYA | SURVEY OFFICER |

JAPANESE SIDE

JAPANESE STUDY TEAM

- | | |
|--------------------------|-----------------|
| 1. Mr. HIROYUKI MATSUDA | LEADER |
| 2. Mr. TAKEHIKO HIRANO | DEPUTY LEADER |
| 3. Mr. RYOICHI HASHIMOTO | MAPPING PLANNER |
| 4. Mr. TOMOHARU YOKOTA | CHIEF SURVEYOR |

ADVISORY TEAM

- | | |
|--------------------|----------------------------------|
| 1. MITSUO IWASE | GEOGRAPHICAL SURVEY INSTITUTE |
| 2. HIROSHI TSUJINO | FIRST DEVELOPMENT STUDY DIVISION |
| | JICA |

SR.

(JL)

Appendix 1

PLAN OF OPERATION
FOR
THE STUDY ON TOPOGRAPHIC MAPPING OF THE LUMBINI ZONE
IN NEPAL

(THIRD YEAR WORKS)

November, 1992

JAPAN INTERNATIONAL COOPERATION AGENCY

SP.



Plan of Operation
for

The Study on Topographic Mapping of the Lumbini Zone in Nepal

1. Background

Topographic Mapping of the Lumbini Zone was set forth upon the agreement on Technical Cooperation between the HM Government of Nepal and the Government of Japan which is to last for 38 months, signed on February 28, 1990.

Following items have been carried out as first and second year works:

* First year works (1990 F/Y) :

(1) Aerial photography	1:50,000, 9,000 sq.km.
(2) Ground control point survey	20 points
(3) Leveling	200 km
(4) Pricking	control point 36 points
	leveling 760 km

* Second year works (1991 F/Y) :

(1) Aerial triangulation	501 models
(2) Field identification	9,000 sq.km
(3) Technical discussion	
(4) Plotting and compilation	33 sheets, 3,500 sq.km

* Project Schedule is shown in Figure 1 and Flowchart of the Map Production is shown in Figure 2.

2. Outline of the third year works

The following works shall be completed during the third year:

(1) Stereo plotting	5,500 sq.km, in Japan
(2) Compilation	5,500 sq.km, in Japan
(3) Field completion	9,000 sq.km, in Nepal
(4) Discussion of printing and others,	in Nepal
(5) Drafting	3,500 sq.km, in Japan

All of the above works shall be carried out by the end of March 1993.

SA

[Signature]

3. Works to be carried out for the third year

3-1 Contents of works :

- (1) Stereo plotting 5,500 sq.km

Stereo plotting has been carried out in the remaining area at a scale of 1:25,000 using the stereo plotters in Japan. The UTM (3 degree zone) was applied for the projection.

- (2) Compilation 5,500 sq.km

Map compilation have been executed in accordance with the symbols and specifications agreed upon by the Study Team and SD in 1991.

The sheet of the compiled topographic maps shall be 12.5 km x 12.5 km on the ground and the final sheet number and sheet index shall be 81 as in Figure 3.

- (3) Field completion 9,000 sq.km

Topographic feature, landuse, vegetation, etc., which cannot be properly identified on the aerial photographs shall be identified and plotted on the field completion sheets.

SD shall be requested to provide authorized administrative and geographical names, as well as the administrative boundaries. And, SD shall hand over the above materials indicated on the duplicate compilation maps to the Study Team by the 15th. of Dec, 1992. Each compilation maps shall be verified by the SD's responsible officer.

- (4) Technical Discussion on printing and others

Technical discussion shall be made with regard to the printing colours, legend, marginal information, administrative boundaries, annotation etc.

All the data shall be confirmed by both Japanese and Nepalese sides.

- (5) Drafting 3,500 sq.km

Scribing shall be applied on suitable polyester bases for five (5) colour separation plates. Annotation shall be done using the photo-type method.

3-2 Member and assignment

Following table shows the members of the Study Team and their assignment for the third year.

Table 1-1
List of Japanese Member and Assignments

Name	Assignment	Duration	Content
Hiroyuki MATSUDA	Leader	11 3--11 22 12 4--12 19	1. Total management 2. General discussion
Takehiko HIRANO	Deputy Leader	10 13--12 19	1. Sub management 2. General discussion 3. Leader Assistant 4. General supervision
Ryoichi HASHIMOTO	Mapping Planner	10 9--12 19	1. Fundamental map planner 2. General coordination 3. Technical Education 4. Report making
Tomoharu YOKOTA	Chief Surveyor	10 9--12 19	1. Study Planning 2. Supervision of the works 3. Coordination in the works 4. Quality checking
Tadaji KURATA	Mechanical Engineer	10 9--12 19	1. Vehicle Management 2. Vehicle Maintenance
Katsuyuki KONDO Yasuo ISHIGURO Toshiaki KANADA Shizuya TAKAYANAGI Nobuyoshi SANUKI Tsuyoshi SEINO	Surveyor " " " " "	10 16--12 19 " " " " "	Field completion " " " " "

SP.

(Handwritten signature)

Table 1-2
List of Nepalese Counterparts and Assignments

G. K. Karna	Survey Officer	Kathmandu	Annotation etc.
B. K. Neupane	Survey Officer	Kathmandu	Annotation etc.
H. M. Tumbahangfe	Survey Officer	at Field	Field Completion
S. S. Saha	Survey Officer	at Field	Field Completion
R. H. Khatri	Asst. Surveyor	at Field	Field Completion
M. S. Aryal	Asst. Surveyor	at Field	Field Completion

4. Report

A field report shall be prepared by the Study Team at the end of the field completion works.

5. Undertaking of SD

5-1 In order to facilitate the Study smoothly, SD shall take the following arrangement for the Study Team in cooperation with other related organizations:

- (1) To secure permission for the use of the communication facilities, including transceivers.
- (2) To coordinate the workers and drivers for the Study Team at their expense, upon the request of the Study Team.
- (3) To secure permission for the Study Team to take out all necessary data and documents, including the aerial photographs in connection with the Study.

5-2 SD, at its own expense, shall provide the Study Team with the following:

- (1) Suitable office space and facilities in Kathmandu;

- (2) Counterpart personnels,
6 counterparts for field completion;
- (3) Credentials or identification cards for Japanese;
- (4) Information on administrative boundaries and geographical names;
- (5) Available data and information on roads, public facilities and others.

6. Undertaking of the Study Team

The undertaking of the Study Team are as follows:

- (1) To carry out field completion in Nepal;
- (2) To carry out stereo plotting, compilation, drafting in Japan;
- (3) To pursue technology transfer to the counterpart personnels during the Study.

