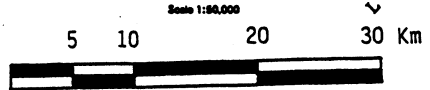
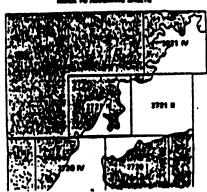
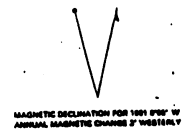


- GENO
- Chart, Chart, Sheet or map on which
  - Sound, Shoals, Wharves
  - Lightships, Anchorage
  - Lanes, Tides
  - Currents, Minimum depth
  - Horizontal control point on Sheet
  - Proposed control point, Bench mark
  - Red elevations to datum (Charted, Uncharted)
  - Contours, Water, Intertidal, Supra-intertidal
  - Sand, Mud, Coral
  - No name



Approximately 1:500,000

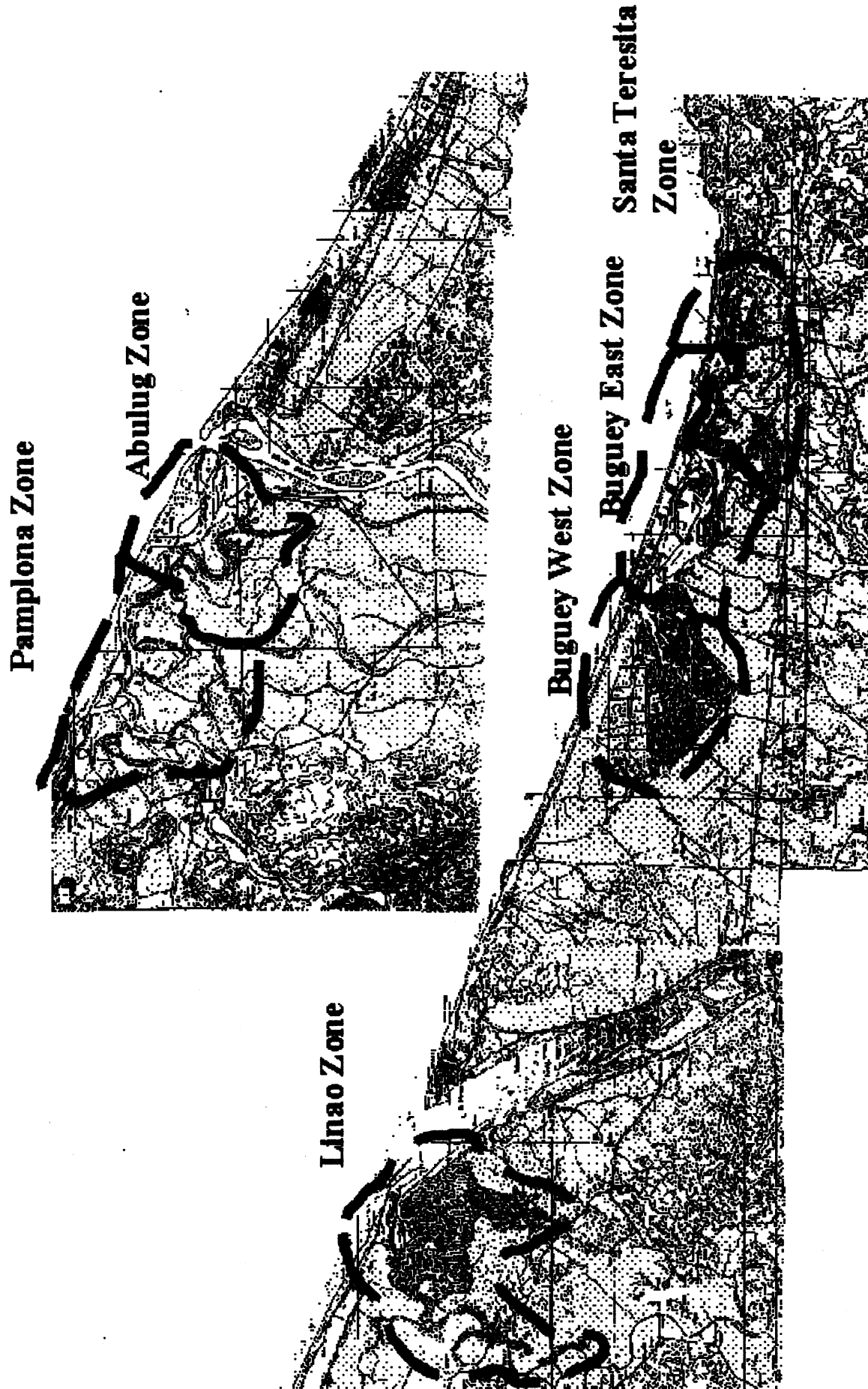
HORIZONTAL DATUM: URBAN DATUM  
 Produced by  
 MAPPING AND REPROGRAPHY DEPARTMENT  
 JOSE BALD A. BARR, JR., Director



