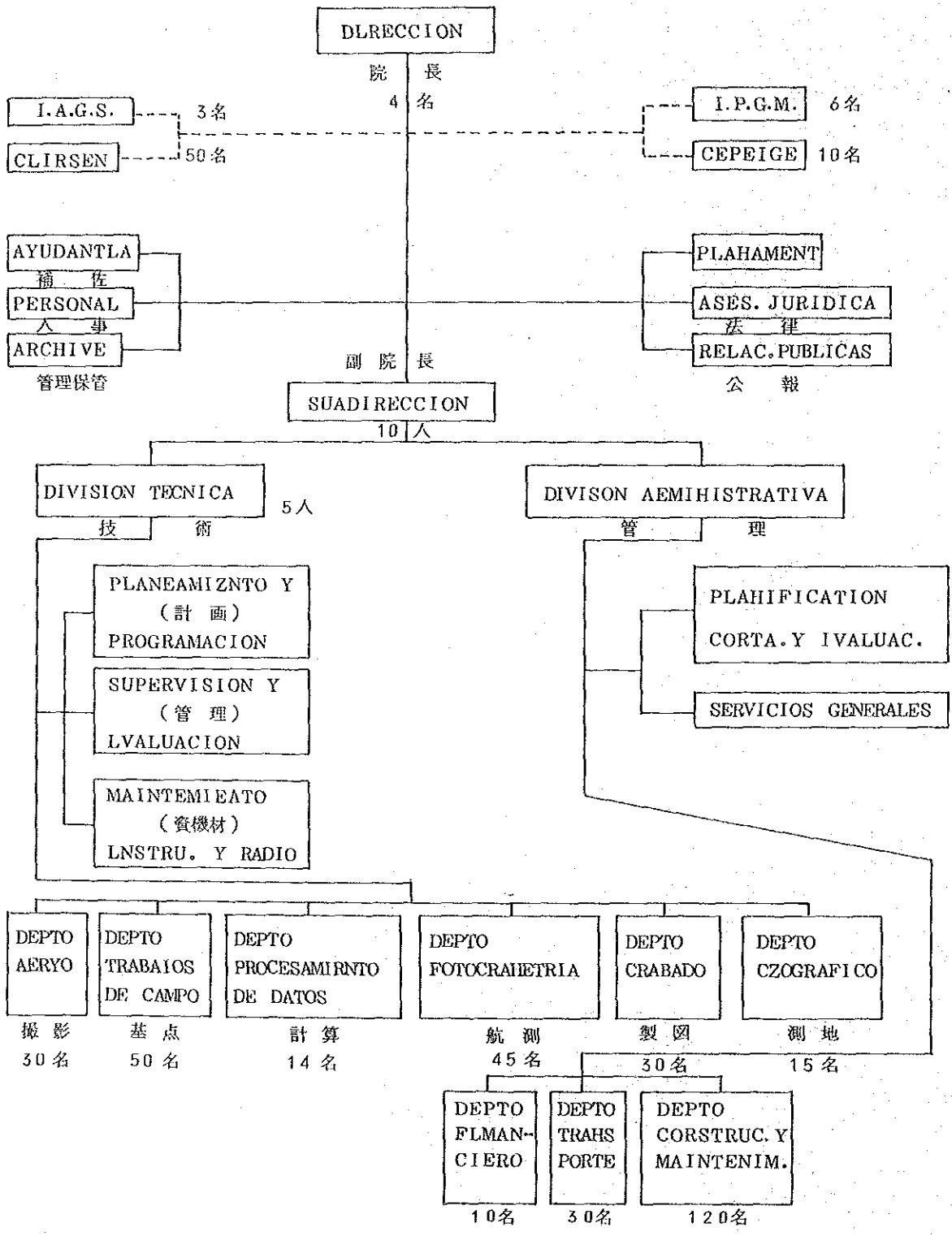
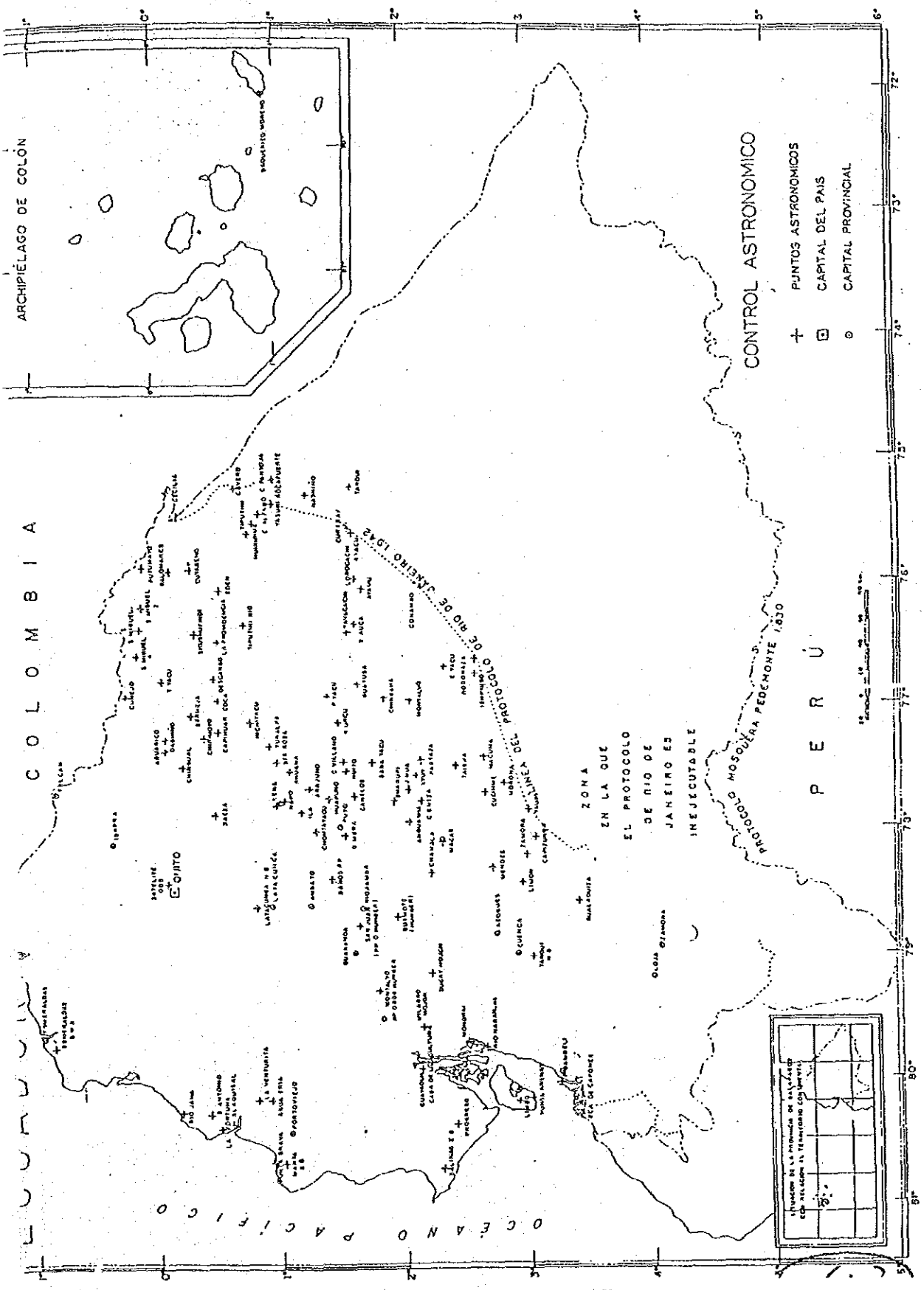
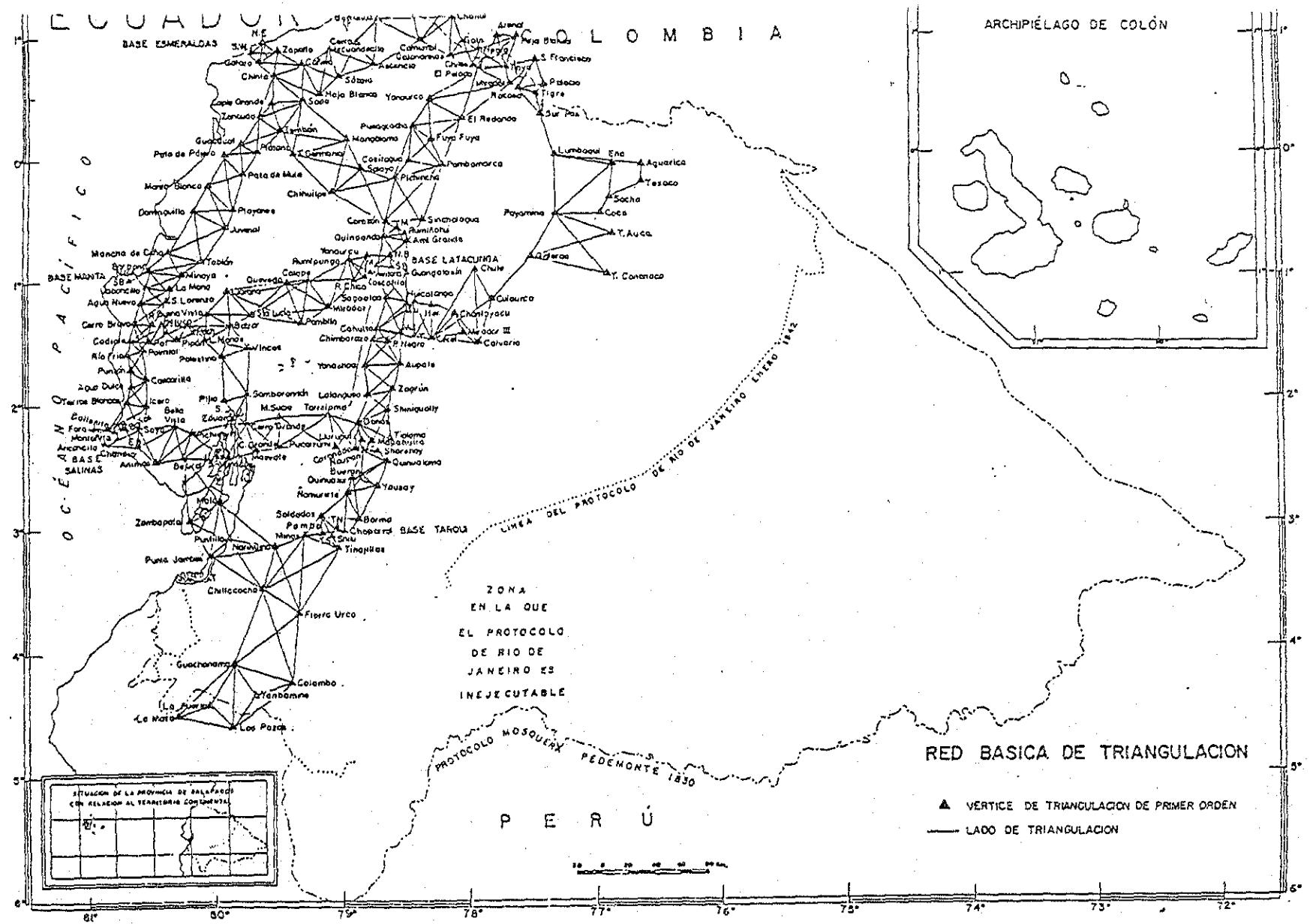
図－2　I.G.M 組織図

