JICA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

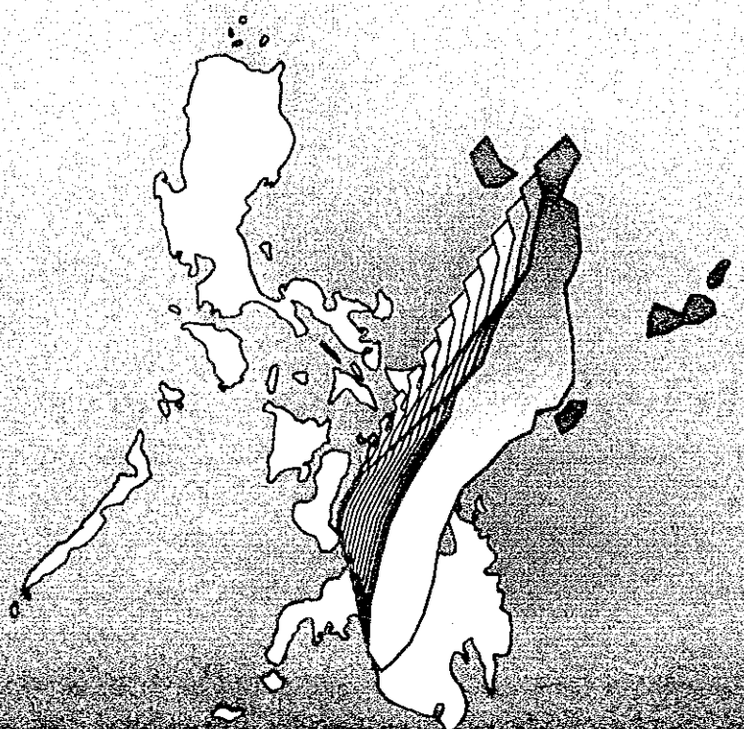
REGIONAL DEVELOPMENT COUNCIL REGION VII (RDC VII)
REPUBLIC OF THE PHILIPPINES

THE STUDY ON THE CEBU INTEGRATED AREA DEVELOPMENT MASTER PLAN

FINAL REPORT

VOL. 2:

SECTOR STUDIES



THE STUDY ON THE CEBU INTEGRATED AREA DEVELOPMENT MASTER PLAN

FINAL REPORT VOL 2 JULY 1994

The exchange rates used in the Study are:

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PHP1.00 = JY3.61

(as of the end of September 1993)

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JULY 1994

PACIFIC CONSULTANTS INTERNATIONAL
NIPPON KOEI CO., LTD.

PREFACE

In response to a request from the Government of Republic of the Philippines, the Government of Japan decided to conduct a study on the Cebu Integrated Area Development Master Plan and entrusted the study to the Japan International Cooperation Agency (JICA)

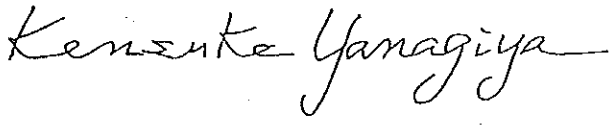
JICA sent to the Philippines a study team headed by Dr. Katsuhide NAGAYAMA of Pacific Consultants International, between July 1993 and March 1994.

The team held discussions with the officials concerned of the Government of the Philippines, and conducted field surveys at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the projects and programs and to the enhancement of friendly relations between our two countries.

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

July 1994



Kensuke Yanagiya
President
Japan International Cooperation Agency

July 1994

Mr. Kensuke Yanagiya

President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

Dear Sir:

We are pleased to formally submit herewith the final report of "Cebu Integrated Area Development Master Plan Study".

This report compiles the results of the Study which was undertaken in Cebu, Republic of the Philippines, from July 1993 to March 1994 by the Study Team, organized jointly by Pacific Consultants International and Nippon Koei, Co.Ltd.

We owed a lot to many people for the accomplishment of this report. First, we would like to express our deep appreciation and sincere gratitude to all those who extended their kind assistance and cooperation to the Study Team, in particular, the Steering Committee of the Central Visayas Regional Development Council, National Economic Development Agency Region VII, and Technical Working Groups.