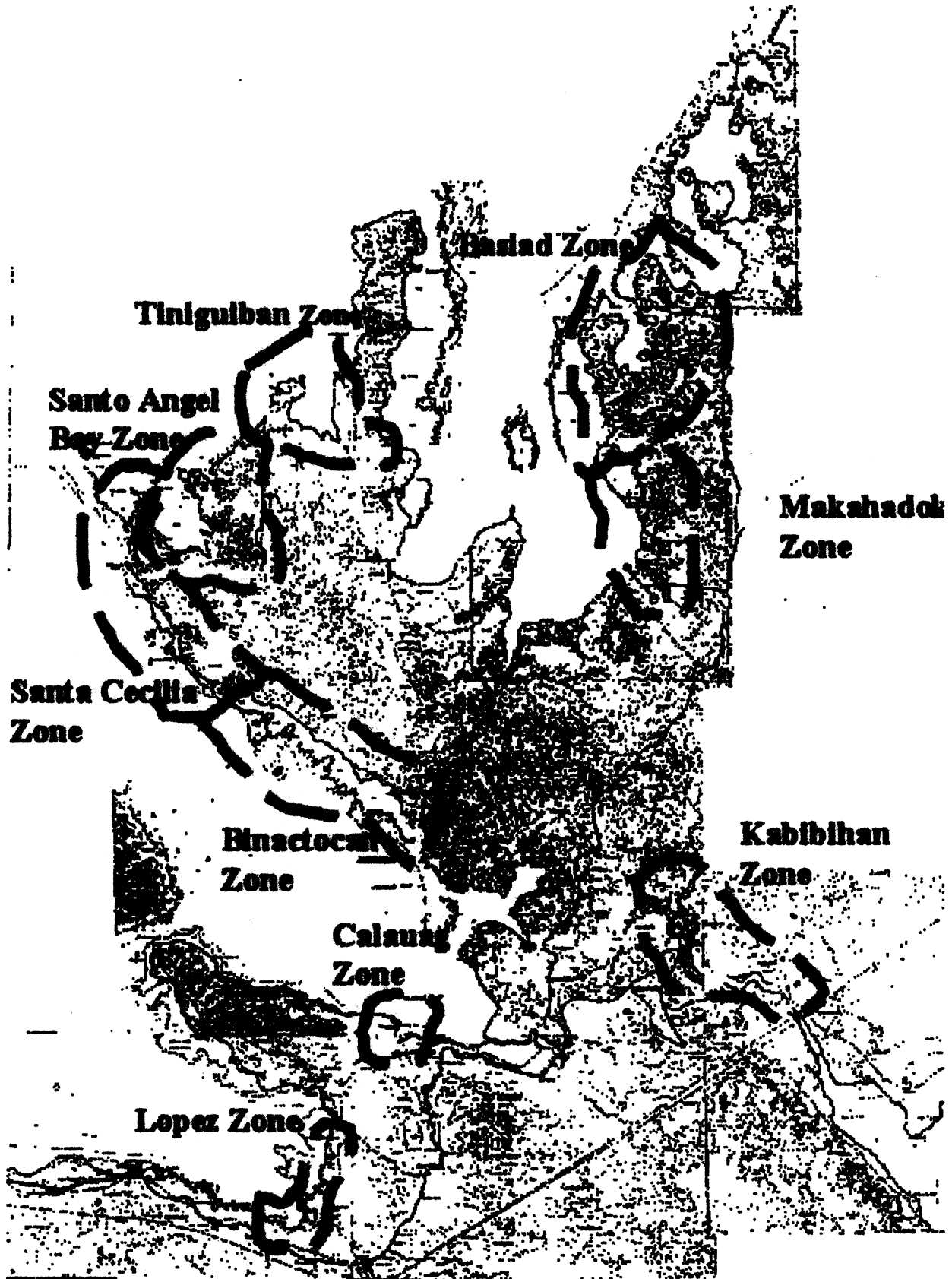
航空写真の撮影枚数表

地域名	ロール No	飛行コース番号	写真番号	撮影枚数
Lamon	1	2	285 to 293	9 pcs
	1	3	294 to 302	9 pcs
	1	15	317 to 328	12 pcs
	2	6	380 to 386	7 pcs
	2	7	387 to 395	9 pcs
	2	8	396 to 405	10 pcs
	2	9	406 to 415	10 pcs
	2	10	416 to 426	11 pcs
	2	11	427 to 437	11 pcs
	2	12	438 to 444	7 pcs
	2	13	445 to 455	11 pcs
	2	16	456 to 467	12 pcs
	3	14	483 to 495	13 pcs
	3	5	496 to 504	9 pcs
	3	4	505 to 518	14 pcs
	3	1	535 to 549	15 pcs
Aparri	3	1	557 to 569	13 pcs
	3	2	570 to 584	15 pcs
	3	3	625 to 638	14 pcs
	3	4	639 to 645	7 pcs
	4	11	658 to 668	11 pcs
	4	10	669 to 679	11 pcs
	4	5	682 to 690	9 pcs
	4	6	691 to 703	13 pcs
	4	7	704 to 709	6 pcs
	4	8	710 to 718	9 pcs
	4	9	719 to 730	12 pcs
Ulugan	5	1	745 to 749	5 pcs
	5	2	774 to 779	6 pcs
	5	3	781 to 791	11 pcs
	5	4	792 to 801	10 pcs
	5	5	739 to 744	6 pcs
	5	6	766 to 773	8 pcs
Total				335 pcs