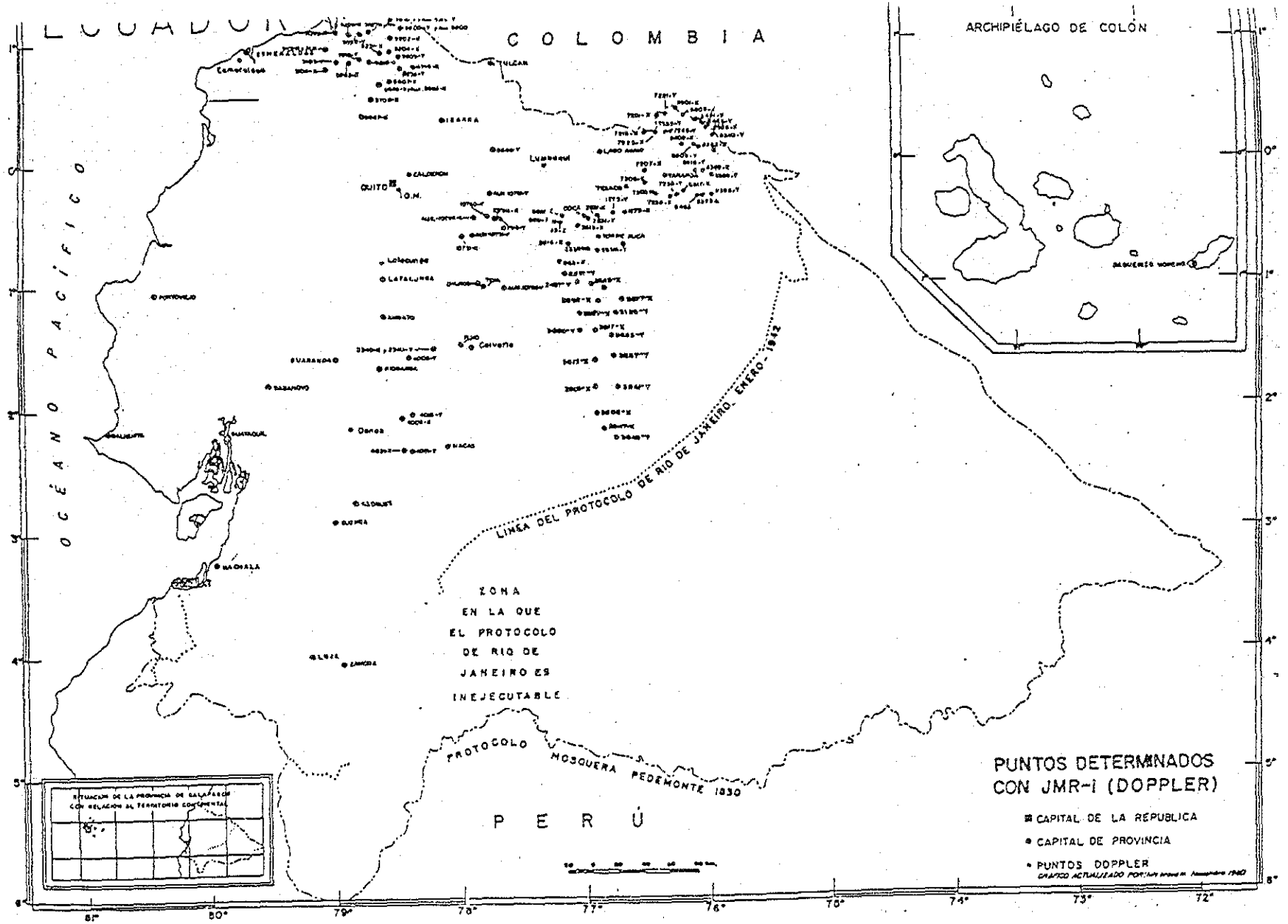

DLRECCION
院　長
4　名
I.A.G.S.
3名
CLIRSEN
50名
I.P.G.M.
6名
CEPEIGE
10名
AYUDANTLA
補　佐
PERSONAL
人　事
ARCHIVE
管理保管
PLAHAMENT
ASES. JURIDICA
法　律
RELAC.PUBLICAS
公　報
副 院 長
SUADIRECCION
10人
DIVISION TECNICA
技　術
5人
DIVISON AEMIHISTRATIVA
管　理
PLANEAMIZNTO Y
（計　画）
PROGRAMACION
SUPERVISION Y
（管　理）
LVALUACION
MAINTEMIEATO
（資機材）
LNSTRU. Y RADIO
PLAHIFICATION
CORTA.Y IVALUAC.
SERVICIOS GENERALES
DEPTO
AERYO
撮　影
30名
DEPTO
TRABAIOS
DE CAMPO
基　点
50名
DEPTO
PROCESAMIRNTO
DE DATOS
計　算
14名
DEPTO
FOTOCRAHETRIA
航　測
45名
DEPTO
CRABADO
製　図
30名
DEPTO
CZOGRAFICO
測　地
15名
DEPTO
FLMAN-
CIERO
10名
DEPTO
TRAHS
PORTE
30名
DEPTO
CORSTRUC. Y
MAINTENIM.
120名


ARCHIPIÉLAGO DE COLÓN
CONTROL ASTRONOMICO
PUNTOS ASTRONOMICOS
CAPITAL DEL PAIS
CAPITAL PROVINCIAL
COLOMBIA
PERÚ
ECUADOR
OCEANO PACIFICO
QUITO
ZONA EN LA QUE EL PROTOCOLO DE RIO DE JANEIRO ES INEJECUTABLE
PROTOCOLO MOSQUERA PEDEMONTE 1.830
PROTOCOLO DE RIO DE JANEIRO 1942
LINEA DEL PROTOCOLO

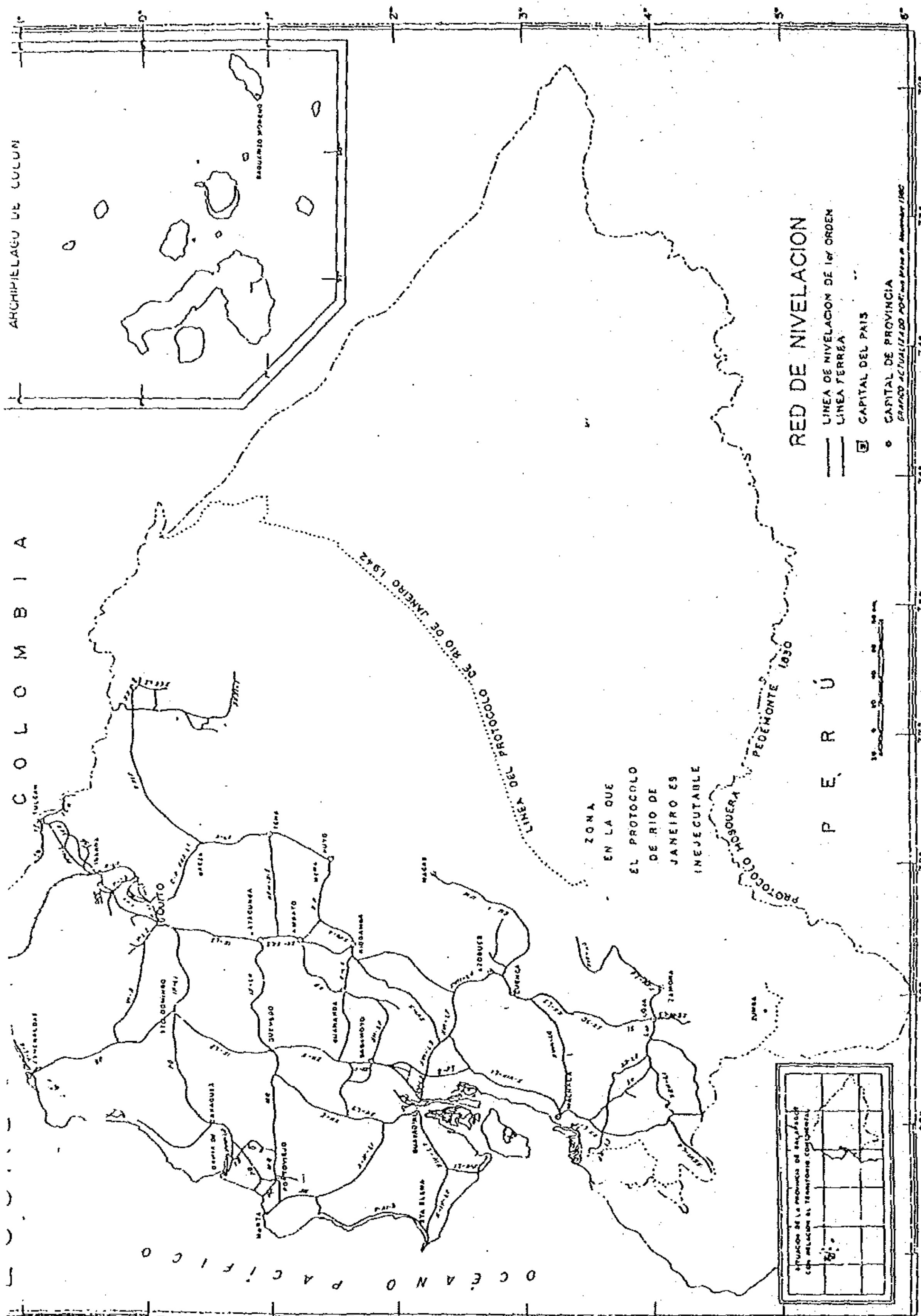
天測点網図　　図－3


ECUADOR
COLOMBIA
PERÚ
OCÉANO PACÍFICO
ARCHIPIÉLAGO DE COLÓN
BASE ESMERALDAS
BASE MANTA
BASE SALINAS
BASE LATACUNGA
BASE TAROLA
LINEA DEL PROTOCOLO DE RIO DE JANEIRO 1942
PROTOCOLO MOSQUERA PEDEMONTE 1830
ZONA EN LA QUE EL PROTOCOLO DE RIO DE JANEIRO ES INEJECUTABLE
SITUACION DE LA PROVINCIA DE GALAPAGOS CON RELACION AL TERRITORIO CONTINENTAL
RED BASICA DE TRIANGULACION
VERTICE DE TRIANGULACION DE PRIMER ORDEN
LADO DE TRIANGULACION
81°
80°
79°
78°
77°
76°
75°
74°
73°
72°

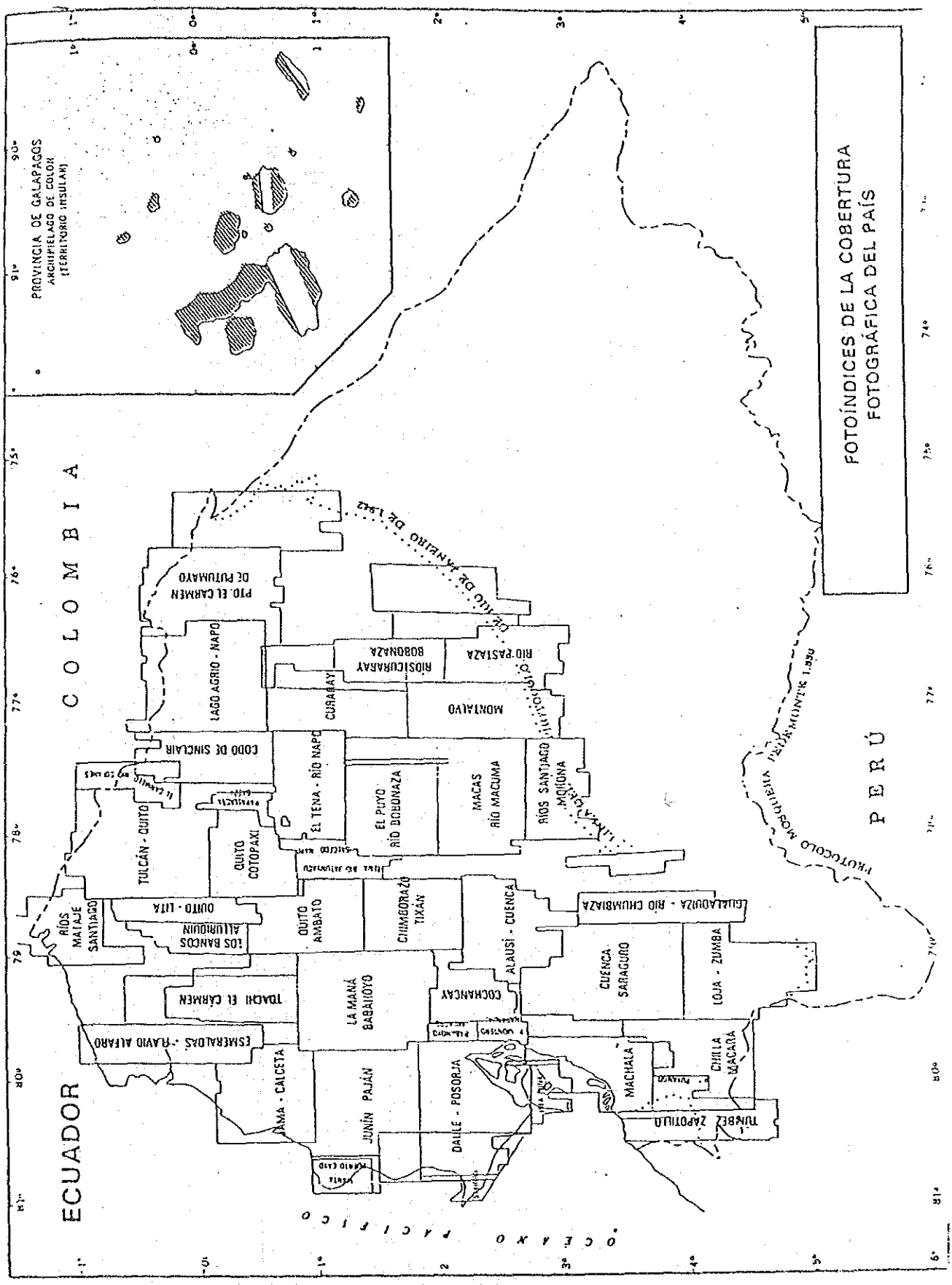
三角網図　図－4


ECUADOR
COLOMBIA
OCÉANO PACÍFICO
ARCHIPIÉLAGO DE COLÓN
QUITO
LÍNEA DEL PROTOCOLO DE RIO DE JANEIRO ENERO 1942
ZONA EN LA QUE EL PROTOCOLO DE RIO DE JANEIRO ES INEJECUTABLE
PROTOCOLO MOSQUERA PEDEMONTE 1830
PERÚ
PUNTOS DETERMINADOS CON JMR-i (DOPPLER)
CAPITAL DE LA REPUBLICA
CAPITAL DE PROVINCIA
PUNTOS DOPPLER