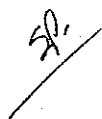




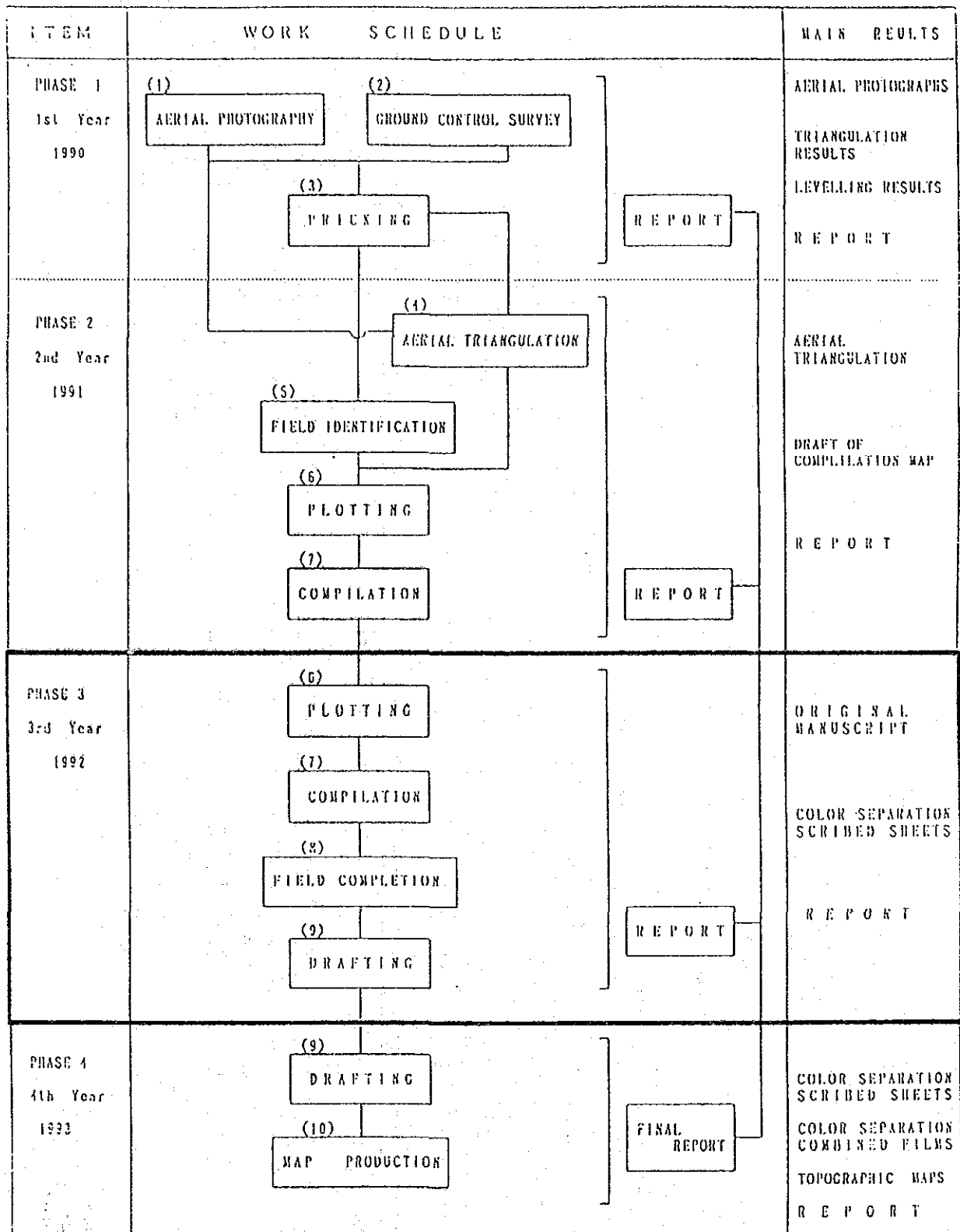
Figure 1 TENTATIVE WORKING SCHEDULE

ITEMS	1990 (PHASE 1)			1991 (PHASE 2)			1992 (PHASE 3)			1993 (PHASE 4)														
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
AERIAL PHOTOGRAPHY																								
GROUND CONTROL SURVEY																								
LEVELLING, PRICKING																								
AERIAL TRIANGULATION																								
FIELD IDENTIFICATION																								
PLOTTING																								
COMPILATION																								
FIELD COMPLETION																								
DRAFTING																								
MAP PRODUCTION																								
INSPECTION																								
ANNUAL REPORT																								
DELIVERY OF COOPS																								