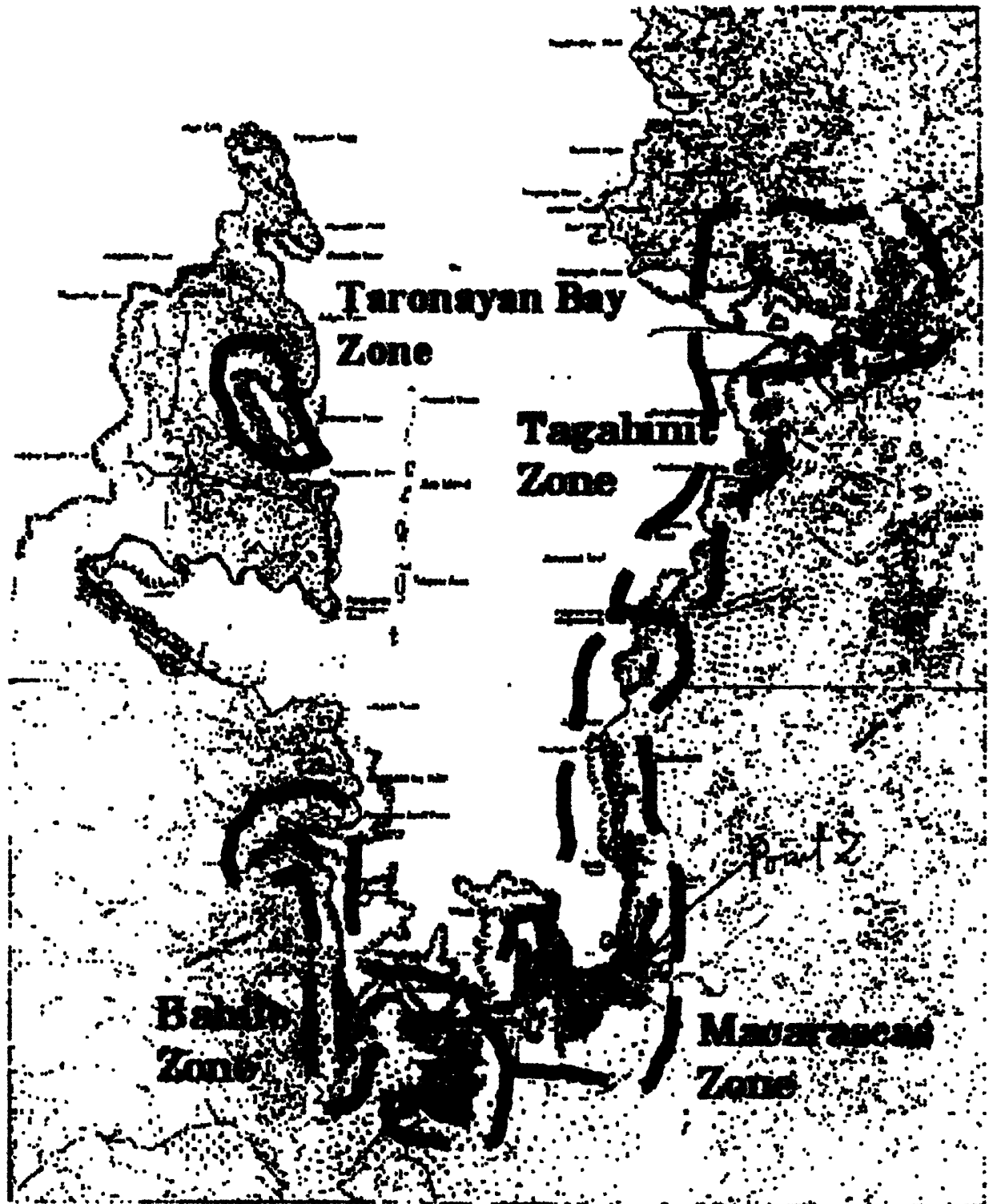
付属資料 2-8-a Aparri 地域地区区分図



付属資料 2-8-b Lamon 湾地域地区区分图



付属資料 2-8-b Ulugan 湾地域地区区分図



林 小 班 数 の 表

地域	地区	林班番号	小 班 数					除外された 小班番号	
			M	N	Nm	F	O		合計
Aparri	Pamplona	101	0	3	0	0	2	5	
		102	1	10	0	0	0	11	
		103	1	2	0	0	2	5	
		104	4	12	0	0	2	18	
		105	1	10	0	0	0	11	
		106	2	2	0	0	0	4	
		107	7	7	0	0	0	14	
		108	0	6	0	0	0	6	
		109	0	12	0	0	0	12	
		110	0	3	0	0	1	4	
		小計	16	67	0	0	7	90	
	Abulug	201	5	12	0	4	4	25	
		202	3	6	0	0	2	11	
		203	0	3	0	0	0	3	
		204	3	7	0	0	1	11	
		205	4	8	0	0	0	12	
		206	2	4	0	0	0	6	
		小計	17	40	0	4	7	68	
	Linao	301	3	5	1	0	0	9	
		302	2	7	2	0	0	11	
		303	0	10	4	1	2	17	
		304	2	4	2	30	0	38	
		305	11	4	5	7	0	27	
		306	4	9	3	0	0	16	
		307	7	4	2	0	0	13	
		308	7	4	1	0	0	12	
		309	2	5	2	0	1	10	
		310	4	13	8	0	0	25	
		311	2	8	5	3	0	18	
		312	5	6	4	0	0	15	
		313	0	1	0	0	0	1	
		314	6	6	4	0	0	16	
		小計	55	86	43	41	3	228	
	Buguey West	501	4	0	0	9	0	13	
		502	3	0	0	16	0	19	F1
		503	2	0	0	13	0	15	
		504	14	0	0	13	0	27	
		505	2	0	0	24	0	26	
		506	0	0	0	53	0	53	F38
		507	1	0	0	49	2	52	
		508	3	0	0	12	0	15	
		509	0	0	0	11	1	12	
		510	0	0	0	19	0	19	

地域	地区	林班番号	小 班 数					除外された 小班番号		