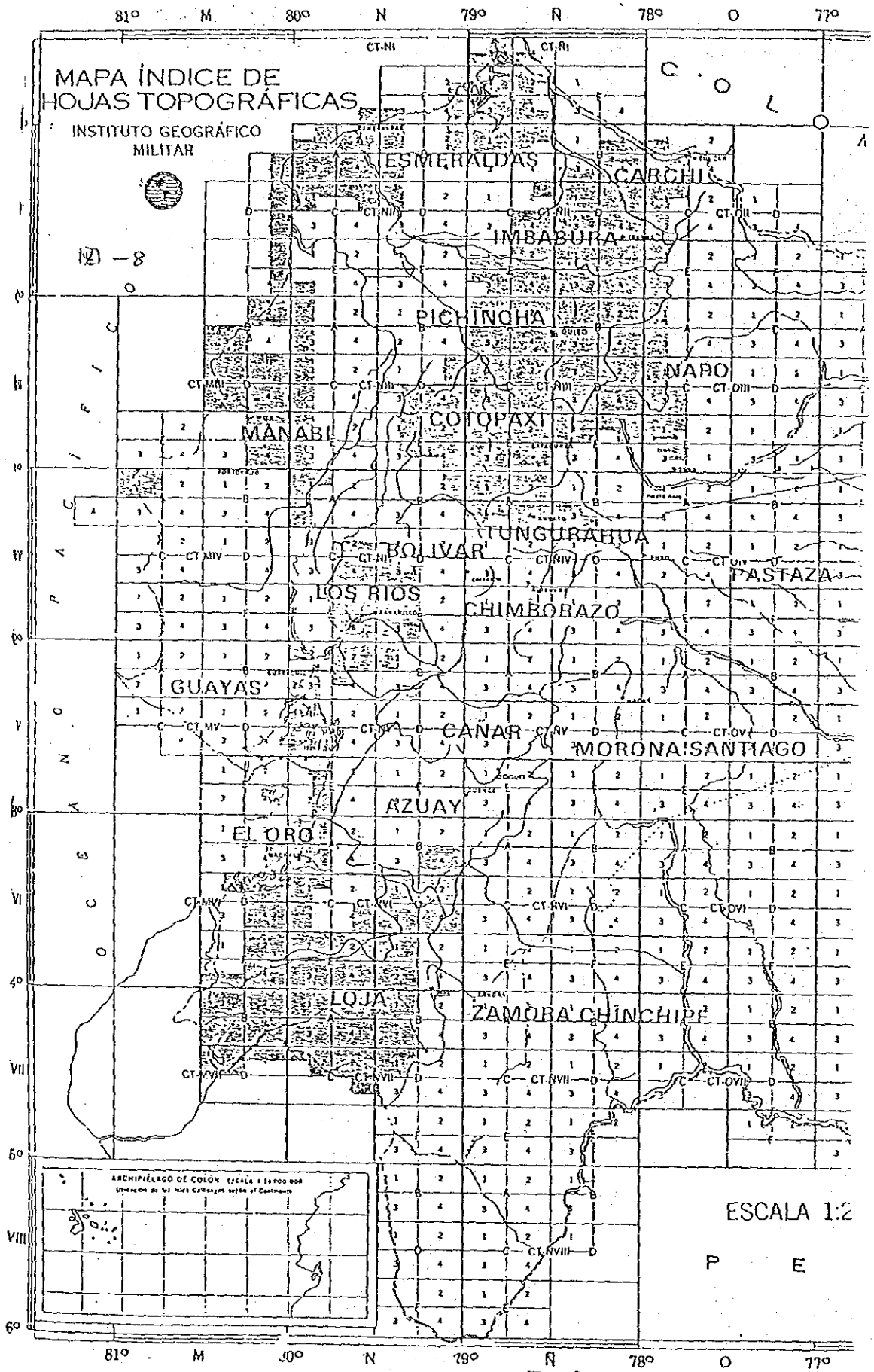
JMR機図 図－5


ARCHIPIELAGO DE COLON
COLOMBIA
PERÚ
OCÉANO PACÍFICO
RED DE NIVELACION
LINEA DE NIVELACION DE 1er ORDEN
LINEA FERREA
CAPITAL DEL PAIS
CAPITAL DE PROVINCIA
LINEA DEL PROTOCOLO DE RIO DE JANEIRO 1942
ZONA EN LA QUE EL PROTOCOLO DE RIO DE JANEIRO ES INEJECUTABLE
PROTOCOLO MOSQUERA PEDEMONTE 1830
QUITO

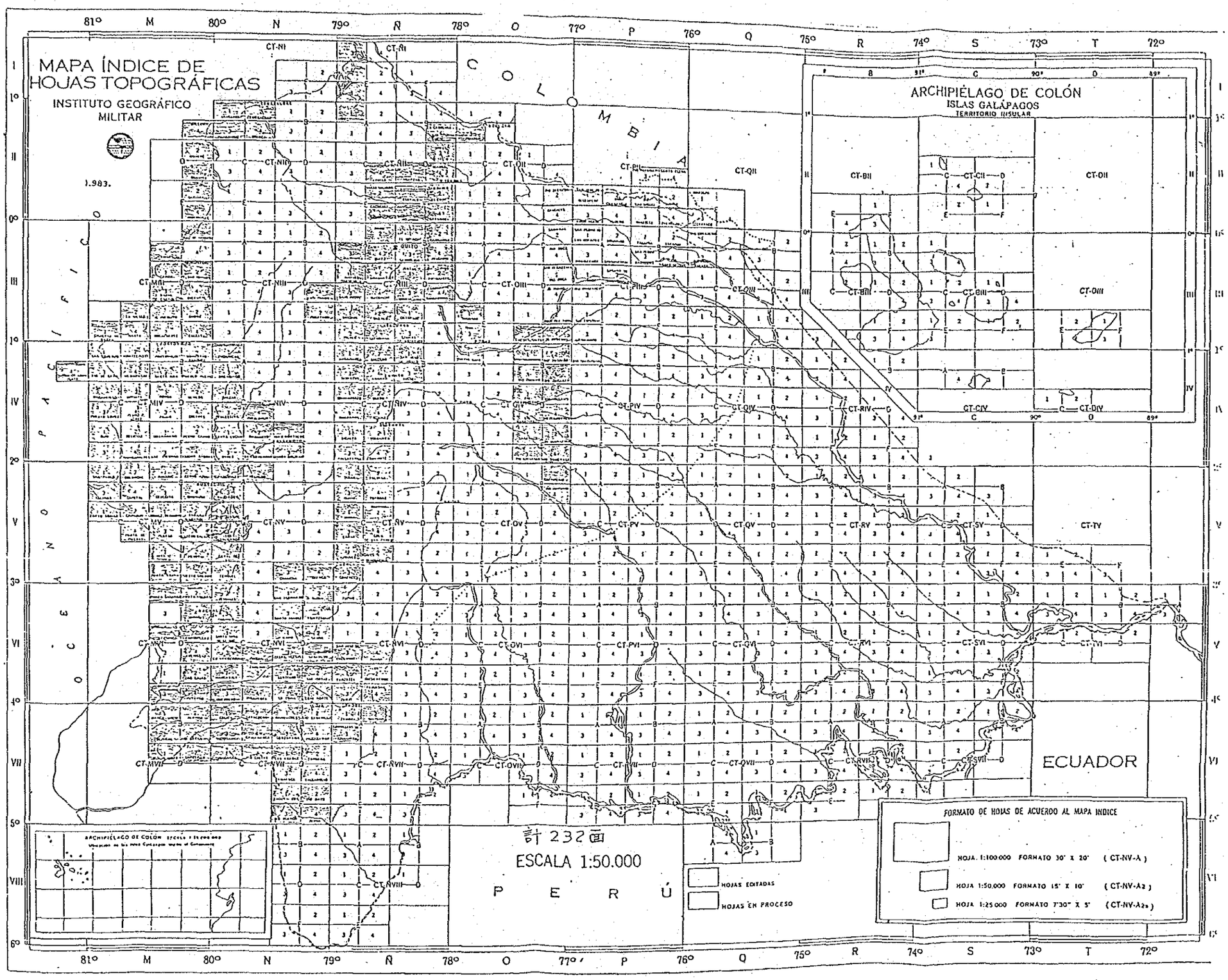
水準網図　　　図－6


FOTOÍNDICES DE LA COBERTURA
FOTOGRÁFICA DEL PAÍS
PROVINCIA DE GALAPAGOS
ARCHIPIELAGO DE COLON
(TERRITORIO INSULAR)
COLOMBIA
ECUADOR
PERÚ
OCEANO PACIFICO
PTO. EL CARMEN DE PUTUMAYO
LAGO AGRIO - NAPO
CODO DE SINCLAIR
TULCÁN - QUITO
QUITO COTOPAXI
EL TENA - RÍO NAPO
CURARAY
RIOS CURARAY BOBONAZA
RIO PASTAZA
MONTALVO
EL PUYO RÍO DOBUNAZA
MACAS RÍO MACUMA
RÍOS SANTIAGO MORONA
RÍOS MAIAJE SANTIAGO
QUITO - ITA
LOS BANCOS ALLURIQUIN
QUITO AMBATO
CHIMBORAZO TIXÁN
GUALAQUIZA - RIO CHUMBIAZA
ALAUSI - CUENCA
CUENCA SARAGURO
LOJA - ZUMBA
TAOCHI EL CARMEN
LA MANÁ BABAHOYO
COCHANCAY
ESMERALDAS - RAVIO ALFARO
AMA - CALCETA
JUNÍN PAJÁN
DAULE - POSORJA
MACHALA
CHILLA MACARA
TUMBEZ ZAPOTILLA

写真索引図　　図－7

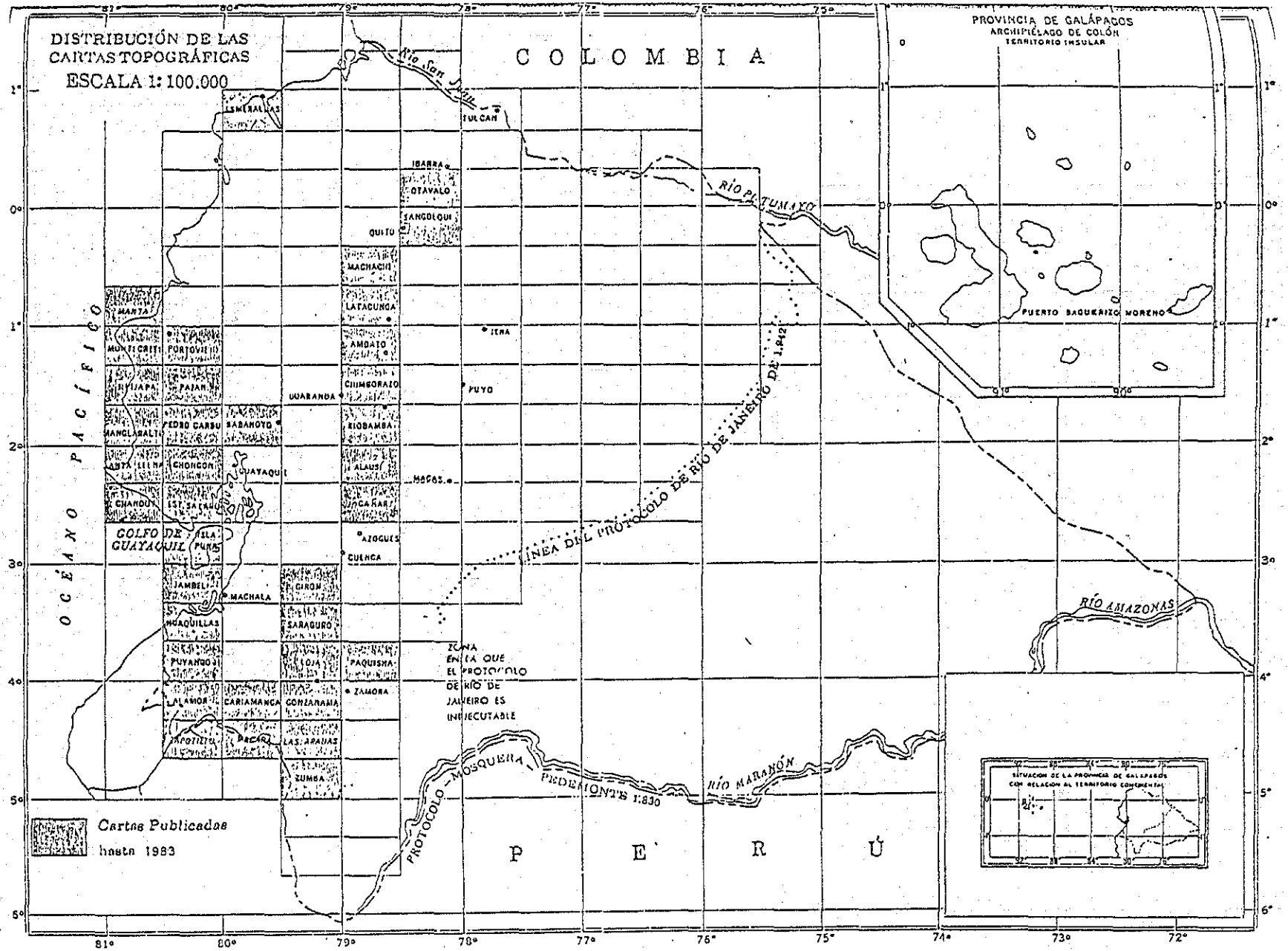


地図索引図　図－8　（縮尺 1／25,000）


MAPA ÍNDICE DE
HOJAS TOPOGRÁFICAS
INSTITUTO GEOGRÁFICO
MILITAR
1.983.
COLOMBIA
PACIFICO
OCEANO
ECUADOR
PERÚ
ARCHIPIÉLAGO DE COLÓN
ISLAS GALÁPAGOS
TERRITORIO INSULAR
計 232面
ESCALA 1:50.000
HOJAS EDITADAS
HOJAS EN PROCESO
FORMATO DE HOJAS DE ACUERDO AL MAPA INDICE
HOJA 1:100.000 FORMATO 30' X 20' (CT-NV-A)
HOJA 1:50.000 FORMATO 15' X 10' (CT-NV-A2)
HOJA 1:25.000 FORMATO 7'30" X 5' (CT-NV-A2a)