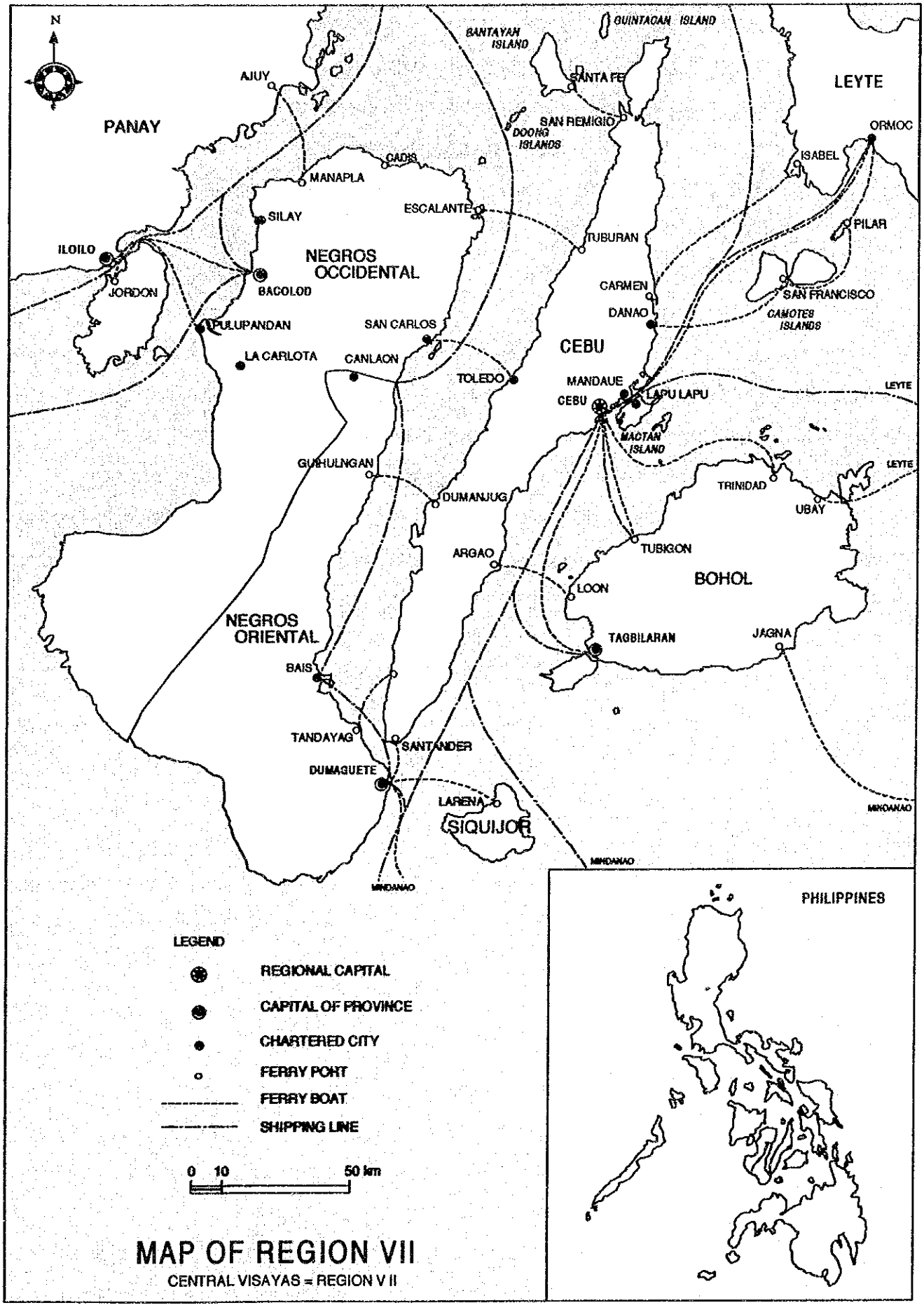
We also acknowledge the officials of your agency, the JICA Advisory Committee and the Embassy of Japan in the Philippines.

We wish the report would be able to contribute really to Cebu people and Cebu's socioeconomic development in the future.