			M	N	Nm	F	O		合計	
		511	0	0	0	25	0	25		
		小計	29	0	0	244	3	276		
	Buguey East	601	3	1	0	7	1	12		
		602	4	7	0	15	1	27		
		603	3	0	0	84	0	87	F83	
		604	8	2	0	30	0	40		
		605	12	2	0	35	0	49		
		小計	30	12	0	171	2	215		
	Santa Teresita	701	2	13	0	31	0	46		
		702	0	5	0	16	0	21		
		703	1	14	0	18	1	34	F14,F18	
		704	2	7	0	14	0	23	N5,F8	
		705	0	11	0	26	0	37	F25	
	小計	5	50	0	105	1	161			
	地域計			152	255	43	565	23	1038	
	Lamon Bay	Binactocan	101	18	0	0	0	0	18	
			102	16	0	0	16	0	32	
103			15	0	0	0	0	15		
小計			49	0	0	16	0	65		
Santa Cecilia		201	13	0	0	0	0	13		
		202	10	0	0	0	0	10		
		203	24	0	0	0	1	25		
		204	14	0	0	4	0	18		
		205	30	0	0	2	2	34		
		206	13	0	0	5	0	18		
		小計	104	0	0	11	3	118		
Santo Angel Bay		301	24	0	0	7	0	31		
		302	33	0	0	5	0	38		
		303	29	0	0	6	0	35		
		304	15	0	0	8	2	25		
		305	25	0	0	10	1	36		
		306	14	0	0	0	0	14		
		307	44	0	0	0	0	44		
		308	21	0	0	1	0	22		
		小計	205	0	0	37	3	245		
Tiniguiban		401	20	0	0	10	0	30		
		402	10	0	0	0	0	10		
		403	14	0	0	9	2	25		
		404	15	0	0	0	1	16		
		405	7	0	0	0	0	7		
		406	24	0	0	4	0	28		
		407	7	0	0	0	0	7		
	408	10	0	0	0	1	11			
	409	19	0	0	2	0	21			
	410	21	0	0	10	0	31			
	411	16	0	0	28	0	44			