地図索引図

地図参考図 図－10（縮尺1／100,000）



（単位：百万ドル）

	1975	1976	1977	1978*1	1979*2
Ⅰ 経常収支	−345	−115	−623	−607	−585
1. 貿易収支	−81	192	−155	−86	199
輸出	1,013	1,307	1,401	1,537	2,144
輸入	1,094	1,115	1,556	1,623	1,945
2. 貿易外収支	−296	−338	−504	−565	−824
3. 移転収支	32	31	36	44	40
Ⅱ 資本収支	260	314	779	641	610
1. 公共部門	212	322	696	397	343
2. 民間部門	48	−8	83	244	267
（誤差・脱漏を含む）					
総合収支（Ⅰ＋Ⅱ）	−85	199	156	34	35

注＊1　暫定値
　＊2　推定値

（出所）中央銀行、ＩＭＦ資料

図１４　国際収支の推移

	1978年				2000年					
	GDP		従業者数		GDP*1			従業者数		
	百万スクレ	シェア(%)	1,000人	シェア(%)	百万スクレ	シェア(%)	成長率(%)	1,000人	シェア(%)	成長率(%)
第一次産業	54,201	30.0	1,282	50.0	166,776	21.8	5.2	2,347	45.5	2.8
農牧業	34,952	19.4	1,274	49.7	133,376	17.4	6.2	2,330	45.2	2.8
鉱業	19,249	10.6	8	0.3	33,400	4.4	2.5	17	0.3	3.5
第二次産業	43,604	24.2	381	14.9	263,085	34.4	8.5	937	18.1	4.2
工業	32,076	17.8	268	10.5	174,447	22.8	8.0	606	11.7	3.8
製造業	(23,640)	(13.1)	(89)	(3.5)	(113,390)	(14.8)	(7.4)	(216)	(4.1)	(4.1)
小規模工業・手工業	(8,436)	(4.7)	(179)	(7.0)	(61,057)	(8.0)	(9.4)	(390)	(7.5)	(3.6)
建設業	11,528	6.4	113	4.4	88,638	11.6	9.7	331	6.4	5.0
基礎サービス	9,842	5.5	75	2.9	46,876	6.1	7.4	163	3.2	3.6
電気・ガス・水道	1,736	1.0	12	0.5	16,574	2.2	10.8	56	1.1	7.3
運輸	8,106	4.5	63	2.4	30,302	3.9	6.2	106	2.1	2.4
その他サービス	72,730	40.3	824	32.2	288,148	37.7	6.5	1,713	33.2	3.4
商業	24,208	13.4	248	9.7	119,721	15.7	7.5	714	13.8	4.9
サービス	48,522	26.9	575	22.5	168,427	22.0	5.8	797	19.4	2.5
合計	180,377	100.0	2562	100.0	764885	100.0	6.8	5,159	100.0	3.2

注＊1）ＧＤＰは１９７８年価格　成長率は年平均
（出所）ＪＵＮＡＰＬＡ"Estrategia del Desarrollo"（開発戦略）１９７９

図１１　西暦２０００年の経済目標

（単位：百万スクレ）

部門＼年	1971	1973	1975	1976	1977	1978	1979
農林水産業	10,689	15,345	24,666	27,393	34,089	38,286	42,567
鉱業	443	6,053	14,366	18,199	19,002	20,318	35,571
製造業	6,328	9,928	16,442	19,953	25,386	31,389	38,500
電気・ガス・水道	492	643	886	1,126	1,417	1,788	2,232
建設業	2,416	2,853	6,255	8,295	10,452	12,047	13,763
商業	5,723	6,969	12,677	15,786	20,309	24,225	28,733
運輸・通信	2,821	3,667	5,029	5,868	7,549	9,005	10,680
不動産業	2,777	4,141	7,418	9,654	12,101	15,029	17,683
政府	3,633	5,833	9,385	11,300	13,291	14,876	16,458
その他	4,932	8,143	12,373	13,935	17,754	20,015	23,157
国内総生産	40,254	63,575	109,495	131,462	161,397	187,057	229,280

（出所）　IMF資料

図15　部門別国内総生産（名目）

（単位：%）

	1975	1976	1977	1978	1979
農林水産業	6.5	4.0	1.2	1.0	2.0
鉱業	−7.3	11.0	−4.2	9.8	5.7
製造業	13.0	7.4	12.0	12.1	10.0
電気・ガス・水道	3.1	17.3	12.2	13.3	12.2
建設業	2.9	10.2	5.0	2.0	2.4
商業	10.1	10.0	10.9	6.5	6.3
運輸・通信	13.3	4.6	10.9	6.5	6.3
不動産業	12.6	11.9	9.0	8.0	6.4
政府	−0.2	4.7	5.0	−1.0	1.5
その他	4.5	2.8	11.1	1.7	5.1
実質総生産	5.0	7.1	6.0	5.3	5.3

（出所）　IMF資料

図12　実質GDPの伸び率の推移

（単位：百万ドル）

	1975	1976	1977	1978	1979
輸出総計	1,014.6	1,297.1	1,357.6	1,528.3	2,144.0
原油	633.4	735.0	651.1	558.0	1,032.3
石油製品	—	—	17.0	91.2	145.4
バナナ	142.4	136.7	138.3	171.8	196.9
コーヒー	64.3	205.4	156.6	281.2	263.1
ココア	70.7	94.9	244.4	257.8	276.3
砂糖	16.4	6.2	11.1	7.8	16.0
水産品	36.8	53.8	72.9	89.5	120.9
その他	50.6	65.1	66.2	71.0	93.1

（出所）　中央銀行、ＩＭＦ資料

主要輸出品目

		1975	1976	1977	1978
輸入総計	実数（百万USドル）	943.2	993.1	1,508.4	1,630.2
	構成比（%）	100.0	100.0	100.0	100.0
消費財		13.1	11.2	11.1	11.0
耐久消費財		6.1	4.5	5.5	5.7
中間財		43.8	43.7	40.6	38.1
工業用原料		29.6	32.8	31.6	29.9
建設資材		7.5	6.9	6.1	5.5
資本財		42.6	42.8	48.0	50.7
農業用		3.6	3.1	1.9	1.6
工業用		23.9	26.2	26.5	30.2
運輸設備		15.1	13.5	19.6	18.9
その他		0.5	2.3	0.3	0.2

（ＣＩＦ輸入許可ベース）　　（出所）　中央銀行、ＩＭＦ資料

図１３　主要輸出入品目（総額に対する構成比）

プロジェクト	1980－1984の投資額(百万スクレ)	対象地域
A．地域開発	20,137.8	
1. サイロ・倉庫網	540.0	山岳地帯
2. 植林	1,776.6	全国
3. 国立公園	278.4*	〃
4. 沿岸漁業	444.3	海岸地帯
5. Jubones灌漑計画	550.0	El Oro州
6. Tuhuin灌漑計画	501.0	El Oro州
7. Carrizal - Chone灌漑計画	1,122.0	Manabi州
8. Daule - Peripa灌漑計画	2,413.9	Guayas州
9. 地方電化	1,810.0	全国
10. 地方通信網	417.5	〃
11. 地方道路	4,400.0	〃
12. 地域総合開発	3,090.4	〃
13. 地方保健	1,310.6	〃
14. 地方教育	1,483.1	〃
B．社会改良	41,900.1	
15. 上水道	4,855.2	全国
16. 下水道	6,043.8	〃
17. 保健	4,922.2	〃
18. 識字化	1,182.8*	〃
19. 教育	4,623.6	〃
20. 民生向上及び社会教育	2,153.7	〃
21. 職業訓練	2,088.8*	〃
22. 住宅	16,000.0**	〃
C．エネルギー	39,273.1	
23. 地震波及び地質調査	438.3	アマゾン地方、海岸地帯
24. 油井掘削	7,555.0	〃
25. 生産設備	2,435.4	〃
26. グアヤキル湾天然ガス開発	1,500.0	グアヤキル湾
27. 石油精製	10,156.0	海岸地帯
28. Paute川水力発電	7,760.7	Azuay州
29. Ago yan水力発電	3,753.0	Tugurahur州
30. 送電網	5,575.6	全国
D．インフラストラクチュア	17,928.9	
31. 東部基本道路網	2,630.2	東部アマゾン地方
32. 北部海岸地帯基本道路網	1,910.0	海岸地帯
33. 山岳地帯南部基本道路網	1,460.0	山岳地帯
34. 電化鉄道	600.0	全国
35. 都市電話	3,539.0	〃
36. 空港	6,340.0	〃
37. 漁港	1,449.7	Manta港、Posorja港
E．製造業	8,045.1	
38. 肥料	1,693.8	El Oro州
39. セメント	4,404.0	Guayas州 Canar州 Tmbabura州
40. 製鉄	1,200.0	El Oro州
41. 自動車	747.3	諸地域