LEGEND : PREPARATION FIELD SURVEY WORK IN JAPAN DELIVERY

SP

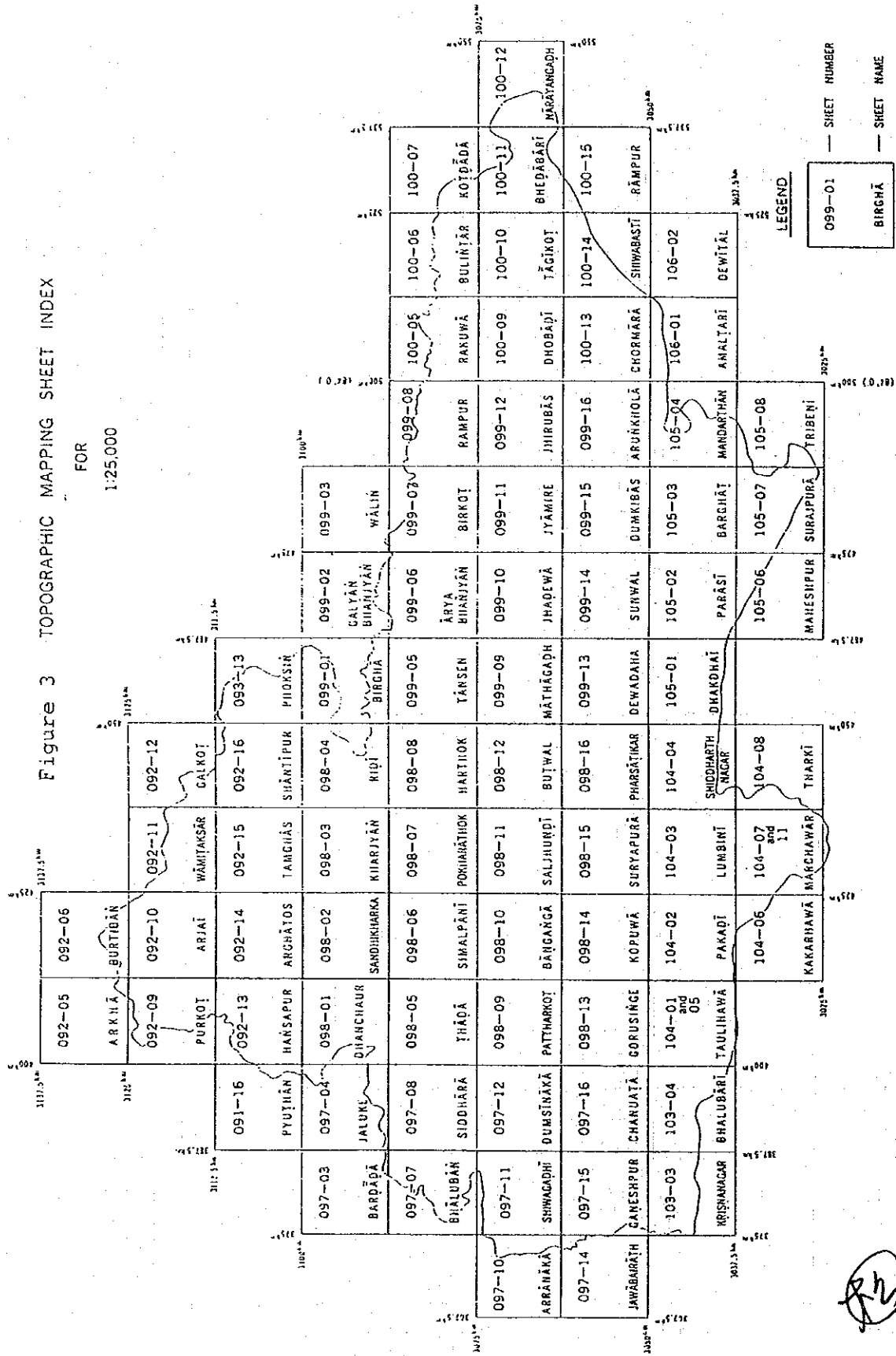
Figure 2 FLOWCHART FOR THE PRODUCTION OF TOPOGRAPHIC MAPS



Remarks: 1. Field works in Nepal : 2. Works in Japan

Figure 3 TOPOGRAPHIC MAPPING SHEET INDEX

FOR
1:25,000



MINUTES OF DISCUSSION

ON

THE STUDY OF TOPOGRAPHIC MAPPING OF LUMBINI ZONE

IN NEPAL

BETWEEN

HMG SURVEY DEPARTMENT

AND

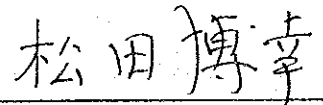
JAPAN INTERNATIONAL COOPERATION AGENCY

DECEMBER 16, 1992

KATHMANDU



MR. S.P. MAHARA
PROJECT DIRECTOR
LUMBINI ZONE TOPO-MAPPING
PROJECT
HMG SURVERY DEPARTMENT
NEPAL



MR. HIROYUKI MATSUDA
Leader of Study Team
JAPAN INTERNATIONAL
COOPERATION AGENCY
JAPAN (JICA)

At the end of the field survey, as a part of Phase 3 activities joint meetings were held between HMG Survey Department and JICA Study Team during the period of December 6th to 16th 1992 at the office of HMG Survey Department, and the following items were discussed and agreed upon by both sides.

1. The Study Team expressed its sincere gratitude to SD and related organizations for their close cooperations in spite of the higher level personnel changes in Nepalese side.

SD expressed its appreciation to the Study Team for the co-operations provided to SD.

2. JICA Study Team submitted the Progress Report to the third year survey works on Topographic Mapping of Lumbini Zone in Nepal (attached as Appendix 1).

Both side discussed on the Progress Report and expressed satisfaction for successful completion of the field work.

3. It was confirmed by both sides that officials nominated by SD and Study Team discussed following items from October 11th to December 15th, 1992, and agreed upon next Annex:

- Annex-1 Legend of Topographic Map,
- Annex-2 Lettering Size and Style,
- Annex-3 List of Sheet Name and Number.

4. SD provided to the Study Team the authoritative administrative boundaries and geographical names.

5. SD requested to the Study Team that SD shall provide the magnetic north data in January 1993, to indicate the magnetic data on the topographic maps.

6. SD requested to arrange the training programme of more Nepalese counterparts and ^{study tours for} high level officers in Japan when the reproduction and printing process of Lumbini Zone topographic

mapping is going on.

SP

(K2)

The list of attendants at the meeting

NEPALESE SIDE

(SURVEY DEPARTMENT)

- | | |
|--------------------------|-------------------------|
| 1. MR. RAM N. SINGH | DIRECTOR GENERAL |
| 2. MR. NARAYAN BHATTARAI | DEPUTY DIRECTOR GENERAL |
| 3. MR. S.P. MAHARA | PROJECT DIRECTOR |
| 4. MR. BABU R. ACHARYA | SURVEY OFFICER |

JAPANESE SIDE

(JICA STUDY TEAM)

- | | |
|--------------------------|-----------------|
| 1. MR. HIROYUKI MATSUDA | LEADER |
| 2. MR. TAKEHIKO HIRANO | DEPUTY LEADER |
| 3. MR. RYOICHI HASHIMOTO | MAPPING PLANNER |
| 4. MR. TOMOHARU YOKOTA | CHIEF SURVEYOR |

Appendix 1

PROGRESS REPORT
ON
THE STUDY OF TOPOGRAPHIC MAPPING OF LUMBINI ZONE
IN NEPAL

FIELD COMPLETION
(Third Year Field Work)

December 1992

JAPAN INTERNATIONAL COOPERATION AGENCY

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1. Outline of the Third Year Study

1-1 Background

Topographic Mapping of Lumbini Zone was set forth upon in the agreement on Technical Cooperation between His Majesty's Government of Nepal and the Government of Japan signed on February 28, 1990 for 38 months.

The first year's work of the Study were carried out, as aerial photography, ground control points survey, levelling and pricking of control points on the aerial photographs.

The second year's work were also carried out, as aerial triangulation, field identification, stereo plotting and compilation.

The third year's work which started from June 29, 1992 consisted of stereo plotting, compilation, field completion and drafting. The stereo plotting (nothern area) and compilation (southern flat area) were already carried out in Japan.