地域	地区	林班番号	小 班 数					除外された 小班番号	
			M	N	Nm	F	O		合計
		小計	163	0	0	63	4	230	
	Basiad	501	8	0	0	12	0	20	
		502	9	0	0	24	3	36	
		503	9	0	0	9	0	18	
		504	8	0	0	15	0	23	
		505	12	0	0	16	0	28	
		506	12	0	0	4	0	16	
		507	18	0	0	12	0	30	
		508	10	0	0	10	0	20	
		509	5	0	0	11	0	16	
		510	16	0	0	14	0	30	
		511	8	0	0	10	0	18	
		512	7	0	0	12	0	19	
		513	15	0	0	19	0	34	
		514	8	0	0	15	0	23	
		515	8	0	0	18	0	26	
		516	6	0	0	19	1	26	
		517	16	0	0	10	0	26	
		518	8	0	0	11	1	20	
		519	22	0	0	3	4	29	M5,M13
		520	34	0	0	15	0	49	
	小計	239	0	0	259	9	507		
	Makahadok	601	16	19	0	0	0	35	
		602	8	0	0	14	0	22	
		603	14	0	0	13	0	27	
		604	29	0	0	42	2	73	M22
		605	16	0	0	36	0	52	
		606	17	0	0	21	1	39	
		607	15	0	0	17	0	32	
		608	18	0	0	22	1	41	M11
		609	12	0	0	31	0	43	M5
		610	7	0	0	20	1	28	F8
		611	11	0	0	16	0	27	
		612	18	0	0	22	0	40	
		613	13	0	0	13	0	26	
	小計	194	19	0	267	5	485		
	Kabibihan	701	2	0	0	24	0	26	
		702	5	1	0	22	1	29	
		703	11	2	0	53	0	66	
		704	3	1	0	24	0	28	
		705	16	14	0	19	0	49	
		706	9	13	0	4	0	26	
		707	7	3	0	23	2	35	
		708	2	2	0	1	1	6	
		709	5	2	0	16	0	23	
		710	11	8	0	17	0	36	M7,M9

地域	地区	林班番号	小 班 数					除外された 小班番号		
			M	N	Nm	F	O		合計	
		711	4	0	0	40	6	50	F7,F24,F25	
		712	4	3	0	31	0	38		
		713	7	2	0	24	0	33	M3, M7	
		714	3	0	0	18	0	21		
		小計	89	51	0	316	10	466		
	Calauag	801	16	0	0	40	0	56		
		802	13	1	0	54	0	68		
		小計	29	1	0	94	0	124		
	Lopez	901	25	5	0	51	3	84	M10,M27	
		902	18	1	0	81	0	100		
		903	13	4	1	51	0	69		
		小計	56	10	1	183	3	253		
	地域計			1128	81	1	1246	37	2493	
	Ulugan Bay	Taronayan Bay	101	15	0	0	0	0	15	
Tagabinit		201	26	0	0	0	0	26		
		202	24	0	0	4	3	31		
		203	32	0	0	2	0	34		
		小計	82	0	0	6	3	91		
Macarascas		301	19	0	0	0	0	19		
		302	21	0	0	0	1	22		
		303	27	0	0	0	0	27		
		304	43	0	0	0	0	43	M29	
		小計	110	0	0	0	1	111		
Bahile		401	37	0	0	0	0	37		
		402	31	0	0	0	0	31		
		小計	68	0	0	0	0	68		
地域計			275	0	0	6	4	285		
総合計			1555	336	44	1817	64	3816		

**QUESTIONNAIRE ON SOCIO-ECONOMIC CONDITIONS  
FOR HOUSEHOLDS IN THE MANGROVE AREA**

Date of Interview : ( )

Name of Interviewer : ( )

Name of Barangay : ( ) Group No. ( )

Name of Sitio/Purok/Zone : ( ) Code No. of Samples: ( ) - ( )

**PART-I General Information on Household**

1. Name and sex of the household head: Name: ( )  
Sex : 1) Male 2) Female

2. Address : ( )

3. Language used in your family:

	Language		
Speak			
Read/write			

4. Who is handling account in your house?  
1) household head 2) wife 3. Others ( )

5. Information on household members and source of income  
(Note for interviewer : indicate answer from informants by  
using code number next page.)