注）＊経常歳出を含む。　　（出所）「国家開発計画」（CONADE）
＊＊Junta Nacionalおよびエクアドル住宅銀行の投資を含む。

図16　エクアドルの基本プロジェクト

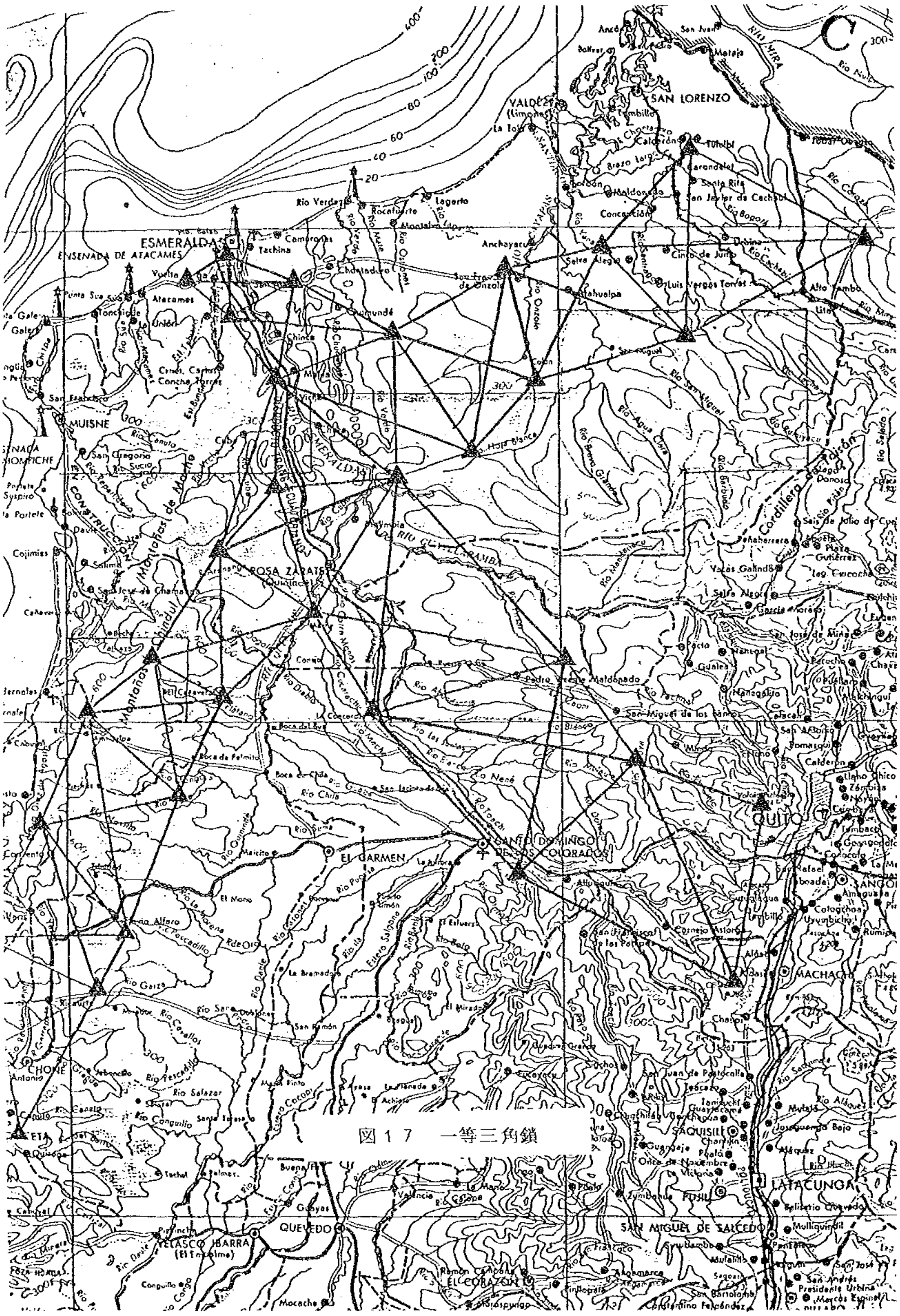

ESMERALDAS
ENSENADA DE ATACAMES
SAN LORENZO
VALDEZ
(Limones)
MUISNE
ROSA ZARATE
(Quininde)
SANTO DOMINGO DE LOS COLORADOS
EL CARMEN
QUITO
CHONE
QUEVEDO
VELASCO IBARRA
(El Empalme)
EL CORAZON
SAN MIGUEL DE SALCEDO
LATACUNGA
SAQUISILI
PUJILI
MACHACHI
SANGOLQUI
Cordillera Occidental
Montañas de Mache
Montañas Chindul
Rio Esmeraldas
Rio Guayllabamba
Rio Blanco
Rio Toachi
Rio Mira
Atacames
Tachina
Camarones
Rio Verde
Rocafuerte
Lagarto
Anchayacu
Selva Alegre
Cinco de Junio
Luis Vargas Torres
Atahualpa
Alto Tambo
San Miguel
Hoja Blanca
Chinca
Quinindé
Viche
Majua
Malimpia
Cojimies
Pedro Vicente Maldonado
San Miguel de los Bancos
Nanegalito
Gualea
Pacto
Calacali
Pomasqui
Calderon
Conocoto
Amaguaña
Cotogchoa
Uyumbicho
Rumipamba
Aloasi
Chaupi
Alluriquin
Cornejo Astorga
San Francisco de las Pampas
San Juan de Pastocalle
Guaytacama
Toacaso
Poalo
La Victoria
Once de Noviembre
Belisario Quevedo
Mulliquindil
Panzaleo
Mulalillo
San Andres
Presidente Urbina
Marcos Espinel
Cristobal Colon
Sigchos
Chugchilan
Zumbahua
Angamarca
Pinllopata
Moraspungo
Ramon Campaña
Mocache
Valencia
Guayas
La Mana
Buena Fe
Balzar
Sabanal
Rio Salazar
Rio Pescadillo
Rio Garza
Rio Canuto
Ricaurte
Rio Quinindé
Boca de Chila
Rio Chila
La Concordia
El Nono
San Ramon
Bramadora
Rio Caoni
Rio Pitzara
La Tola
Tambillo
Rio Cayapas
Rio Santiago
Rio Bogota
Cachabi
Tululbi
Mataje
San Juan
Ancon
Borbon
Maldonado
Concepcion
Calderon
Carondelet
Santa Rita
San Javier de Cachabi
Rio Onzole
Colon
Chontaduro
San Francisco de Onzole
Rio Canande
Rio Sade
Rio Cole
Rio Sucio
San Gregorio
Daule
Salima
San Jose de Chamanga
Bunche
Cañaveral
Cabo San Francisco
Punta Galera
Tonchigue
Tonsupa
San Francisco
Vuelta Larga
Rio Sua
Rio Atacames
Rio Teaone
Rio Mache
Rio Tiaone
Rio Verde
Rio Ostiones
400
200
100
80
60
40
20
300
500
C

図１７　一等三角鎖

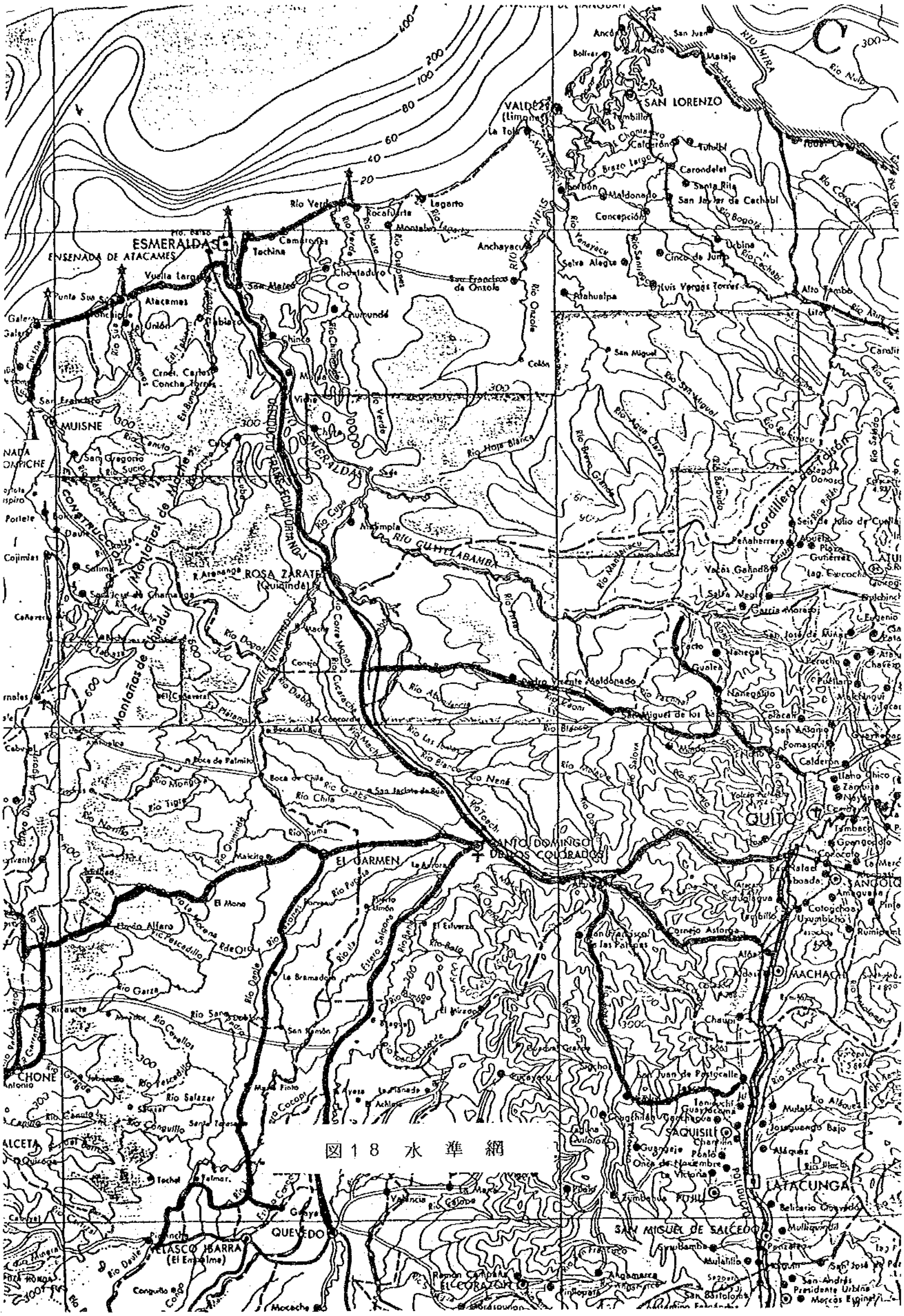

ESMERALDAS
ENSENADA DE ATACAMES
SAN LORENZO
VALDEZ
(Limones)
RIO MIRA
MUISNE
ROSA ZARATE
(Quinindé)
SANTO DOMINGO
DE LOS COLORADOS
EL CARMEN
QUITO
SANGOLQUI
MACHACHI
SAQUISILI
LATACUNGA
SAN MIGUEL DE SALCEDO
QUEVEDO
VELASCO IBARRA
(El Empalme)
CHONE
EL CORAZON
RIO GUAYLLABAMBA
Montañas de Chindul
Cordillera de Toisan
Rio Esmeraldas
Rio Blanco
Rio Toachi
Rio Quinindé
Rio Daule