1-2 Period of Field Survey Work

Field Work

(Headquarters) 9 October - 19 December, 1992

(Field Completion) 16 October - 19 December, 1992

(Office Work)

Map Plotting and Compilation 29 June - 5 October, 1992

Drafting 20 December - 26 March, 1993

1-3 Formation of Study Team

Leader Mr. Hiroyuki MATSUDA 3 Nov. - 22 Nov. 1992
4 Dec. - 19 Dec. 1992

Deputy Leader	Mr. Takehiko HIRANO	13 Oct. - 19 Dec. 1992
Mapping Planner	Mr. Ryoichi HASHIMOTO	9 Oct. - 19 Dec. 1992
Chief Surveyor	Mr. Tomoharu YOKOTA	9 Oct. - 19 Dec. 1992
Mechanical Engineer	Mr. Tadaji KURATA	9 Oct. - 19 Dec. 1992
Field Identification		
Surveyor	Mr. Katsuyuki KONDO	16 Oct. - 19 Dec. 1992
Surveyor	Mr. Toshiaki KANADA	16 Oct. - 19 Dec. 1992
Surveyor	Mr. Yasuo ISHIGURO	16 Oct. - 19 Dec. 1992
Surveyor	Mr. Nobuyoshi SANUKI	16 Oct. - 19 Dec. 1992
Surveyor	Mr. Shizuya TAKAYANAGI	16 Oct. - 19 Dec. 1992
Surveyor	Mr. Tsuyoshi SEINO	16 Oct. - 19 Dec. 1992

1-4 Supervision of the Field Work

During the third year field work, the following advisers were sent to Nepal by JICA for a technical meeting with SD and the supervision of the field work.

Mr. Mitsuo IWASE	Staff, Planning Department, Geographical Survey Institute, Ministry of Construction 9 November, 1992 - 18 November 1992
------------------	--

Mr. Hiroshi TSUJINO	Staff, First Development Study Division, Japan International Cooperation Agency 9 November, 1992 - 18 November 1992
---------------------	--

1-5 Cooperation of Counterparts of SD

Project Director	Mr. S.P.Mahara	
Survey Officer	Mr. G.K.Karna	Annotation, etc.
Cartographer	Mr. V.K.Neupane	Annotation etc.
Survey Officer	Mr. H.M.Tumbahangfe	Field Completion
Survey Officer	Mr. S.S. Saha	Field Completion
Asst. Surveyor	Mr. R.H. khatri	Field Completion
Asst. Surveyoy	Mr. M.S. Aryal	Field Completion

1-6 Amount of the Survey Work (Plan and Result)

Works to be executed in third year are shown in Table-1 and area of the Field Completion and others are shown in Figure 1.

Table-1

Item	Original Plan	Results
Plotting and Compilation	5,500 sq.km	5,500 sq.km
Field Completion	9,000 sq.kn	9,000 sq.km
Drafting	3,500 sq.kn	3,500 sq.km

2. Field Work

2-1 Field Completion

The topographic features, land use, vegetation and other information necessary for terrain representation which could not be properly identified on the aerial photographs were identified in the field and plotted on the compilation sheets by Japanese and Nepalese surveyors.

And, newly constructed roads, buildings, factories, afforestation areas after aerial photography have been checked in the field and plotted on the compilation sheets.

All the items to be indicated on the maps have been checked and confirmed successfully in whole project area.

2-2 Boundaries and Geographical Names

Some part of administrative boundaries and geographical names were collected by Nepalese counterparts.

3. Technical Discussions

The Marginal informations and Legend, the Names of Colour applied for Printing, Lettering Size and Style, List of Sheet Name and Number which had been already finalized, were revised, corrected and confirmed on the materials provided by both sides. These data are attached as Annex 1-3.

Annex-1 Legend of Topographic Map,
Annex-2 Lettering Size and Style,
Annex-3 List of Sheet Name and Number.

4. Authorized Administrative Boundaries and Geographical Names

SD provided to the Study Team the authorized administrative boundaries and geographical names which were verified by the SD's responsible officer.

5. Domestic works in Japan

5-1 Stereo plotting (Northern mountainous area)

Stereo plotting was carried out at a scale of 1:25,000 with stereo plotter. Total area in this year is 5,500 sq km.

5-2 Compilation (Northern mountainous area)

Map compilation has been also executed in accordance with the symbols and specifications agreed upon the Study Team and SD. Area is same as stereo plotting.

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5-3 Drafting (Southern flat area)

Based on the compiled sheets, scribing shall be carried out on the stable polyester base for five (5) colour separation plates. Annotation shall be photo-typed. Drafting shall be carried out by the end of March, 1993.

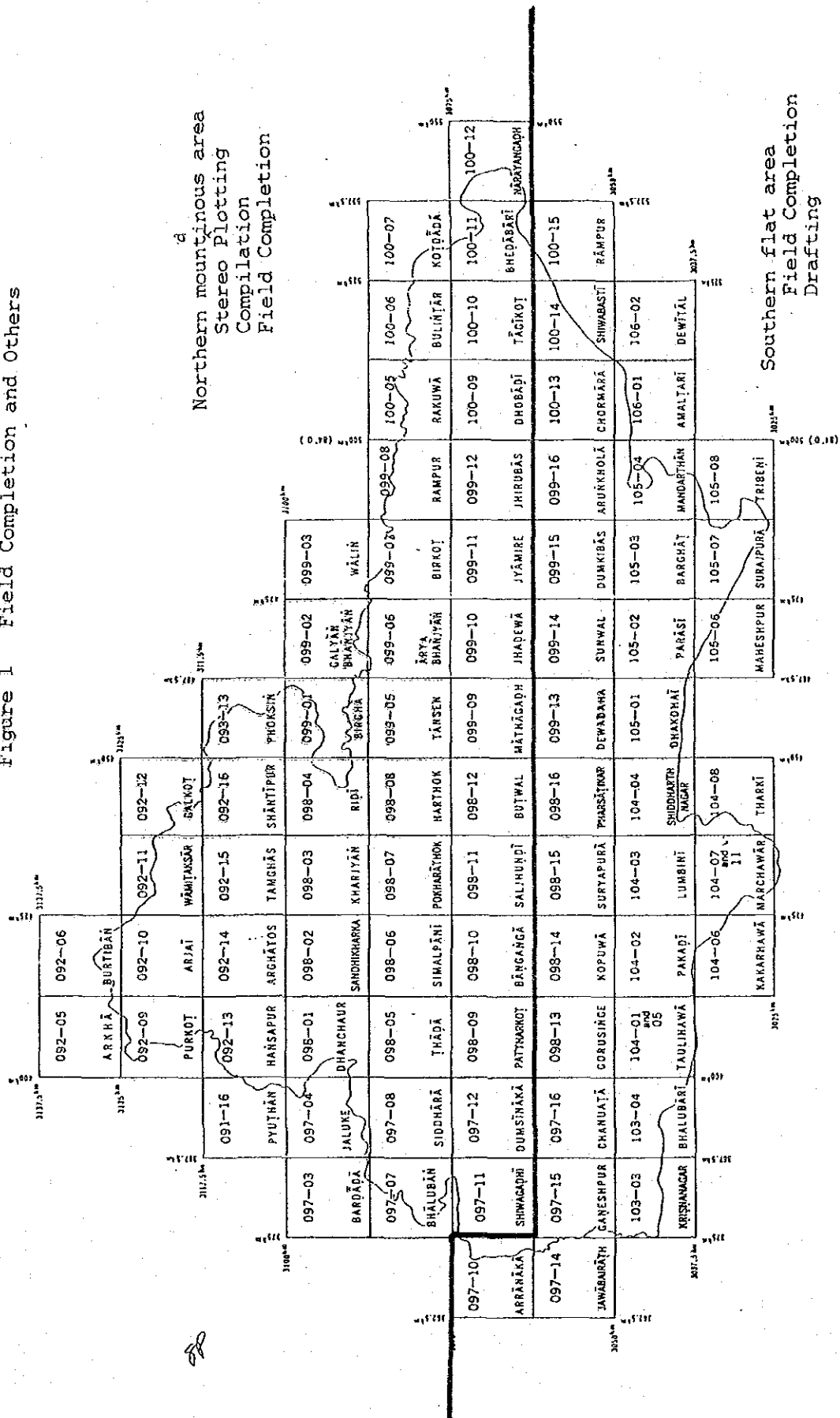
6. Others (fourth year works in 1993)