No.	Age	Sex (1)	Status (2)	Work (3)	Work Status (4)	Days worked (Days/Month)	Income (Peso/Day or Month)
1		F M					
2		F M					
3		F M					
4		F M					
5		F M					
6		F M					
7		F M					
8		F M					
9		F M					
10		F M					
11		F M					
12		F M					
13		F M					
14		F M					
15		F M					

- 1 = Head of Family
- 2 = Spouse
- 3 = Children
- 4 = Children-in-law
- 5 = Parent (Husband's side)
- 6 = Parent (Wife's side)
- 7 = Grandchild
- 8 = relatives
- 9 = servant/employee
- 10 = others (specify)

- 1 = Self Employed
- 2 = Regular Employee  
(Paid as salary)
- 3 = Temporary employee  
(per day basis)

- 1 = Fishery
- 2 = Agriculture
- 3 = Animal husbandary
- 4 = Fishery
- 5 = Commerce
- 6 = Industry
- 7 = Government
- 8 = Housewife
- 9 = Student/Pupil
- 10 = others (specify)

## PART - II Home Economy

1. Total monthly expenses (in general) :

- 1) Less than 500 Peso: (            ) Peso
- 2) 500 - 999 Peso
- 3) 1,000 - 1,999 Peso
- 4) 2,000 - 2,999 Peso
- 5) 3,000 - 3,999 Peso
- 6) 4,000 - 5,999 Peso
- 7) 6,000 - 7,999 Peso
- 8) 8,000 - 9,999 Peso
- 9) 10,000 - 14,999 Peso
- 10) 15,000 - 19,999 Peso
- 11) 20,000 - 24,999 Peso
- 12) 25,000 - 29,999 Peso
- 13) 30,000 Peso or more: (            ) Peso

2. Breakdown of expenses:

		paid in cash (peso)	paid in kind
1. Food	a. Rice, corn and other staple food	(        )	(        )
	b. Bread	(        )	(        )

	c. Meat	i. Pork	( )	( )
		ii. Beef	( )	( )
		iii. Poultry	( )	( )
		iv. Others ( )	( )	( )
		total (Meat)	( )	( )
	d. Milk		( )	( )
	e. Egg		( )	( )
	f. Fish	i. Freshwater fish	( )	( )
		ii. Marine fish	( )	( )
		total (Fish)	( )	( )
	g. Vegetables		( )	( )
	h. Others		( )	( )
	sub-total (Food)		( )	( )
2.	Soft drinks, beverages		( )	( )
3.	Liquor, Alcoholic drink		( )	( )
4.	Tobacco/Cigarettes		( )	( )
5.	Housing	a. House rent	( )	( )
		b. House improvement(expansion)	( )	( )
		c. House maintenance(repair)	( )	( )
		d. Furniture, Appliances	( )	( )
	sub-total (Housing)		( )	( )
5.	Fuel (for house)		( )	( )
6.	Fuel (for vehicles, boats, etc.)		( )	( )
7.	Electricity		( )	( )
8.	Water		( )	( )
9.	Clothing		( )	( )
10.	Cleaner/Soap		( )	( )
11.	Transportation		( )	( )
12.	Communication		( )	( )
13.	Recreation		( )	( )
14.	Education	a. Tuition Fee	( )	( )
		b. Allowance	( )	( )
15.	Tax		( )	( )
16.	Salary for employees		( )	( )
17.	Medical expense	a. Medicine	( )	( )
		b. Fee for Doctor	( )	( )
18.	Membership fee for group/cooperative		( )	( )
19.	Pay-back of loan		( )	( )
20.	Others		( )	( )

3.	Income from other than main occupation:	(per month)	
		In cash (peso)	In kind
	1)Renting fee of working animals to others	( )	( )
	2)Renting fee of fishery tool to others	( )	( )
	3)Renting fee of farm machinery to others	( )	( )
	4)Interest earned on money loaned to others	( )	( )

- 5) Allowance from relatives, etc. ( ) ( )  
 6) Gift from relatives, etc. ( ) ( )  
 7) Others (specify: ) ( ) ( )

4. Major product/crops/catch and their amount, selling price

Name of Products	Amount (per day or month)	Selling Price
1) ( )	( )	( Pesos/ )
2) ( )	( )	( Pesos/ )
3) ( )	( )	( Pesos/ )
4) ( )	( )	( Pesos/ )
5) ( )	( )	( Pesos/ )
6) ( )	( )	( Pesos/ )
7) ( )	( )	( Pesos/ )
8) ( )	( )	( Pesos/ )
9) ( )	( )	( Pesos/ )

5. Among your product/crops/catch, how many percent is for the self-consumption at home?  
 ( )%

6. Where do you usually go to sell your products?(for major 3 items)

<Place>	<Items>
Go ( )	to sell ( )
Go ( )	to sell ( )
Go ( )	to sell ( )

7. Transportation to reach major selling place

Method ( )  
 Time ( ) minutes  
 Fare ( ) Pesos

8. Is any buyer (middleman) visit your house to buy your products?

1)Yes 2)No

If "yes", what do you sell?	<Item>	<Unit Price>
( )	( )	( Peso/ )
( )	( )	( Peso/ )
( )	( )	( Peso/ )
( )	( )	( Peso/ )