Very truly yours,

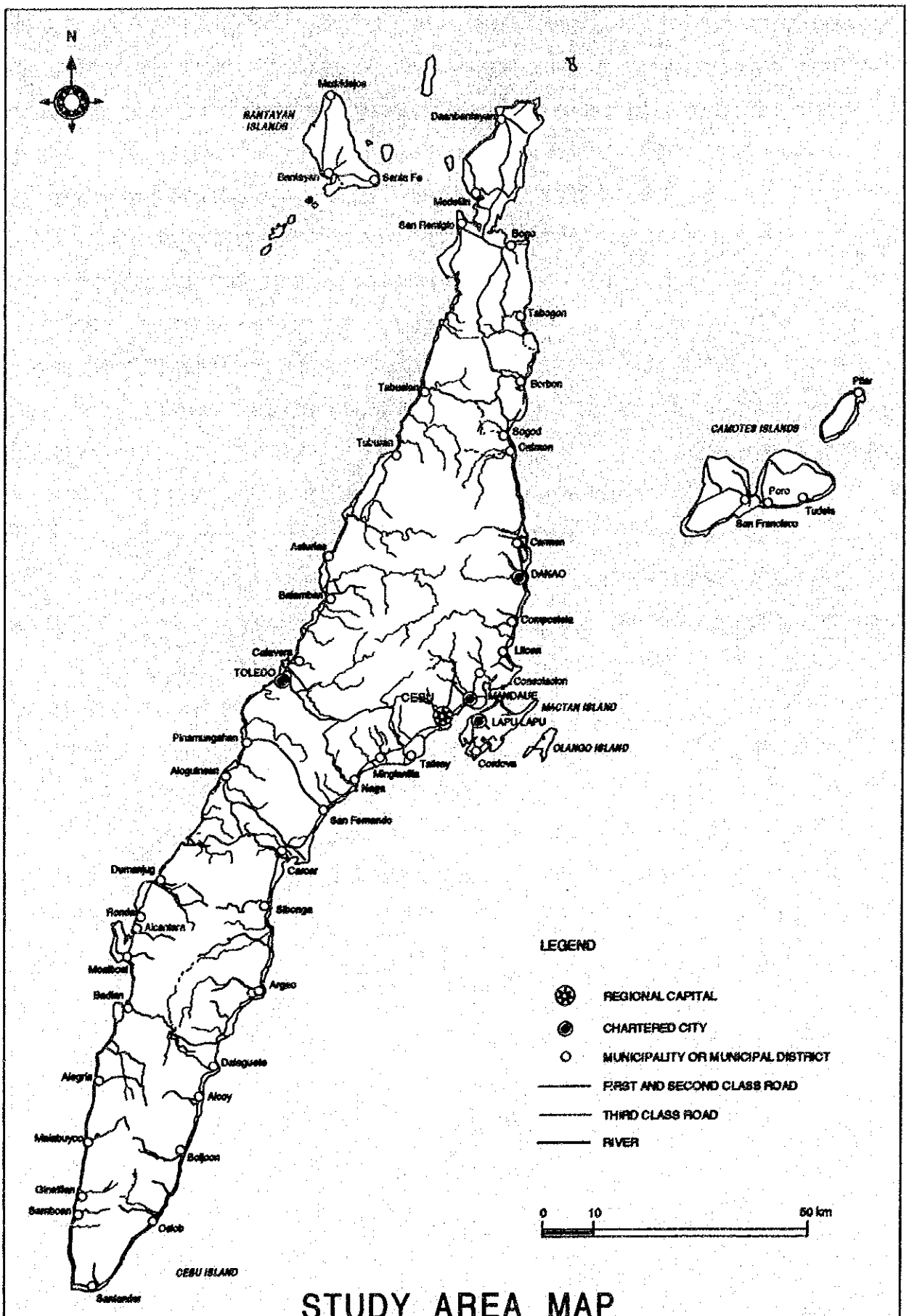
Katsuhide Nagayama, Ph. D.

Team Leader
The Study Team for
Cebu Integrated Area Development
Master Plan Study