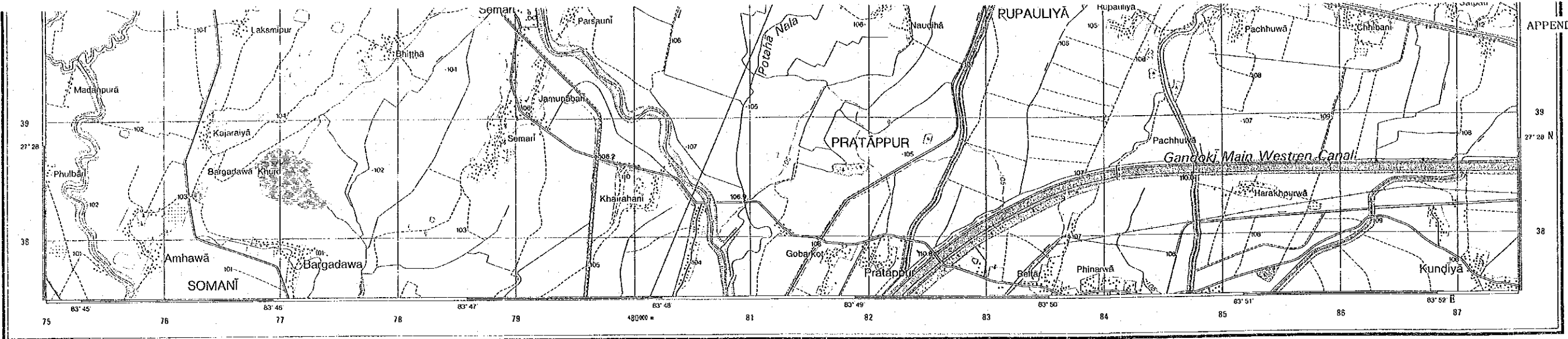
Remaining area for Drafting (northern mountainous area: 5,500 s.q. km, 48 sheets) and Printing (whole area: 9,000 s.q. km, 81 sheets) shall be carried out in fiscal year 1993 in Japan.

Tentative Schedule is shown below.

Item	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Drafting			—————	—————								
Inspection			—————	—————	—————							
Map Production				—————	—————	—————						
Inspection							—————					

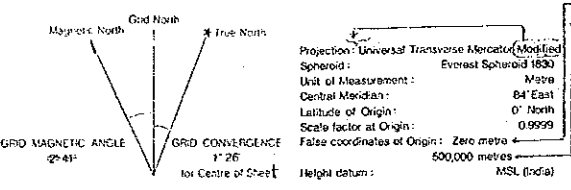
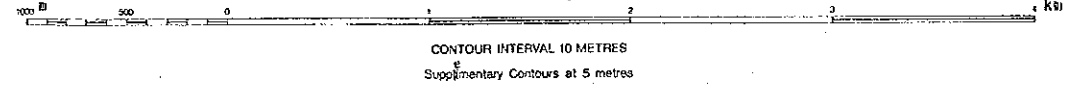
Figure 1 Field Completion and Others





Survey Department, H.M.G. of Nepal, First Edition 1993

Scale 1:25,000



Projection: Universal Transverse Mercator (Modified)
 Spheroid: Everest Spheroid 1830
 Unit of Measurement: Metre
 Central Meridian: 84° East
 Latitude of Origin: 0° North
 Scale factor at Origin: 0.9999
 False coordinates of Origin: Zero metre
 Height datum: MSL (India)

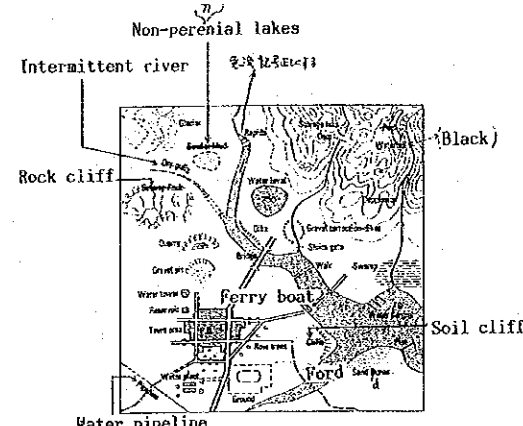
Aerial Photography: In December 1990
 Field Verification: In December 1991
 Magnetic North: Based on SD's Data in 1992
 Geographical Name and Boundary (International, Zonal, District and Others): Based on SD's Information



This map was prepared jointly by the Survey Department, H.M.G. of Nepal and the Japan International Cooperation Agency under the Technical Cooperation Programme of His Majesty's Government of Nepal and the Japanese Government.