9. Where do you buy major food/materials/commodities?(major 3 places)

<Place>	<Items>
Go ( )	to buy ( )
Go ( )	to buy ( )
Go ( )	to buy ( )



- 3) Agriculture/fishery/animal husbandry( )  
 4) Other purposes ( )

6. Do you use items below as the source of fuel in your house?

(Note: not include fuel for vehicle/machinery/boat)

1. Gas 1)yes 2)no  
 2. Firewood 1)yes 2)no  
 3. Charcoal 1)yes 2)no  
 4. Petroleum 1)yes 2)no  
 5. Others specify : ( )

If you use firewood, do you use

1. Gemelina 1)yes 2)no  
 2. Mangrove 1)yes 2)no  
 3. Ipil-ipil 1)yes 2)no  
 4. Bamboo 1)yes 2)no  
 5. Others specify : ( )

7. Do you have fishpond? 1) Yes 2) No(→go to 8.)

If "Yes", how much do you own? ( ) ha

If "Yes", is it your own pond? 1)Yes 2)No

If "No", do you have any lease agreement to use that pond?

1)Yes 2)No

If "Yes", specify name of certificate

( )

8. If you can afford, do you like to have your own fishpond?(or expand?)

1) Yes 2) No

if "No", what is your reason? : ( )

9. Do you have land? 1) Yes 2) No (go to next page)

If "Yes", how much do you own? ( ) ha

If "Yes", is it your own land? 1)Yes 2)No

If "No", do you have any lease agreement to use that land?

1)Yes 2)No

If "Yes", specify name of certificate

( )

#### **PART - IV Situation of Use of Mangrove Resources**

1. Have you ever entered the Mangrove forest within the past one (1) year?

1) Yes(→go to 2.) 2) No (→go to 4.)

2. How many times in the past one (1) year did you entered the Mangrove forest?





1. go enter Mangrove area and cut Mangrove tree
2. collect fallen leaf/log
3. buy Mangrove log from other person/market
4. others : specify ( )

12. For what way?
1. for consumption at home (→go to 13.)
  2. collect log(lumber) and sell (→go to 14.)
  3. others : specify ( ) (→go to 14.)

13. If for consumption at home, in what way?
- |            |   |   |
|------------|---|---|
| Trunk(log) | ( | ) |
| Branch     | ( | ) |
| Bark       | ( | ) |
| Seed       | ( | ) |

14. Are you personally utilizing mangrove forest in the following purposes?
- |                          |       |      |
|--------------------------|-------|------|
| As fish nursery          | 1)Yes | 2)No |
| As windbreak             | 1)Yes | 2)No |
| As tidal wave dispersant | 1)Yes | 2)No |

15. Do you find importance in maintaining Mangrove forest?
- 1) Yes      2) No

16. Do you have willingness yourself to maintain Mangrove forest in the future?
- 1) Yes(→go to 17.) 2) No (→go to 18.)

17. What is the reason of your willingness?
- 1) to maintain your source of fuel
  - 2) to maintain your source of housing/tool materials
  - 3) to maintain your source of fishery
  - 4) to prevent damages by wind
  - 5) to prevent damages by wave
  - 6) to maintain good fishing point
  - 7) to maintain beauty of the land
  - 8) others : specify ( )

18. What is the reason of your non-willingness?
- 1) because not using any Mangrove resources
  - 2) because having enough Mangrove trees by buying
  - 3) because Mangrove area is not your land
  - 4) because still having huge Mangrove forest nearby
  - 5) because maintain natural resources is the duty of the Government
  - 6) others : specify ( )