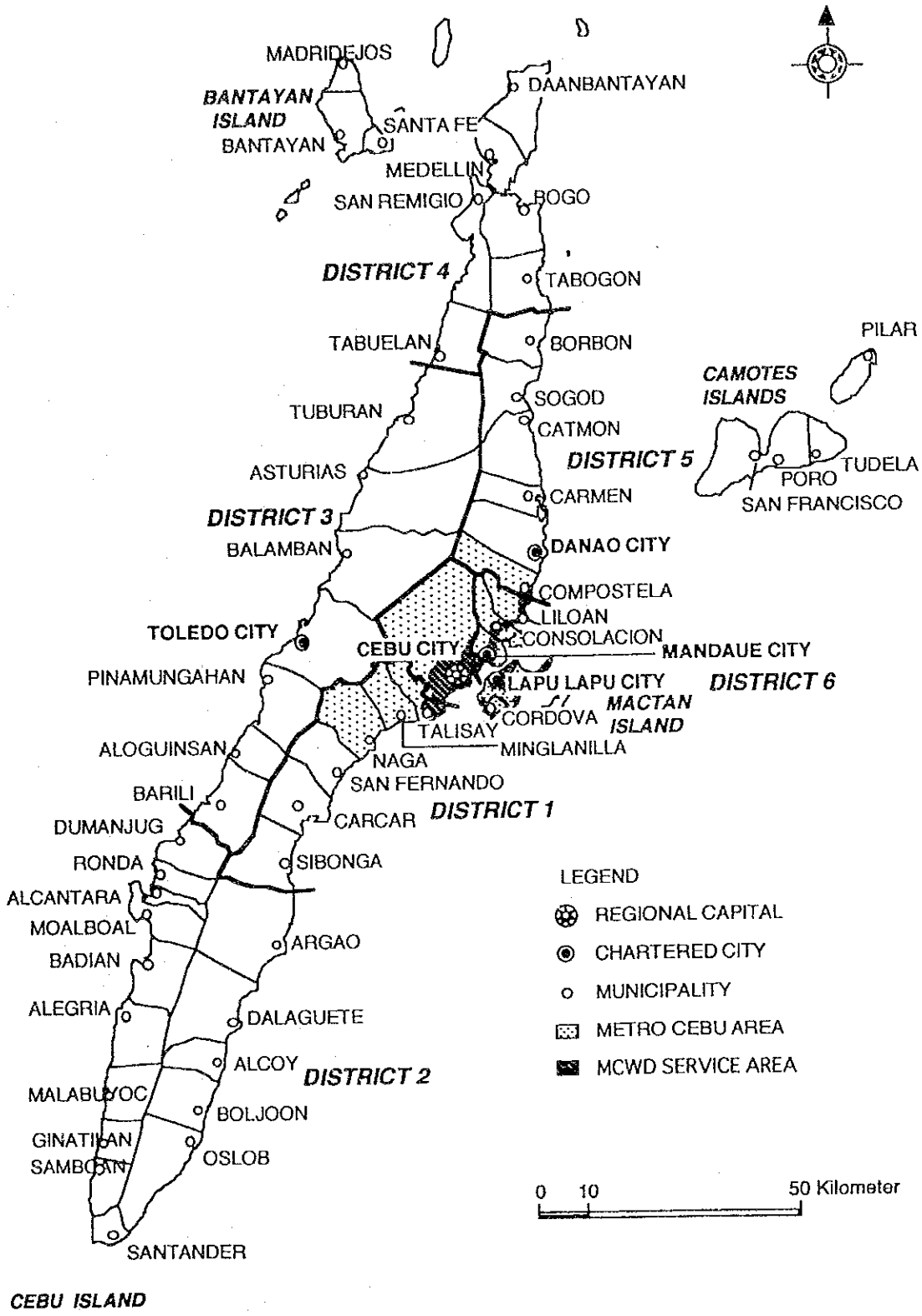
MAP OF REGION VII

CENTRAL VISAYAS = REGION V II

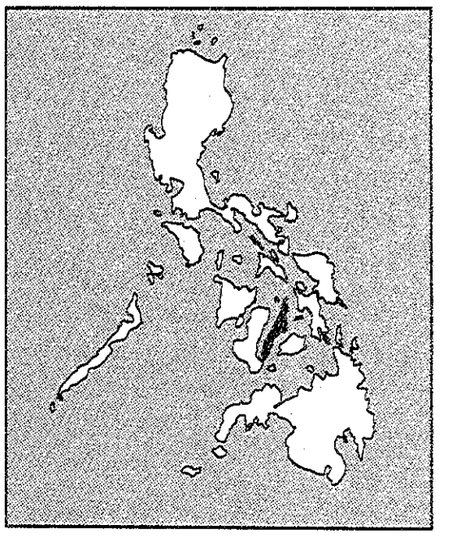


STUDY AREA MAP

CEBU PROVINCE



THE STUDY AREA MAP:
ADMINISTRATIVE AND CONGRESSIONAL DISTINCT BOUNDARIES



Madridejos
BANTAYAN ISLANDS
Daanbantayan
Bantayan
Santa Fe
Medellin
San Remigio
Bogo
Tabogon
Tabuelan
Borbon
To Isabel
Pilar
CAMOTES ISLANDS
To Escalante
Tuburan
Sogod
Catmon
Tudela
San Francisco
Carmen
Asturias
DANAO
Balamban
Compostela
To Ormoc
Liloan
TOLEDO
To San Carlos
MANDAUE
MACTAN ISLAND
LAPU
Pinamungahan
Aloguinsan
Talisay
Cordova
OLANGO ISLAND
San Fernando
Barili
To Guihulngan
Dumanjug
Carcar
To Tagbilaran/ Tubigon
Ronda
Sibonga
Alcantara
Moalboal
Badian
Argao
Dalaguete
Alegria
Aloy
To Loon/Tagbilaran
Malabuyoc
Boljoon
Ginatilan
To Larena
Samboan
Oslob
Santander
To Dumaguete
N
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LEGEND