図18 水準網

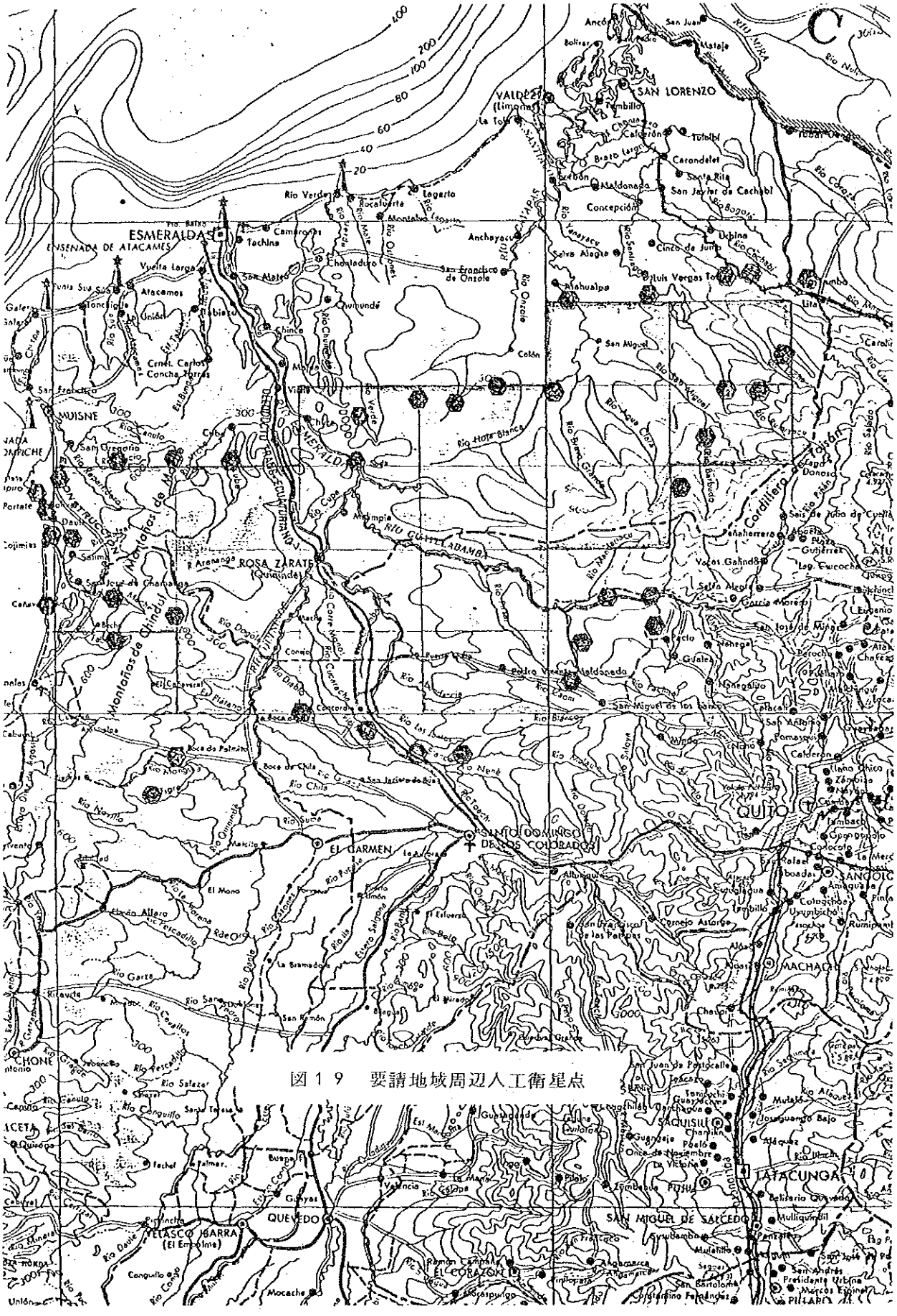


図１９　要請地域周辺人工衛星点

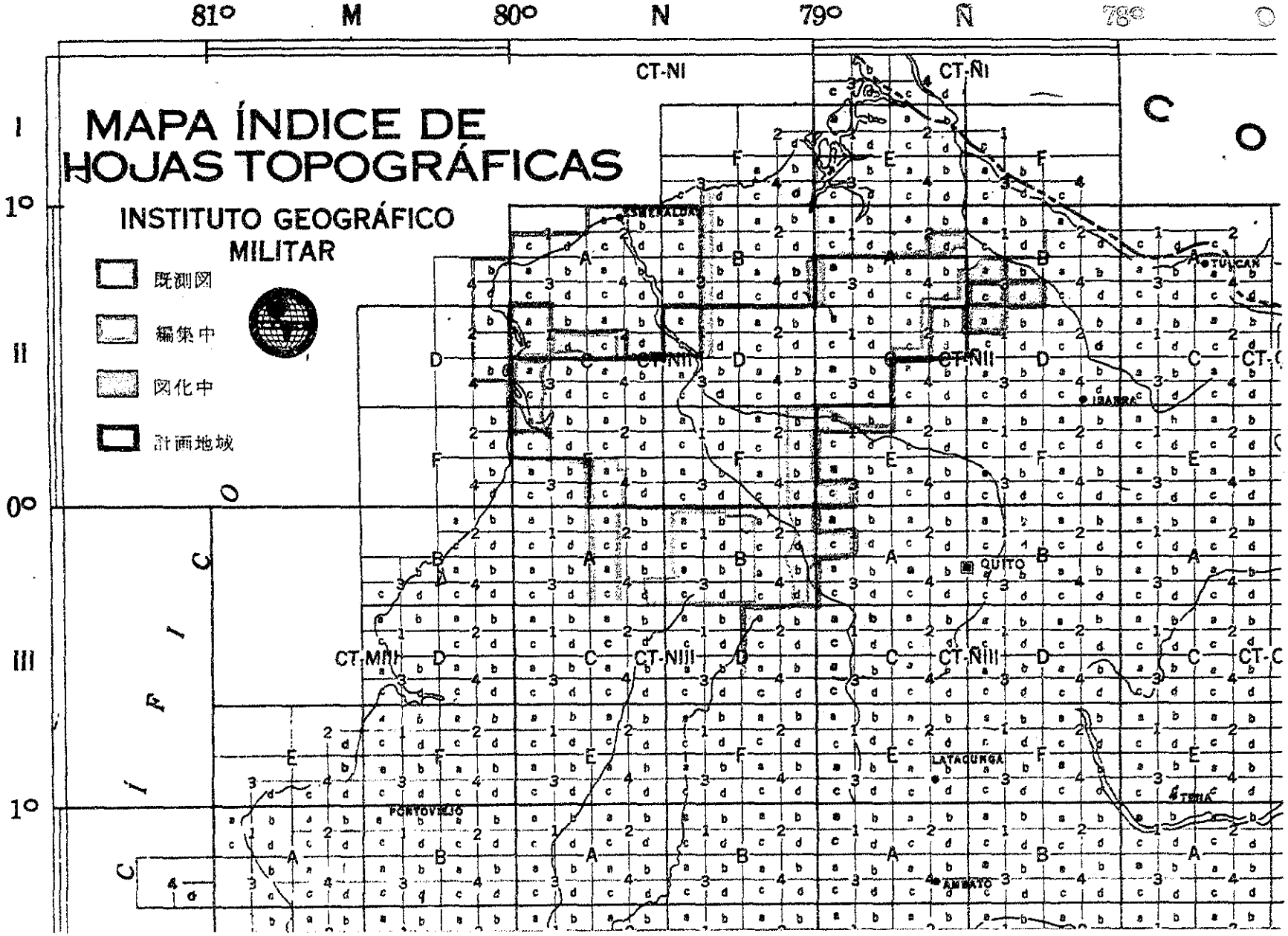


図２０　要請地域周辺の地図整備状況

1980	日影の大気温度								湿度				日照時間		雲量				降雨量 (mm)						
	07 Horas	13 Horas	19 Horas	Media	Maxima Absoluta	Fecha	Minima Absoluta	Fecha	07 Horas	13 Horas	19 Horas	Media	Total	%	07 Horas	13 Horas	19 Horas	Media	SUMA	Maxima en 24 hor	Fecha	DE DIAS <0.1	>0.1	>1.0	>10.0
Enero	23.3	29.0	25.5	25.9	32.4	6	21.5	12	97	74	90	87	84.6	23	8	6	7	7	101.3	31.4	18	•	17	12	5
Feb	22.9	28.5	25.2	25.5	32.7	27	20.5	29	98	74	89	87	92.1	26	8	5	7	7	150.6	55.8	10	•	19	12	3
Marzo	23.1	28.8	25.2	25.7	32.5	28	20.5	4	97	77	91	88	83.7	22	8	6	7	7	131.8	47.0	17	•	20	12	4
Abril	23.6	28.9	25.1	25.9	32.5	28	21.4	11	95	75	91	87	125.4	35	7	6	7	7	181.1	50.8	17	•	16	14	5
Mayo	23.3	29.3	24.9	25.8	32.9	6	21.5	27	97	73	92	87	80.3	22	8	6	8	7	39.7	6.6	17	•	13	11	•
Junio	23.3	28.5	25.1	25.6	31.6	6	20.4	30	96	75	89	87	60.6	17	8	6	8	7	46.0	8.7	25	•	19	6	•
Julio	22.4	28.5	24.5	25.1	33.0	24	20.5	27	94	71	88	84	67.1	18	7	6	7	7	3.9	2.8	17	•	4	1	•
Agosto	21.8	28.1	24.1	24.7	32.6	17	18.0	30	97	72	90	86	73.6	20	8	6	8	7	22.0	16.0	3	•	9	2	1
Septiembre	22.2	28.3	24.0	24.8	33.2	15	17.7	27	93	66	85	82	68.2	19	8	6	8	7	2.6	1.0	27	•	6	1	•
Octubre	22.8	28.1	24.2	25.1	33.0	15	19.8	13	95	72	88	85	62.4	17	8	6	8	7	47.8	12.9	21	•	7	4	2
Noviembre	22.4	28.2	23.8	24.8	32.7	22	18.0	12	97	74	91	88	70.9	20	8	6	8	7	23.8	12.4	22	•	5	3	1
Diciembre	22.7	28.7	24.7	25.4	33.0	19	19.6	21	96	70	86	84	93.0	14	8	6	8	7	16.8	10.1	9	•	4	2	1
	22.8	28.6	24.7	25.4	33.2	IX	17.7	IX	96	73	89	86	961.9	22	8	6	8	7	767.4	55.8	11	•	139	80	20

図２１　Esmeraldas 工科大学における気象観測データ

附録Ⅰ　エクアドル国北部コスタ地区に於ける国家開発計画

CONADE（Consejo Nacional de Desarrollo：開発国家審議会）によって発表された当プロジェクト地域内の主なる案件は、以下の通りである。

1. 自然保護、調査に関する基本事業

1.1 土地・森林及び野生動物の保護

- Limonos, San Lorenzo, Muisne に於ける土地利用及び天然資源保護基準設定の為の試験ステーション設置プロジェクト
- 中央センターを San Lorenzo に、Borleir 及び Playa Grande にサブセンターを設け、海抜1,000mに至る自然林（原生林）の調査、研究プロジェクト
- 天然資源保護及び環境破壊防止をふまえての、木材の運搬及び輸出のコントロールプロジェクトは既に進行中である。
- 原始林調査及び全滅の危機にある野生動物の保護を主眼としたCotdcachicayapas地区の300,000ヘクタールのナショナルパークプロジェクト

1.2 鉱物資源調査

- Sanchago川周辺のコスタ地区3,000Km²に及ぶ地域での金属鉱床探知による鉱物資源開発プロジェクト
- コスタ地区河川の金採掘可能性の調査及びエバリュエーションは、国家の金増産の鍵となっている。

以上のプロジェクト実施の為には、同地区の空中写真撮影は不可決といえる。

2. 特殊地域に於ける総合地域開発

2.1 地域総合開発

- 多雨地帯、Esmeraldas, Rio Yerde 川流域のコミュニティ、成人教育の組織作り及び灌がい施設のフィジビリティ調査及び農漁業関係の各種調査。
- Quininde, Malimpia, Naeva Jernsalén に於ける地域総合開発計画は基本図プロジェクト・アレアの中心に位置するもので、特に Quinindé に於ける地区の資源活用及びモデル農場プロジェクトは地区の農場のクライテリオ設定を目指している。
- Eloy Alfaro、San Lorezo 総合開発計画は森林、農業、漁業、社会開発、クレジット計画、技術援助、商業振興及び天然資源の保護を目指すもので Eloy Alfaro、San Lorezo、La Tola、San Francisco de Onzale、Atakualpa、、Vargas Torres、Cuico de Janio、Santa Rita 及びMataje地区に亘るもので、その面積は8,177㎢に達する。

2.2 入植化

- Lita Buenco Aires に於いて、農業生産を目的とする3,000ヘクタールの入植化プロジェクト

3. 農業地域に於ける開発プラン及びプロジェクト

3.1 選定プロジェクト

- 熱帯地域の農村地区に於ける農作物用及び牧草用の種の生育の為のパイロット農場設置計画
- Muisne、Quinindé 地区に於けるバナナ輸出の増進を目的とした10,000ヘクタールの面積のバナナの植え付け計画
- Esmeraldas 川流域に於ける年間生産量8,000 tの大豆油生産工場建設
- 柑橘類、熱帯果実の主要生産地 Esmeraldas 川地域に於ける年間生産量900 tを目指す柑橘及び熱帯果物の近代的濃縮ジュース冷凍プラント建設
- ココやしの工業化、やしの実の加工の機械化の基盤作りを目指す。
- 年間3,000 tの生産を見込む配合飼料プラント建設
- Yuca（南米産の芋の名）の澱粉、年間1,100 t及びパルプ年間200 tの生産を目指す加工プラント設置計画

以上の加工工場及びプラントの設置プロジェクトについては、原材料の主要生産地である Esmeraldas 県に於いて調査がなされ、同地区に建設予定である。

3.2 森林開発及び副次産業

- 森林複合産業化計画は、18,000 m^2の材木の森林資源利用開発プロジェクトである。このプロジェクトに関しては Jaakko Poyri E CO. が調査をしておりその結果は近く Japan Consulting Instituto と一緒に報告される運びとなっている。
- 同上プロジェクトは、Rio Santiago と Esmeraldas に位置している。
- 木工民芸品の品質向上を推進する為、木工従事者のグループ作りを目指す。

3.3 漁業開発及び副次産業

消費者の需要を満たす目的で、コスタ地区の漁業従事者の能力開発プロジェクトが計画されており、Esmeraldas、Pto. López、Sta. Rosa 及び Pto. Bolivar に於いて実施の予定である。

3.4 石油燃料

国家、地域に貢献度が大である所の Esmeraldas の国立石油精製プラントの拡充拡大プロジェクトによって生産能力向上を目指す。

3.5 観 光

観光客誘致を目指す Atacanes Sda 間の連絡交通網の整備

4. 経済基盤

4.1 港　湾

・ エスメラルダス港

エクアドル国北部地区開発の要となる Esmeraldas 港の拡張、及び、Manta、Guayaquil 港間の連絡網整備を計り、コスタとシェラ間の物流の促進を目指す。

・ サンロレンソ港

北部地区開発に重要かつ、同地区での商業交流の促進を目指す上で欠かせない San Lorenzo 港のリハビリテーションプロジェクト

4.2 多雨地帯サンチアゴ川流域の連輸プロジェクト

Borbón、San Francisco de Unzole、Anchoyacu、Atahualpa、Maldonado Concepción、Selva Alegre地区に於いて、多雨地区の現状把握調査及び経済的、社会的な同地区のエバリュエーションの実施計画

引き続き地域全般に恩恵をもたらすプロジェクトとして以下の案件が計画されている。

4.3 総合プロジェクト

o 地域の通信プロジェクト

o 主要な居住区をカバーし得る卸し業及びマーケットセンターの設置計画

o 市街地区及び農村地区のエネルギー計画

o 交通網整備

先ず、基幹線道路網整備プロジェクトとして以下の地区間に道路建設整備を計画している。

Sbarra－ San Lorenzo 間

El Angel－ San Lerenzo 間

Quinindé － Esmeraldas 間

Mutile、Onzale－ San Javier － San Lorenzo 間

San Gregerio － San José de Chamanga 間

Quininde、San Javier de Cochar 間

次に、近隣地区間を結ぶバイパスとして以下の地区間内道路網整備計画がある。

Rio Blanco－ Colonia Villegas－ Boca de Bua 間

La Concordia－ Crisanto Yera 間

La Unión－ Ric Blanco 間

La Unión － Cucaracha 間

Rio Blanco－ Nueva Jerusalén 間

Los Arenales － Malimpia 間

El Viudo － Malimpia － Cupa － Cole 間

Mirador－Archicumbe間

Mirador－La Zapotal間

El Achiote－San Carlos－La Delicia間

Viche－El Albe間

5. 社会基盤整備

5.1 住宅整備

- 新規住宅建設及び既存住宅の拡充及び改善プログラムは、地域内の各々の居住地プロジェクトとなっている。

5.2 上水道及び下水道整備

- 水処理プラント及び上水道管、下水道管の敷設プロジェクト

5.3 教育及び研修プログラム

- 初等教育施設及び研修センターの設置、学校給食及び成人を対象とした文盲追放プログラム

5.4 住民の保健、社会福祉の推進プログラム

以上のプロジェクトの実現化により、エクアドル国北部コスタ地区の全ての分野の発展が期待されている。又、それによって、当地区の基盤整備も同時にもたらされる事になろう。

INEC（Instituto Nacional de Estadistica y Censos：統計国勢院）が1983年11月28日発表した統計によるとエクアドルの総人口は8,072,702人であった。1974年度の国勢調査の時より1,242,745人の増加、即ち18%の人口増加である。

エクアドルの県別人口は以下の通りである。

県	人口	県	人口
CARCH	128,113	MANABI	885,273
IMBABURA	248,592	LOS RIOS	451,064
PICHINCHA	1,369,059	GUAYAS	2,022,912
COTOPAXI	274,278	EL ORO	337,053
TUNGURAHUA	328,070	NAPO	115,110
BOLÍVAR	149,510	PASTASA	31,779
CHIMBORAZO	331,574	MORONA SANTIAGO	70,217
CANAR	175,933	ZAMORA CHINCHIPE	46,691
AZUAY	437,964	GALAPAGOS	6,119
LOJA	356,512	ZONAS NO DELIMITADAS（国境未決定地区）	59,036
ESMERALDAS	247,870	TOTAL	8,072,702

男女の内訳は、男性4,025,521人、女性4,047,181人であり、人口の多い県はグアヤス県（県都グアヤキル市）及びピチンチャ県（県都キトー市で、サント・ドミンゴ市も当県下にある）となっている。

SCOPE OF WORK
FOR
THE TOPOGRAPHIC MAPPING PROJECT
IN
THE NORTHERN COSTA AREA
IN THE REPUBLIC OF ECUADOR

AGREED UPON BETWEEN

THE INSTITUTO GEOGRAFICO MILITAR

AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

QUITO, JULY , 1984

QUITO, JULY 4TH, 1984

Mr. GERMAN RUIZ ZURITA
Director,
Instituto Geográfico Militar
The Republic of Ecuador

MR. KAZUHIKO OTAKE
Leader of the Japanese
Preliminary Survey Team,
The Japan International
Cooperation Agency

I. INTRODUCTION

In response to the request of the Government of Ecuador, the Government of Japan has decided to implement the topographic mapping project in the Northern Costa area in Ecuador (hereinafter referred to as "the Project") in accordance with the relevant laws and regulations in force in Japan.