Symbol	Description	Percentage of Screens
1st class road, Bridges with pier	1st class road, Bridges with pier	10 10 10 10
2nd class or link road, Bridge	2nd class or link road, Bridge	10 10 10 10
3rd class road, Bridge	3rd class road, Bridge	10 10 10 10
4th class road, Bridge	4th class road, Bridge	10 10 10 10
Main trail, Bridge	Main trail, Bridge	10 10 10 10
Footpath, Bridge	Footpath, Bridge	10 10 10 10
Road under construction	Road under construction	10 10 10 10
Tunnel	Tunnel	10 10 10 10
Underpass, Overpass	Underpass, Overpass	10 10 10 10
Park lane	Park lane	10 10 10 10
Railway: Bridge, Station, Tunnel	Railway: Bridge, Station, Tunnel	10 10 10 10
Aerial cableway, Station	Aerial cableway, Station	10 10 10 10
Buildings, Open sheds	Buildings, Open sheds	10 10 10 10
Remains, Cave	Remains, Cave	10 10 10 10
Airfield: Hard surface, Grass	Airfield: Hard surface, Grass	10 10 10 10
School, Mill, Factory, Health post, Hospital	School, Mill, Factory, Health post, Hospital	10 10 10 10
Temple, Shiva, Mosque, Church	Temple, Shiva, Mosque, Church	10 10 10 10
Cemetery, Crematory	Cemetery, Crematory	10 10 10 10
Monument, Water tap, Chimney, stack, Tower	Monument, Water tap, Chimney, stack, Tower	10 10 10 10
High tension transmission line, Pylon	High tension transmission line, Pylon	10 10 10 10
Petroleum or Gassed pipeline (2) Its multiples	Petroleum or Gassed pipeline (2) Its multiples	10 10 10 10
Wall, Revetment	Wall, Revetment	10 10 10 10
Transformer station	Transformer station	10 10 10 10
Radiotransmission tower, Hot spring	Radiotransmission tower, Hot spring	10 10 10 10
Triangulation point	Triangulation point	10 10 10 10
Benchmark	Benchmark	10 10 10 10
Spot height	Spot height	10 10 10 10
Index contour line	Index contour line	10 10 10 10
Intermediate contour line	Intermediate contour line	10 10 10 10
Supplementary contour line	Supplementary contour line	10 10 10 10
Depression	Depression	10 10 10 10
Rock cliff, Soil cliff	Rock cliff, Soil cliff	10 10 10 10
Cutting, Embankment	Cutting, Embankment	10 10 10 10
International boundary	International boundary	10 10 10 10
Zonal boundary	Zonal boundary	10 10 10 10
District boundary	District boundary	10 10 10 10
Village D.C. or Municipality boundary	Village D.C. or Municipality boundary	10 10 10 10
Specific area boundary	Specific area boundary	10 10 10 10
National park boundary	National park boundary	10 10 10 10
Stream, Intermittent river	Stream, Intermittent river	10 10 10 10
Well, Waterfall, Direction of flow	Well, Waterfall, Direction of flow	10 10 10 10
Single tree, Row trees	Single tree, Row trees	10 10 10 10
Open forest, Open woods	Open forest, Open woods	10 10 10 10
Cultivated land, Scrub	Cultivated land, Scrub	10 10 10 10
Orchard, Nursery	Orchard, Nursery	10 10 10 10
Tea, coffee plantation	Tea, coffee plantation	10 10 10 10

(The number is percentages of Screens)



INDEX TO ADJOINING SHEETS

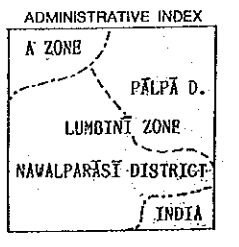
099-14	099-15	099-16
105-02	105-03	105-04
105-06	105-07	105-08

Water pipeline

Police station	PS	Government guest house	GH
Post office	PO	Bank	SK
Telecommunication office	TO	Hotel	H
Customs office	CO		
District office	DO		
Bus station	BS		
Municipality office	MO		
Village Dev. Committee office	VO		
Stadium	ST		
Court	CT		
Jail	JL		
Theatre, Cinema hall	CH		
Petrol Pump	PP		

PRONUNCIATION GUIDE

i	as in cat	f	as in feel
l	as in tin	kh	as in khug
g	as in down	th	as in thow
h	as in watch	sh	as in gear
k	as in strong	s	as in sand



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Lettering Size and Style

	Settlement Name	Letter Size	Large(C) Small(L)	Letter Style	Size Rank
No. 1	Nation INDIA <small>Black</small>	7.00 mm	C	E 100-24	32 Q
No. 2	Capital KĀTMĀNDU <small>Black</small>	6.00	C	E 100-24	28 Q
No. 3	Zonal Head Quarters LUMBINI <small>Black</small>	5.00	C	E 100-24	24
No. 4	District Head Quarters BĀNKE <small>Black</small>	3.75	C	E 100-24	18
No. 5	Municipality NEPALGANJ <small>Black</small>	3.12	C	E 100-24	16
No. 6	Town · Village Ghorāhi <small>Black</small>	3.12	C / L	E 100-24	16
No. 7	Hamlet Rājpur <small>Black</small>	2.25	C / L	E 100-24	12
National Park, Individual Area, Reserve Area Name					
No.10	Above 30 sq km ROYAL CHITAWAN <small>Black</small>	3.75 mm	C	E 100-34	18 Q
No.11	10-30 sq km NATIONAL PĀRK <small>Black</small>	3.12	C	E 100-34	16
No.12	0.5- 9 sq km KHAPTAD NATIONAL PĀRK <small>Black</small>	2.75	C	E 100-34	14
River, Canal, Glacier Name					
No.15	Above 50 km NARAYANI RIVER <small>Blue</small>	4.00 mm	C	E 102-25	20 Q
No.16	20-50 Kaligandaki River <small>Blue</small>	3.75	C / L	E 102-25	18
No.17	5 - 19 km Seti River <small>Blue</small>	3.12	C / L	E 102-25	16
No.18	Under 5 km Madi River <small>Blue</small>	2.25	C / L	E 102-25	12
Lake Name					
No.20	Above 30 sq km PHEWA LAKE <small>Blue</small>	4.00 mm	C	E 102-25	20 Q
No.21	10-30 sq km Phewa Lake <small>Blue</small>	3.12	C / L	E 102-25	16
No.22	Under 10 sq km Phewa Lake <small>Blue</small>	2.25	C / L	E 102-25	12
Name of Place (Mountain, Plateau, Valley, Island)					
No.25	Above 30 sq km WESTERN <small>Black</small>	4.00 mm	C	E 100-35	20 Q
No.26	10-30 sq km REGION <small>Black</small>	3.12	C	E 100-35	16
No.27	Under 10 sq km Manasalu Himāl <small>Black</small>	2.25	C / L	E 100-35	12
Name of Zone, District, Village D.C. and Municipality					
No.28	Zone NARAYANI ZONE	5.00	C	E100-24	24 Q
No.29	District P Ā L P Ā <small>Black</small>	4.00	C	E100-24	20
No.30	Village D.C. or Municipality R Ā K U W Ā <small>Black</small>	3.50	C	E100-24	17