GENERAL LAND USE SUITABILITY FOR DEVELOPMENT
- Most Suitable
- Moderate
- Marginal
- Not Suitable
- Built-up Area

HIERARCHICAL URBAN CENTER SYSTEM
- PROVINCIAL URBAN CENTER
- SUB-PROVINCIAL GROWTH CENTER
- COMMUNITY DEVELOPMENT CENTER
- STRATEGIC URBAN CENTER

PROVINCIAL ECONOMIC DEVELOPMENT BASE
- INDUSTRIAL ESTATE DEVELOPMENT/ INDUSTRIAL PROMOTION AREA
- MULTI-PURPOSE AGRO-CENTER
- TOURISM DEVELOPMENT CORE
- DISTRICT CENTER (FOR RURAL INFRASTRUCTURE/UTILITY DEVELOPMENT & MAINTENANCE)

CITY / MUNICIPALITY
- CHARTERED CITY
- MUNICIPALITY OR MUNICIPAL DISTRICT

LAND TRANSPORT NETWORK
- ARTERIAL ROADS
- COLLECTOR AND LOCAL ROADS

PORT AND SEA TRANSPORT NETWORK
- COMMERCIAL PORT
- INDUSTRIAL PORT
- FERRY PORT
- TOURIST PORT
- MAJOR SEA CONNECTION
- SEA CONNECTION
- RIVER

Source: The JICA Study Team

CEBU MASTER PLAN 2010

TABLE OF CONTENTS

3. TOURISM DEVELOPMENT

4. HUMAN RESOURCE DEVELOPMENT

5. PUBLIC FINANCE AND INSTITUTION BUILDING

6. LAND USE AND RESOURCES MANAGEMENT

7. ENVIRONMENTAL MANAGEMENT

8. HUMAN SETTLEMENT AND URBAN CENTERS

9. TRANSPORTATION DEVELOPMENT

10. WATER RESOURCES DEVELOPMENT

11. POWER AND ENERGY DEVELOPMENT

12. TELECOMMUNICATIONS DEVELOPMENT

LIST OF TABLES

page

1. Agriculture and Rural Development

2. Industrial and Trade Development

3. Tourism Development

4. Human Resource Development

5. Public Finance and Institution Building

6. Land Use and Resource Management

7. Environmental Management

8. Human Settlement and Urban Centers

9. Transportation Development

10. Water Resources Development

11. Power and Energy Development

12. Telecommunication Development

LIST OF FIGURES AND PHOTOS

page

1. Agriculture and Rural Development

2. Industrial and Trade Development

3. Tourism Development

4. Human Resource Development

6. Land Use and Resources Management

7. Environmental Management

8. Human Settlement and Urban Centers

9. Transportation Development

10. Water Resources Development

11. Power and Energy Development

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ABBREVIATION

ACMDC:	Atlas Consolidated Mining & Development Corporation
ADB:	Asian Development Bank
BOMEDCO:	Bogo Medellin Company
BPI:	Bureau of Plant Industry
CARP:	Comprehensive Agrarian Reform Project
CCCI:	Cebu Chamber of Commerce and Industry
CCHDP:	Cebu City Hillyland Development Project
CDOP:	Community Development Outreach Project
CIP:	Cebu International Port
CUP:	Cebu Upland Project
CVRMS:	Central Visayas Resource Management Center
CVWSP:	Central Visayas Water & Sanitation Project
DA:	Department of Agriculture
DECS:	Department of Education, Culture and Sports
DENR:	Department of Environment and Natural Resources
DOF:	Department of finance
DOH:	Department of Health
DOLE:	Department of Labor and Employment
DOST:	Department of Science and Technology
DOT:	Department of Tourism
DOTC:	Department of Transportation and Communications
DPWH:	Department of Public Works and Highways
DSWD:	Department of Social Welfare and Development
DTI:	Department of Trade and Industry
ECC:	Environmental Management Bureau
EMPAS:	Environmental Management and Protective & Services
ERDS:	Ecosystem Research and Development Sector
FG-PVP:	Federal Republic-German Photo-Voltaic Pumping Project
GRDP:	Gross Regional Domestic Products
GTZ:	Deutche Gessellschaft fur Technische Zussamenarbeit
HUDCC:	Housing and Urban Development Coordinating Council
JICA	Japan International Cooperation Agency
LGC:	Local Government Code
LGU:	Local Government Unit
LWUA:	Local Water Utilities Administration
MCDP:	Metro Cebu Development Project