19. Do you discuss with Government official about the protection of Mangrove





OJT 参加者リスト

航空写真撮影	モザイク写真作成	基図作成	帯状調査	標本調査	航空写真予備判読	航空写真本判読	GISデータ加工
Mr. Romeo Vasquez	Ms. Nancy Vasquez	Ms. Nancy Vasquez	Mr. Sosimo Andres	Mr. Sosimo Andres	Ms. Nancy Vasquez	Mr. Edgar Viloria	Ms. Josephine Ferrer
Mr. Gregzaldy Mariano	Ms. Violeta Quiliza	Ms. Erlinda Inocencio	Mr. Reynaldo Ganacias	Mr. Edgar Viloria	Ms. Erlinda Inocencio	Mr. Aljerico Alcala	Mr. Cornelio Tolentino
	Ms. Wevina Manuel	Mr. Segundo Villaflor	Mr. Josecito Alcantara	Mr. Ervin Mataro	Mr. Segundo Villaflor	Mr. Greg Zaldy Mariano	
	Ms. Josephine Ferrer	Ms. Rosario Mamuric	Mr. Artemio Bajo	Mr. Samuel Estabillo	Ms. Rosario Mamuric	Ms. Alita Sangalang	
	Ms. Estela Gumabon	Mr. Aljerico Alcala	Mr. Quezon Caluya	Mr. George Pontillas	Mr. Aljerico Alcala	Ms. Rosario Mamuric	
	Ms. Angelita Timazon	Ms. Jocelyn delos Santos	Mr. Feliciano Baltazar XIII	Mr. Artemio Bajo	Ms. Jocelyn delos Santos	Ms. Rosario Mamuric	
	Ms. Rosarin Lalrc	Mr. Edgar Viloria	Mr. Alfred Zuraek III	Mr. Quezon Caluya	Mr. Edgar Viloria		
	Ms. Beata Bartadlar	Ms. Violeta Quiliza	Mr. Edgar Viloria	Mr. Alfred Zuraek III	Mr. Josecito Alcantara		
		Mr. Edgardo Andres	Mr. Ervin Mataro	Mr. Romeo Vasquez	Ms. Violeta Quiliza		
		Mr. Jaime Fernando		Mr. Jesus Gerardo	Mr. Noel Daus		
		Ms. Alita Sangalang		Mr. Reynaldo Ganacias	Mr. Edgardo Andres		
		Mr. Greg Zaldy Mariano		Mr. Ervin Mataro	Mr. Jaime Fernando		
		Mr. Edwin Pulga		Mr. Jaime Fernando	Ms. Alita Sangalang		
		Ms. Ana Victoria Labor			Mr. Greg Zaldy Mariano		
					Mr. Edwin Pulga		
					Ms. Ana Victoria Labor		
					Ms. Olivia Molina (Observer)		
					Mr. William Manuel (Observer)		

**MINUTES OF MEETING**  
**ON**  
**THE DRAFT FINAL REPORT**  
**OF**  
**THE STUDY ON MAPPING AND LAND COVER ASSESSMENT**  
**OF**  
**MANGROVE AREAS**  
**IN THE REPUBLIC OF THE PHILIPPINES**

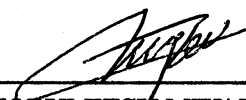
Manila

May 28, 1999



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**LIBERATO A. MANUEL**  
BGen AFP (Ret.) MNSA  
Administrator  
National Mapping and Resource  
Information Authority  
Department of Environment and  
Natural Resources  
Republic of the Philippines



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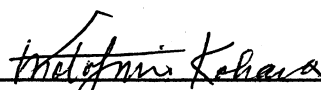
**Mr. NOBUMITSU MIYAZAKI**  
Team Leader of the Study Team,  
Japan International Cooperation  
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National Mapping and Resource  
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Department of Environment and  
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Republic of the Philippines

Witnessed by:



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**Mr. MOTOFUMI KOHARA**  
Director  
Forestry and Fisheries Development  
Study Division,  
Agriculture, Forestry and Fisheries  
Development Study Department,  
Japan International Cooperation  
Agency

In pursuance to the objectives of the Implementing Arrangement for the Study on Mapping and Land Cover Assessment of Mangrove Areas in the Republic of the Philippines signed on February 19, 1997, Japan International Cooperation Agency (JICA) dispatched a Study Team headed by Mr. Nobumitsu Miyazaki from May 23 to May 29, 1999.

The Study Team submitted twenty (20) copies each of the Draft Final Report, and the three (3) volumes of the Draft Technical Manuals to the Philippine side on April 25, 1999, and held a series of discussions with the Philippines Authorities concerned on May 25, 1999. The list of participants in the meeting is shown on Appendix 1 as attached. A technology transfer seminar was also conducted on May 27, 1999.

The salient results of the discussions are as follows:

#### **1. Presentation of the Draft Final Report and Draft Technical Manuals**

The Philippine side agreed with the general contents, with minor comments/observations, of the Draft Final Report and the three (3) volumes of the Draft Technical Manuals: (i) Field Survey Method for Mangrove Forest; (ii) Interpretation of Aerial Photographs; and (iii) Mangrove Forest Resources Information System (MAFRIMS).

The Philippine side will provide JICA, through its Philippine Office, with its comments on these reports on or before June 8, 1999.

#### **2. Final Report**

Within two (2) months after receipt of the comments, JICA will send one hundred (100) copies each of the Final Report and the three (3) volumes of Technical Manuals to the Philippine side. Both sides agreed that these reports would be made available to parties interested in the Study.

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**JICA Study Team**

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