	Name of Buildings	Letter Size	Large(C) Small(L)	Letter Style	Size Rank
No.35	Police Station, Post Office, Meteorological Station, Jail, Court, Custom Office, etc. <small>Office</small>	1.50mm	C / L	E 100-14	8 Q
Abbreviation for Public Buildings					
	Office	Abbreviation			
No.36	Police Station <small>Black</small>	PS	1.50 mm	C	E 100-14 8 Q
	Post Office <small>Black</small>	PO	1.50	C	E 100-14 8
	Telecom Office <small>Black</small>	TO	1.50	C	E 100-14 8
	Custom Office <small>Black</small>	CO	1.50	C	E 100-14 8
	District Office <small>Black</small>	DO	1.50	C	E 100-14 8
	Government guest house <small>Black</small>	GH	1.50	C	E 100-14 8
	Bus Station <small>Black</small>	BS	1.50	C	E 100-14 8
	Hotel <small>Black</small>	H	1.50	C	E 100-14 8
	Municipal Office <small>Black</small>	MO	1.50	C	E 100-14 8
	Village Office <small>Black</small>	VO	1.50	C	E 100-14 8
	Stadium <small>Black</small>	ST	1.50	C	E 100-14 8
	Court <small>Black</small>	CT	1.50	C	E 100-14 8
	Jail <small>Black</small>	JL	1.50	C	E 100-14 8
	Theater / Cinema Hall <small>Black</small>	CH	1.50	C	E 100-14 8
	Petroleum Pump <small>Black</small>	PP	1.50	C	E 100-14 8
	Bank <small>Black</small>	BK	1.50	C	E 100-14 8
Arabic Figures					
	Triangulation Point <small>Black</small>	302	1.75 mm		E 100-34 9 Q
	Bench Mark <small>Black</small>	382	1.75		E 100-34 9
	Spot Height <small>Black</small>	443 -275-	1.75		E 100-24 9
	Contour Value <small>Brown</small>	300	1.50		E 102-15 8 Q
No.37	Road Name and Number Road <small>Black</small>	Mahendra A7	2.25	C / L	E 102-25 12 Q
No.40	Destination <small>Black</small>	Katmandu 10km	1.75 mm	C / L	E 100 9 Q
No.31	Vegetation	Dese mixed jungle mainly sal	3.0		E 100-32 14 Q
No.33	Classification <small>Black</small>	Dese mixed jungle mainly sal	3.75	C / L	Inclination-2 45' 18 Q

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List of Sheet Name and Number

Sheet No.	Map Name	Sheet No.	Map Name
091-16	PYUṬHĀN	098-02	SANDHIKḤARKA
092-05	ARKHĀ	098-03	KHARJYĀN
092-06	BURTIBĀN	098-04	RIDĪ
092-09	PURKOṬ	098-05	ṬHĀDĀ
092-10	ARJĀĪ	098-06	SIMALPĀNĪ
092-11	WĀMIṬAKSĀR	098-07	POKHARĀTHOK
092-12	GALKOṬ	098-08	HARTHOK
092-13	HĀNSAPUR	098-09	PATTHARKOṬ
092-14	ARGHĀTOS	098-10	BĀNGAṄGĀ
092-15	TAMGHĀS	098-11	SĀLJHĀNDĪ
092-16	SHĀNTĪPUR	098-12	BUTWAL
093-13	PHOKSIN	098-13	GORUSINĠE
097-03	BARḬĀḬĀ	098-14	KOPUWĀ
097-04	JALUKE	098-15	SŪRYAPURĀ
097-07	BHĀLUBĀN	098-16	PHARSĀṬIKAR
097-08	SIDDHĀRĀ	099-01	BIRGHĀ
097-10	ARRĀNĀKĀ	099-02	GALYĀN BĤANJYĀN
097-11	SHIWAGADHĪ	099-03	WĀLIN
097-12	DUMSĪNĀKĀ	099-05	TĀNSEN
097-14	JAWĀBAIRĀṬH	099-06	ĀRYA BĤANJYĀN
097-15	GĀNESHPUR	099-07	BIRKOṬ
097-16	CHANUṬĀ	099-08	DARCHHĀ
098-01	DHANCHAUR	099-09	MĀTHĀGADH

Nalwa

橋本 一
(R.H.)

Sheet No.	Map Name	Sheet No.	Map Name
099-10	JHADEWĀ	104-06	KAKARHAWĀ
099-11	JYĀMIRE	104-07 and 11	MARCHAWĀR
099-12	JHIRUBĀS	104-08	ṬHARKĪ
099-13	DEWADAHA	105-01	DHAKDHAĪ
099-14	SUNWAL	105-02	PARĀSĪ
099-15	DUMKIBĀS	105-03	BARGHĀṬ
099-16	ARUṆKHOLĀ	105-04	MANDARTHĀN
100-05	RAKUWĀ	105-06	MAHESHPUR
100-06	BULINṬĀR	105-07	SURAJPURĀ
100-07	KOṬḌĀḌĀ	105-08	TRIBENĪ
100-09	DHOBĀḌĪ	106-01	AMALṬĀRĪ
100-10	TĀGĪKOṬ	106-02	DEWĪTĀL
100-11	BHEḌĀBĀRĪ		
100-12	NĀRĀYAṄGAḌH		
100-13	CHORMĀRĀ		
100-14	SHIWABASTĪ		
100-15	RĀMPUR		
103-03	KRIṢṆANAGAR		
103-04	BHĀLUBĀRĪ		
104-01 and 05	TAULIHAWĀ		
104-02	PAKADĪ		
104-03	LUMBINĪ		
104-04	SHIDDHĀRTH NAGAR		

* 104-05 this map shall be extended to map number 104-01

* 104-11 this map shall be extended to map number 104-07

Mahar

橋本良一
(R.H.P.)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

P. O. BOX 216 MITSUI BLDG
2-1, NISHI-SHINJUKU, SHINJUKU-KU TOKYO
163 JAPAN

Hiroyuki MATSUDA
Managing Director
International Engineering
Consultants Association(Japan)
New Kojimachi Bldg.,
5-3-22, Kojimachi, Chiyoda-ku
Tokyo, Japan

February 16, 1993

Mr. S.P. MAHARA
Project Director
Lumbini Zone Topo-Mapping
Project
HMG Survey Department
Min Bhawan, Baneswar
Kathmandu, Nepal

Re: Magnetic Data

Dear Mr. MAHARA,

I would like to remind you of the magnetic data which should be provided by your office in January 1993, as agreed upon in the Minutes of Discussion dated December 16, 1992.