MCWD:	Metro Cebu Water District
MEPZ:	Mactan Export Processing Zone
MRP:	Mandaue Reclamation Project
NAMRIA:	National Mapping & Resource Information Authority
NEDA:	National Economic and Development Authority
NGO:	Non-Government Organization
NIA:	National Irrigation Administrations
NIEs:	Newly Industrialized Economies
NMYC:	National Manpower and Youth Council
NPC:	National Power Corporation
NRNDP:	Natural Resources Management Development Project
OECF:	Overseas Economic Cooperation Fund
PAGASA:	Philippine Atmospheric Geophysical & Astron Services Administration
PDO:	Port District Office
PIDS:	Philippine Institute for Development Study
PITO-P	Private Investment Trade Opportunity Projects
PMO:	Port Management Office
POPCOM:	Population Commission
PPA:	Philippine Ports authority
PPDO:	Provincial Planning and Development Office
PTA:	Philippine Tourism Authority
PWDTF:	Provincial Water Works Development Task Force
RDC:	Regional Development Council
RLUC:	Regional Land Use Committee
TWG:	Technical Working Group
UNCHS:	United Nations Center for Human Settlement
WD:	Water District
WRC:	Water Resource Center

CHAPTER 1

AGRICULTURE AND RURAL DEVELOPMENT

CHAPTER 1

AGRICULTURE AND RURAL DEVELOPMENT

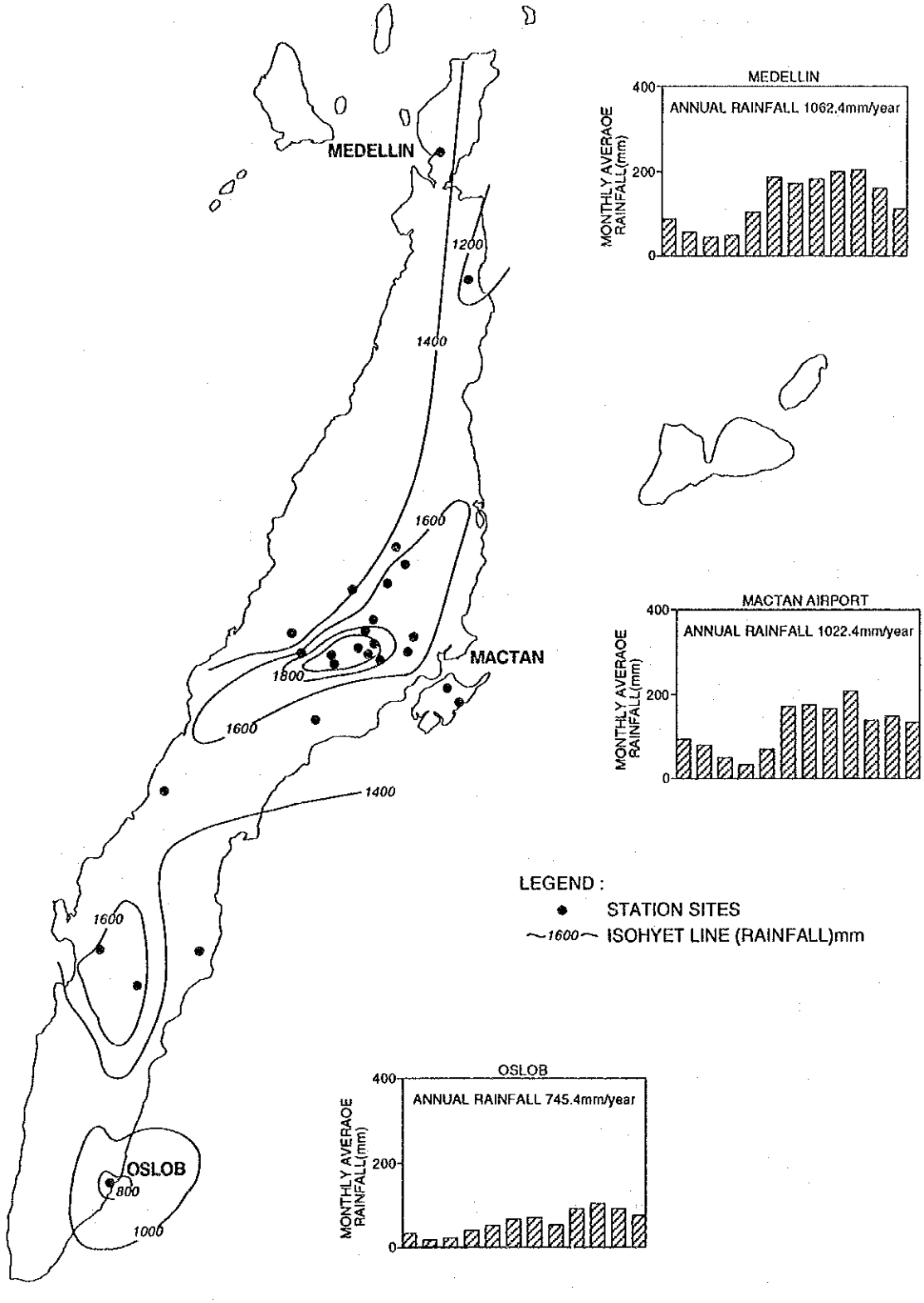
1.1 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