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Project in close cooperation with the authorities concerned of Ecuador.

The Instituto Geografico Militar (hereinafter referred to as "IGM") shall act as counterpart agency to the JICA survey team (hereinafter referred to as "the Team") and also as coordinating body to other relevant organizations for the smooth implementation of the Project.

The present document sets forth the Scope of Work for the Project.

II. OBJECTIVE OF THE PROJECT

The objective of the Project is to carry out the topographic mapping at the scale of 1:50,000 covering the area of approximately 9,400 Km2 in the Northern Costa area, shown in Appendix 1.

III. OUTLINE OF THE PROJECT

In order to achieve the above mentioned objetive, the Project will cover the following items.

1. Aerial Photography

Aerial photographs shall be taken at the scale of approximately 1:60,000 with a wide angle camera to cover the area where proper aerial photographs are not available.

2. Control Point Survey

Although existing control points will be used for the topographic mapping, establishment of new control points shall be carried out when necessary.

(1) Triangulation, Traversing, and Satellite Geodesy

Supplementary map control points necessary for aerial triangulation and mapping work shall be established by triangulation, traversing, or satellite geodesy.

(2) Leveling

Leveling shall be carried out to obtain vertical controls necessary for aerial triangulation and mapping work starting from the existing bench marks.

(3) Monumentation

Monumentation of new control points shall be done when necessary.

3. Pricking

Pricking of control points on the aerial photographs shall be done in the field for aerial triangulation.

4. Field Identification

The topographic information related to land use, vegetation, etc. on the aerial photographs shall be verified in the field. Geographical names to be expressed on the maps shall also be identified in the field and in the gazetteer.

5. Aerial Triangulation

Aerial triangulation shall be carried out by an analytical method using comparator and electronic computer. Adjustment shall be carried out by a block adjustment method.

6. Stereo Plotting

Stereo plotting shall be carried out using stereo-plotting instruments at the scale of 1:50,000.

7. Field Completion

Topographic features, vegetation, etc. which cannot be plotted shall be supplemented on the compiled sheets of the topographic maps. Geographical names shall be verified and supplemented, if necessary, on the paper copies of the compiled sheets.

8. Drafting

Based on the compiled sheets drafting shall be carried out on a stable polyester bases for each color separation plate. Style of sheet, colors and symbols shall be those of the national base map of Ecuador.

9. Printing

Color proof prints shall be inspected and approved by the Ecuadorian team prior to the final printing. Printing shall be carried out by the offset method.

IV. WORK SCHEDULE

The whole work will be conducted in accordance with the tentative schedule as shown in Appendix II.

The detailed work schedule will be settled by both side prior to the commencement of each work.

V. REPORTS AND FINAL RESULTS

JICA will prepare and submit to IGM the materials and the reports in Spanish as shown in Appendix III.

VI. UNDERTAKINGS OF THE IGM

1. To facilitate the smooth implementation of the Project, IGM shall make necessary arrangements for the followings:

   (1) To take care of the safety of the Team.
   (2) To arrange medical services as needed. Their expenses will be chargeable to the members of the Team.
   (3) To secure permission to take necessary data and materials (including the rolls of negatives of aerial photography) related to the works which is to be done in Japan out of Ecuador to Japan.
   (4) To arrange employment of Ecuadorian laborers as needed.
   (5) To secure permission of entry into private properties and restricted areas and of falling trees, if necessary, for the execution of the Project.
   (6) To secure clearance for the use of communication facilities including tranceivers, which may be used in Japanese language, with allocated frequency and electronic distance measuring instruments.
   (7) To facilitate the contraction of suitable offices, garages and stores in the keytowns. The charge of this contraction shall be borne by JICA.
   (8) To facilitate the contraction of vehicles, boats and other transportation facilities, if necessary. The charge of this contraction shall be borne by JICA.

2. IGM shall make necessary arrangements to assure the followings through the relevant organizations.

   (1) To permit the members of the Team to enter, leave and sojourn in Ecuador for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees.

   (2) To exempt the members of the Team from payment of taxes, duties and other charges on equipment, vehicles, machineries, materials, personal effects, etc. brought into Ecuador for the implementation of the Project.

(3) To exempt the members of the Team from payment of income tax and other charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Team for their services in connection with the implementation of the Project.

(4) To arrange for no restrictions on funds introduced into Ecuador from external sources by the members of the Team for the purpose of implementation of the Project. The bank account opened in Ecuador by the members of the Team shall remain at their exclusive disposal, and balance on such accounts shall be freely transferable into Japan in any other convertible currency.

3. IGM shall, at its own expense, provide the Team with the followings, in cooperation with other relevant organizations:

(1) 1 jeep and 1 truck for the execution of the Project.
(2) suitable offices, garages and store in Quito.
(3) 1 hilocpter and airplane when necessary for the execution of the Project.
(4) Credentials of indentification cards.
(5) JMR-1 instruments for carrying out satellite goedesy when necessary
(6) Personnel, aiplanes and other equipments necessary for aerial photography.
(7) counterpart personnel including a project coordinator, technicians and chauffeurs.
(8) Available data, documents, materials and information related to the Project.

4. The IGM shall, at its own expense, establish the monuments for the new control points, in close cooperation with the Team.

5. The IGM shall bear claims, if any arises against the members of the Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Project, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Team.

VII. UNDERTAKINGS OF JICA

For the implementation of the Project, JICA shall, in accordance with the relevant laws and regulations in force in Japan, take the following measures:

1. To dispatch, at its own expense, survey teams to Ecuador.

2. To bear expenses of fuel for vehicles and airplanes in the course of the Project.

3. To provide photo-materials for aerial photography.

4. To carry out, at its own expense, necessary work in Japan.

5. To perform technology transfer to Ecuadorian counterparts in the course of the Project both in Ecuador and in Japan.

VIII MODIFICATIONS OF THE SCOPE OF WORK

JICA and IGM will consult each other in respect of any matter that is not agreed upon in this document and may arise from or in connection with the Project.

IX. PROPERTY OF FINAL RESULTS

Final results such as original negatives of aerial photography, 1:50,000 topographic maps, results of the survey shall be monopolistically the property of IGM.

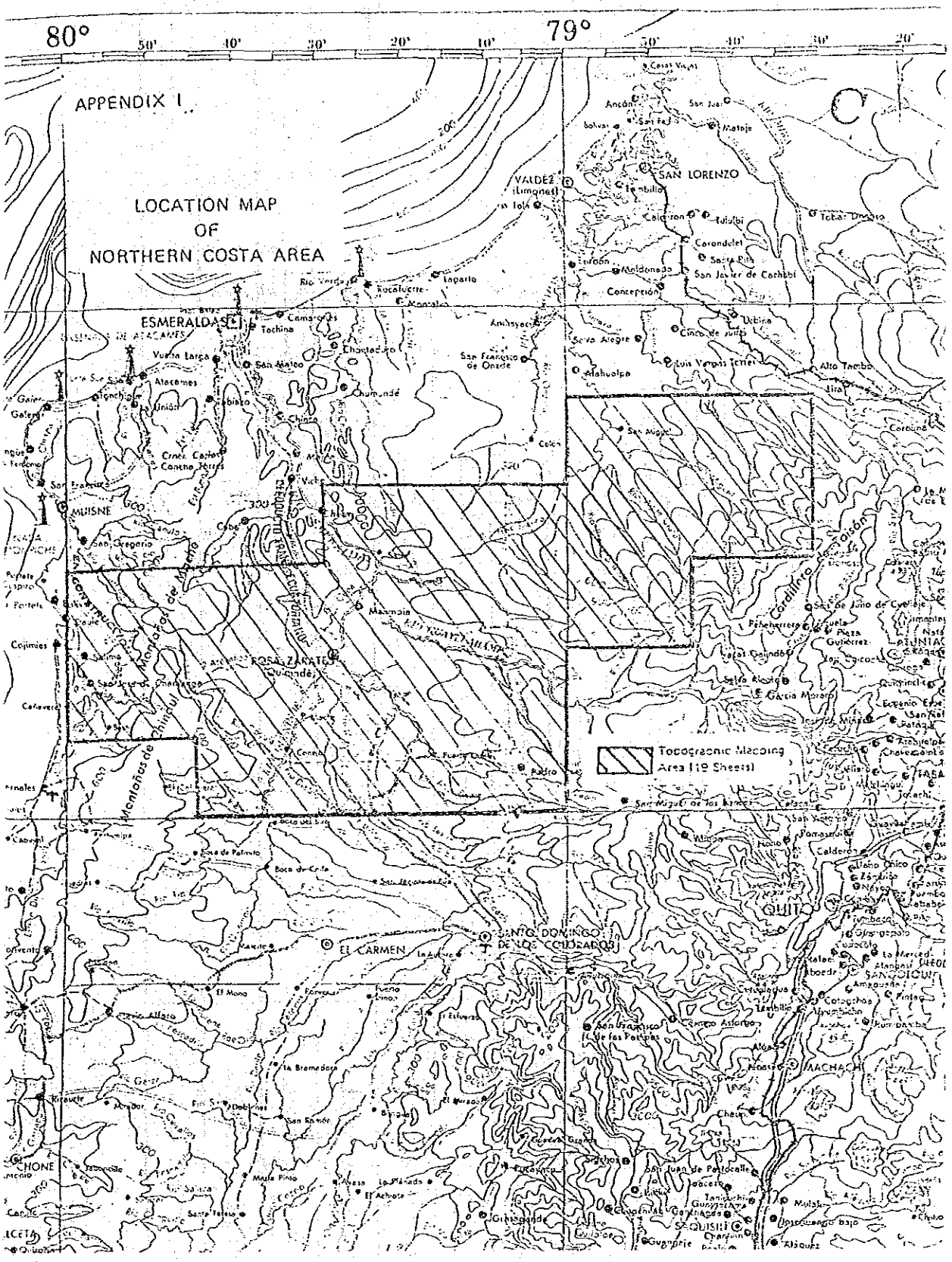
X. TERM OF THE SCOPE OF WORK

The term of the scope of work shall be three (3) years after coming into forth on the date of signig.

The term of the scope of work can, however, be changed by mutual agreement between JICA and IGM.

This scope of work can be cancelled by an advance notice of six (6) months which is done by either JICA or IGM.

In case this scope of work is canceled, the results of the survey obtained before the cancellation shall be submitted to IGM.


APPENDIX I
LOCATION MAP
OF
NORTHERN COSTA AREA
80°
79°
50'
40'
30'
20'
10'
ESMERALDAS
MUISNE
ROSA ZARATE
(Quinindé)
EL CARMEN
SANTO DOMINGO
DE LOS COLORADOS
VALDEZ
(Limones)
SAN LORENZO
QUITO
CHONE
Topographic Mapping
Area (19 Sheets)

APPENDIX II

TENTATIVE SCHEDULE

ITEM	1st year Oct., 1984 ∿ Mar., 1985	2nd year Apr., 1985 ∿ Mar. 1986	3rd year Apr., 1986 ∿ Mar., 1987
	4 5 6 7 8 9 10 11 12 1 2 3	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	———		
CONTROL POINT SURVEY	———	———	
PRICKING	———	———	
FIELD IDENTIFICATION		———	
AERIAL TRIANGULATION		———	
STEREO PLOTTING		———	——— ———
FIELD COMPLETION			———
DRAFTING, PRINTING			———

APPENDIX III

FINAL RESULTS

I. AERIAL PHOTOGRAPHY

1. Original negatives
2. Contact paper prints (one each)
3. Photo index
4. Others

II. CONTROL POINT SURVEY

1. Results of horizontal control point survey
2. Results of vertical control point survey
3. Computation sheets
4. Field notes
5. Description of points
6. Others

III. TOPOGRAPHIC MAPPING

1. Pricked photos and identified photos
2. Diapositives
3. Aerial triangulation results
4. Original manuscripts
5. Color separation scribed sheets
6. 1:50,000 topographic maps (1,000 sets)
7. Others

IV. REPORTS

1. Progress report ------- 20 copies (1st and 2nd year)
2. Technical report ------- 100 copies (The last year)

PROCEEDING OF THE MEETING ON THE TOPOGRAPHIC MAPPING PROJECT OF THE NORTHERN COSTA AREA IN THE REPUBLIC OF ECUADOR

BETWEEN

INSTITUTO GEOGRAFICO MILITAR

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

DECEMBER 1, 1983

PROCEEDING OF THE MEETING ON THE TOPOGRAPHIC MAPPING PROJECT OF THE NORTHERN COSTA AREA IN THE REPUBLIC OF ECUADOR

In Quito, capital city of Ecuador, the meeting was held on 23rd November through 1st December 1983, between the Japan International Cooperation Agency (to be referred to as JICA) and the Instituto Geográfico Militar (to be referred to as IGM), to set up the guidelines for the cooperation which the Government of Japan will provide to the Government of Ecuador for the Topographic Mapping of the Northern Costa Area, requested by the Government of Ecuador on September 21, 1982.