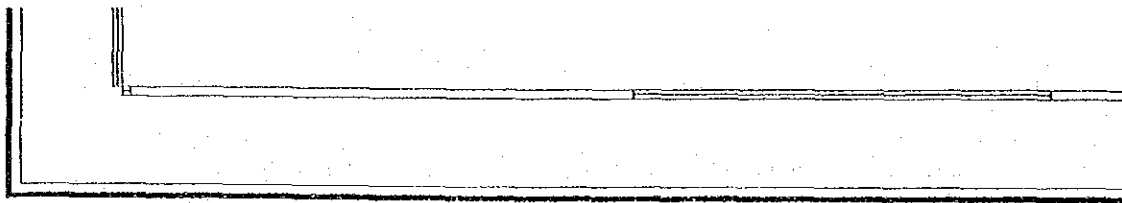
I understand that Mr. G.K. Karna was to bring the said data when he comes to Japan for the counterpart training course. However, he didn't bring it with him.

So, I would like to inform you about the treatment of the marginal information on the magnetic north attached herewith. (Please refer to the attached paper)

Sincerely yours,

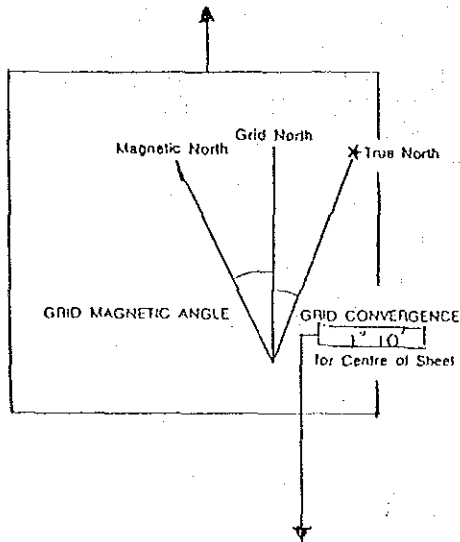
H. Matsuda

Hiroyuki MATSUDA
Leader of Study Team
Japan International
Cooperation Agency (JICA)



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This drawing shall be indicated to the west side from 84 degrees east longitude.



Projection: Modified Universal Transverse Mercator
 Spheroid: Everest Spheroid 1830
 Unit of Measurement: Metre
 Central Meridian: 84° East
 Latitude of Origin: 0° North
 Scale factor at Origin: 0.9999
 False coordinates of Origin: Zero metre at Equator
 500,000 metre at 84° E
 Height datum: MSL (India)
 Aerial Photography: In December 1990
 Field Verification: In December 1991
 Magnetic North: []
 Geographical Name and Boundary (International, Zonal, District and Others)
 : Based on SD's information

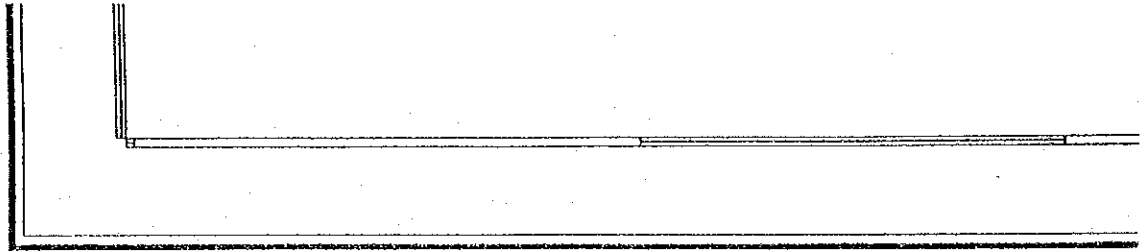
- 1st class road, Bridge with pier
- 2nd class or link road, Bridge
- 3rd class road, Bridge
- 4th class road, Bridge
- Main trail, Bridge
- Footpath, Bridge
- Road under construction
- Tunnel
- (1) Overpass (2) Underpass
- Park lane
- Railway (1) Bridge (2) Station (3) Tunnel
- Aerial cableway, Station
- (1) Buildings (2) Open sheds
- (1) Ruins (2) Cave
- Airfield (1) Hard surface (2) Grass

Calculated numerals (degree, minute) shall be indicated in the each map.

This explanation shall be blank.

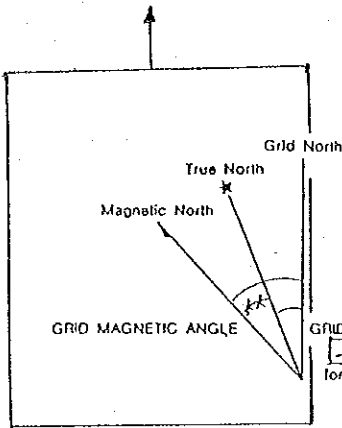


This map was prepared jointly by the Survey Department, H.M.G. of Nepal and the Japan International Cooperation Agency under the Technical Cooperation Programme of His Majesty's Government of Nepal and the Japanese Government.



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This drawing shall be indicated to the east side from 84 degrees east longitude.



Projection: Modified Universal Transverse Mercator
 Spheroid: Everest Spheroid 1830
 Unit of Measurement: Metre
 Central Meridian: 84° East
 Latitude of Origin: 0° North
 Scale factor at Origin: 0.9999
 False coordinates of Origin: Zero metre at Equator
 500,000 metre at 84° E
 Height datum: MSL (India)
 Aerial Photography: In December 1990
 Field Verification: In December 1991
 Magnetic North: -1° 26'
 Geographical Name and Boundary (International, Zonal, District and Others)
 : Based on SD's Information

Calculated numerals (degree, minute) shall be indicated in the each map.

This explanation shall be blank.



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- 1st class road, Bridge with pier
- 2nd class or link road, Bridge
- 3rd class road, Bridge
- 4th class road, Bridge
- Main trail, Bridge
- Footpath, Bridge
- Road under construction
- Tunnel
- (1) Overpass (2) Underpass
- Park lane
- Railway (1) Bridge (2) Station (3) Tunnel
- Aerial cableway, Station
- (1) Buildings (2) Open sheds
- (1) Ruins (2) Cave
- Arfield (1) Hard surface (2) Grass

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