1.1.1 PHYSIOGRAPHIC AND TOPOGRAPHIC CHARACTERISTICS

The land of Cebu is mostly hilly and mountainous. The island is crossed by a rugged mountain range from north to south; The highest mountain has an altitude of approximately 1,000 meters above sea level. Out of the total land area, approximately 74% has an elevation between 0 to 300 meters above sea level, and 12% has an elevation between 500 to 1,000 meters above sea level. Flat lands represent only a small portion of the island, and are scattered in small patches and narrow strips found mostly in the northern end of the province, including Bantayan island, and along the coastal lines. Lands with high elevation are mostly found toward the southern half of the island. About 48% of the total provincial area has slopes in the range between 10 to 20 degrees, and only 18% has slope of less than 5 degrees.

1.1.2 CLIMATE

There are some differences in the rainfall distribution pattern between the southern and northern parts of the province. Based on the rainfall patter, the climate of the northern half of the island is classified as type 4 climate, characterized by having a rainfall pattern evenly distributed throughout the year. The rest of the island has a type 3 climate, characterized by no pronounced difference in seasonal distribution of rainfall, relatively dry from November to April, and wet during the rest of the year. The average annual rainfall for most part of the province is 1,500 mm. The highest annual average rainfall is recorded in the central portion of the island with 1800 mm, and the lowest is recorded in Oslob, with 750 mm. Data on average annual rainfall are presented in Figure 1.1.1



Source: W.R.C.

FIGURE 1.1.1 ISOHYETS MAP OF CEBU

The average temperature in lowland areas is within the range of a minimum of 19°C to a maximum of 32°C. Estimated annual water evaporation is in the range between 1800 to 2000 mm.