Delegations were as follows:

For Japan:

Mr. Sho SAITO
Director of Topographic Department
Geographical Survey Institute (GSI)
Ministry of Construction

Mr. Akira YAGUCHI
Survey Planning, Overseas Cooperation
Officer, International Affairs Division
Planning Bureau, Ministry of Construction

Mr. Shizuo KANNO
Assistant Head of the 3rd Geodetic Div.
Geodetic Dept., GSI

Mr. Minoru MIYAKOSHI
Chief of 2nd Planning Section
Planning Div., Topographic Dept., GSI

Mr. Akira UKIYA
Coordination, Senior Staff
the 1st Development Survey Div.
Social Development Dept., JICA

Mrs. Nagako SEKIGUCHI
Coordination (Interpretation), JICA

For Ecuador:

Crnel. de E.M. Ing. Germán Ruiz Zurita
Director of the Instituto Geográfico Militar (IGM)

Ternel. Ing. Jaime Mora
Subdirector -IGM

Mayor Ing. Anibal Salazar
Chief of the Technical Division - IGM

Mayor S.C. Mario Morán
Chief Topographic Dept., IGM

Mayor Ing. Víctor Medrano
Chief of the Evaluation Section and Costs of
the Technical Division - IGM

Mayor Ing. Fabián Mosquera
Chief of Data Processing - IGM

Ing. Geog. Alberto Andrade
Chief of the Planification Section and
Projects Control
Technical Division - IGM

Ing. Geog. Marco León
Chief of the Planification Section of Aerial Photography - IGM

Mayor Galo De la Torre
Pilot - IGM

Both delegations, after a sincere and frank interchange of points of view, resolve the following proceeding, to set up the guidelines for the Topographic Mapping Project of Northern Costa Area to be accomplished by the cooperation of the Government of Japan. The mutual understanding taken in this meeting will provide the base to formulate recommendations to their respective governments.

The following is the summary of discussions made in the meeting:

1. Project Area is Northern Costa which is located in Provincia de Esmeraldas and Provincia de Pichincha as indicated in Annex 1.

2. The Project consist of:

   2.1. Aerial photography, 1:60.000 scale, about 4,200 Km2.

   2.2. Map making, 1:50.000 scale about 8,500 Km2.

The final Project area and the aerial photography coordination will be determined by the following mission.

3. The IGM proposed the extension of the Project area up to about 16,000 Km2 as indicated in Annex 1.

4. The contribution of both parties, was established by means of the following responsibilities:

a. By Japan: JICA will cover the entire cost of the work, such as the use of instruments, technical personnel, transportation and any necessary materials for the project, also the cost of per diem and transportation to and from Japan for Ecuadorian technicians accorded scholarships, for the transfer of cartographic technology.

b. By Ecuador:

(1) Request to the Ecuadorian authorities the authorization for the temporary internment into the country, by the Japanese Mission, of instruments, materials, personal effects, and other elements necessary for the execution of this project.

(2) Request the authorization to issue identification cards, in order to facilitate the execution of their activities and to guarantee their personal security.

(3) Request the permission, so that the Japanese technicians, if necessary, shall enter private and restricted areas (such as National Parks) in which they should do clearing work and felling of trees. During the execution of the work, IGM personnel will accompany to the Japanese Mission to guarantee their security and give any help that they could needed.

(4) To arrange for hiring of labourers as needed.

(5) To arrange for the availability of medical facilities when needed in Quito as well as in the survey area.

(6) To arrange for hiring of transportation means, as helicopters, airplanes, boats, as well as other transportation means as needed.

(7) Coordinate with the Immigration and Customs authorities to permit the entry into the country of successive missions.

(8) To arrange for renting of spaces (encampment) in the project area, thus, permiting storage facilities, garages, suitable living and office spaces for the project personnel.

(9) To secure permission for the use of communication facilities, which the field parties should use among themselves.

5. The JICA will send a mission in May, 1984, for the purpose of preliminary survey, the data collection and the further discussion for the project.

As no other points for discussion were available, the meeting was adjourned, and the present proceeding was drafted, having read and found in good order, was signed by the heads of both delegations in two identical exemplaries on December 1, 1983.

Sho Saito

Mr. Sho SAITO
Head of the Preliminary Survey
Mission for the Topographic Mapping
Project of the Northern Costa Area,
Japan International Cooperation
Agency

German Ruiz Zurita
Crnel. de E.M. Ing.
Director - Instituto
Geográfico Militar

PROCEEDINGS OF THE MEETING ON THE TOPOGRAPHIC MAPPING PROJECT IN THE NORTHERN COSTA AREA IN THE REPUBLIC OF ECUADOR

BETWEEN

THE INSTITUTO GEOGRAFICO MILITAR

AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

JULY, 4TH 1984

PROCEEDINGS OF THE MEETING ON THE TOPOGRAPHIC MAPPING PROJECT IN THE NORTHERN COSTA AREA IN THE REPLUBLIC OF ECUADOR

In Quito, capital city of Ecuador, the meeting was held on 25th June through 3rd July 1984, between the Japan International Cooperation Agency (hereinafter referred to as JICA) and the Instituto Geográfico Militar (herinafter referred to as IGM) to finalize a document signing and setting forth the Scope of Work for the Topographic Mapping Project in the Northern Costa Area in the Republic of Ecuador (hereinafter to be referred to as the Scope of Work), which was substantially agreed to the contents but no yet signed by the conditions inside the Government of Ecuador.

Delegations were as follows:

For Japan:

Mr. Kazuhiko OTAKE
Director
Topographic Dept., Geographical Survey
Institute, Ministry of Construction

Mr. Tatsuo KANEDA
Señior Official, Planning Div.
Geodetic Dept., Geographical Survey
Institute, Ministry of Construction

Mr. Seizo KAKISHITA
Deputy Director, Surveying Technical
Center of Japan, Japanese Association of Surveyors

Mr. Chiyuki NISHIMURA
Section Chief, Kyushu Branch, Surveying
Technical Center of Japan, Japnese Association of Surveyors

Mr. Hiroshi MURAKAMI
Staff, The 1st. Development Survey Div.
Social Development Cooperation Dept., JICA

Mr. Akira OWASHI
Training Coordinator, JICA

For Ecuador:

Germán Ruiz Zurita
Crnel. de E.M. Ing.
DIRECTOR DEL INSTITUTO GEOGRAFICO MILITAR

Eduardo Silva
TCrnel. de E.M. Ing.
SUBDIRECTOR DEL IGM

Víctor Medrano
Mayor Ing.
JEFE DE LA DIVISION TECNICA DEL IGM

Alberto Andrade
Ingeniero Geógrafo .
JEFE DE LA SECCION DE PLANIFICACION Y CONTROL DE PROYECTOS
DIVISION TECNICA DEL IGM

Both delegations, after a sincere and frank interchange of points of view, resolved the following porceedings, to make the smooth implementation of the Topographic Mapping Project of Northern Costa Area (hereinafter referred to as the Project).

The following is the summary of discussion made in the meeting:

1. The IGM formally requested to change the original project area to that which was shown in Appendix I of the Scope of Work, being that total coverage of the northern Costa area with topographic maps is in the national interest.

2. The JICA Mission, after a detailed discussion and investigation of the proposed area, in mutual agreement with the IGM, agreed that the Project area would be as shown in Appendix I of the Scope of Work.

3. The IGM stated that in Article VI,1 (3) of the scope of work, "without any security personnel" was eliminated, considering that the granting of permission is already implied in said authorization.

4. IGM stated that is should, at its own cost, provide the JICA Survey Team cars when available.

   IGM suggested that it would be better for JICA Survey Team to carry in Ecuador necessary cars.

5. IGM agreed to receive surveying instruments and cars when necessary for the implementation of the project on behalf of JICA Survey Team, and after arriving JICA Survey Team in Ecuador, the instruments and cars should be handed to JICA Survey Team.

6. JICA Mission agreed to notice the member list of the JICA Survey Team to the IGM before one month of landing in Ecuador on each survey.

7. IGM hoped that JICA would accept trainees on each survey work stage and as many trainees as possible.

8. Since the completion of aerial photography in the project area in early stages are necessary for the smooth implementation of the project, IGM agreed to the proposal of JICA Mission that IGM should hold the first priority of aerial photography on the project area.

9. IGM approved of the request of JICA Mission that IGM should offer, at its own cost, the list and maps of public facilities, such as schools, churches to be represented in the topographic maps in the project area.

10. For both the successful completion of the project and the efficient technical transfer through its execution, IGM requested the whole-hearted cooperation of the Geographical Survey Institute, which is the only governmental agency responsible for the preparation of the national base maps in Japan.

11. IGM requested to carry out aerial triangulation by using IGM's computer. Since there was difficulty to do so immediately, JICA Mission suggested that there would be a possibility to do so in the course of technical transfer.

12. IGM requested to do the precise levelling work in the project area, because the leveling data should be used not only for mapping topographic maps but also for the work of land development.

13. The IGM stated that the item VI,2, of the Scope of Work should be approved by relevant organisms of the Ecuador, such as COMANDO CONJUNTO DE LAS FUERZAS ARMADAS, CONSEJO NACIONAL DE DESARROLLO (CONADE), MINISTERIO DE FINANZAS, MINISTERIO DE RELACIONES EXTERIORES. Consequently, the IGM stated that is would not be feasible to effectuate the signing of the Scope of Work on the previously planned date of July 4th, 1984. Therefore, IGM stated that the approval of the Scope of work including slight modifications would be delayed approximately three or four weeks. JICA Mission emphasized that it was regrettable not be able to sign the Scope of Work on the date specified.

14. JICA Mission and IGM agreed to the followings:

(1) JICA Mission would be hand over the businness of settlement upon the Scope of Work to the Embassy of Japan after July 4th, 1984.

(2) IGM would make every effort to receive the approval of CONADE and other relevant organizations as early as possible.

(3) After the approval of CONADE and other relevant organizations and settlement upon the Scope of work with the Embassy of Japan, IGM should send the two originals of signed Scope of Work to JICA through the Embassy of Japan.

(4) JICA Would send back to IGM one copy of signed Scope of Work through the Embassy of Japan.

15. JICA Mission proposed the Outline of Work shown in Appendix I. IGM agreed to the Outline of Work.

As no other points for discussion were available, the meeting was adjourned, and the present proceedings were drafted, having read and formal in good order, were signed by the leaders of both delegations in two identical exemplaries on July 4, 1984.

Kazuhiko Otake

German Ruiz Zurita
Crnel. de E.M. Ing.
DIRECTOR
INSTITUTO GEOGRAFICO MILITAR
THE REPUBLIC OF ECUADOR

Mr. Kazuhiko OTAKE
Leader of the Japanese
Preliminary Survey Team,
The Japan International
Cooperation Agency

APPENDIX I

OUTLINE OF WORKS

I. WORKS

1. Field Works

a). Horizontal Control

Satellite observations or pricking works of existing triangulation points will be carried out, if necessary.

b). Vertical Control

Existing bench marks in the project area will be pricked on photographs. On Northern part of the area, leveling work will carried out for makeing up the lack of ~~horizontal~~ Vertical controls necessary for the aerial triangulation. Barometric leveling may be executed, if necessary.

2. Aerial Triangulation

Aerial triangulation is carried out based on existing control points pricked on aerial photographs by IGM, pricked bench marks, leveling data, and pass points determined by aerial triangulation which has been carried out at IGM.

II. SPECIFICATION

Mayor specifications of this project are:

1. Horizontal and vertical Control Point Survey Specifications Of JICA,

2. Aerial Triangulation

   Specifications of JICA,

3. Classification

   Specifications of IGM,

4. Mapping (restitution and Compilation)

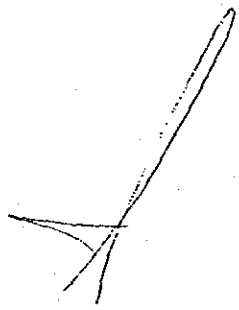
   Specifications of IGM and JICA

III. ACCURACY (in Standard Deviation)

1. Leveling
   low order leveling $\pm$ 5 cm $\sqrt{S}$: S distance in Km.

2. Mapping
   Planimetry: $\pm$ 0.7 mm on the map
   Height: contour interval/4

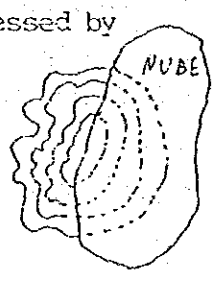
3. Satellite Observation (if necessary) .
   Translocation mehod using the predicted ephemeris



IV. OTHERS

1. Change of land use after photography are revised by clasification as much as possible.

2. Gaps on photographs by clouds will be expressed by doted lines as shown in following figure:



附録V 収集資料リスト

資料の名称	ページ数	オリジナルコピーの別	部数	収集先名称又は発行機関	寄贈・購入(価格)の別
野帳 TELUROMETRO Y ELECTROTAPE ANOTACIONES DE CAMPO		オリジナル	2	IGM	寄
〃 NIVELACION DE PRECISION		〃	1	〃	〃
〃 LECTURA CON RDS		〃	1	〃	〃
〃 OBSERVACIONES AZIMUTALES Y CENITALES		〃	1	〃	〃
MANUAL TECNICO DE CONVENCIONES TOPOGRAFICAS	84	〃	1	〃	〃
DEFINICIONES DE TERMINOS TOPOGRAFICOS	111	コピー	1	〃	〃
野帳記載例		〃	2	〃	〃
標定写真		〃	1	〃	〃
測量マニュアル(スペイン語および英語)		〃	1	〃	購入
地図 1/1,000,000		オリジナル	1	〃	〃
〃 1/ 500,000		〃	1	〃	〃
〃 1/ 50,000		〃		〃	〃
〃 1/ 25,000		〃		〃	〃
Revista Geografica	93	オリジナル	1	〃	寄
Guia Cartografica del Ecuador	120	〃	1	〃	〃