1.1.3 CHARACTERISTICS OF AGRICULTURAL LAND

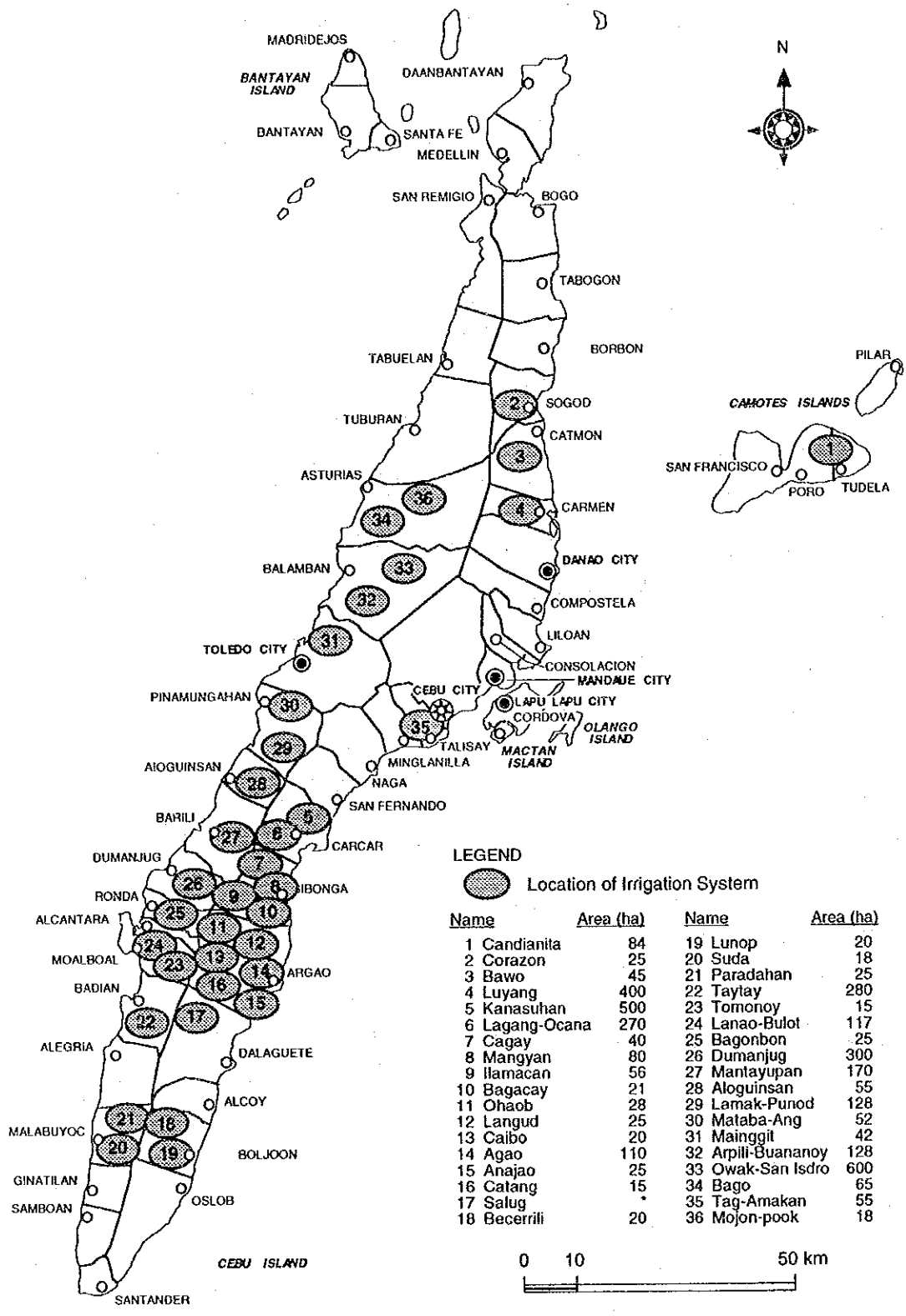
The lands used for agriculture are mostly hilly and with steep slopes. Rock outcrops are common in the hilly lands. The soils are mostly shallow, with low content of organic matter, and low natural fertility. The soil moister regime is classified as Ustic, which implies that some part of the soil control section stays dry for more than 90 days, cumulative. Flat lands devoted to agricultural production are small and scattered. The total land area suitable for irrigated agriculture is estimated at 10,064 hectares, scattered in some 35 patches of land. The location of lands presently irrigated and with potential for irrigation are shown in Figure 1.1.2. The potential irrigatable land area by region is shown in Figure 1.1.3.

The detailed classification of Agricultural land has not been done yet. A general classifications of the potential agricultural land use was made by the Department of Agriculture as follows:

TABLE 1.1.1 GENERAL CLASSIFICATIONS OF POTENTIAL AGRICULTURAL LAND USE, CEBU PROVINCE

Land Suitability	Classification		Land Area (ha)	Percent of Total
A. Cropping Land			95,996	20.52
	1. Very good land	Level to near level Deep soil, usually fertile. Suitable for intensive cropping.	22,028	4.71
	2. Good land	Deep soil, with restricted water movement. Can be cultivated safely, but needs good management, mainly drainage.	7,300	1.56
	3. Moderately good	Have moderately to severe erosion. Careful conservation is required for cultivation.	35,650	7.62
	4. Marginal agricultural land	Too stony to make cultivation practicable; Subject to erosion if left unprotected.	31,022	6.63
B. Pasture Land		The land is not suitable for cultivation, but good for grazing or forestry.	80,627	17.23
C. Forest Land		Very steep land, eroded, rough, shallow soil, good for forest and grazing.	286,492	61.22
D. Other uses			4,876	1.03
Total			467,991	100.00

Source: Department of Agriculture Task Force



Name	Area (ha)	Name	Area (ha)
1 Candianita	84	19 Lunop	20
2 Corazon	25	20 Suda	18
3 Bawo	45	21 Paradahan	25
4 Luyang	400	22 Taytay	280
5 Kanasuhan	500	23 Tomonoy	15
6 Lagang-Ocana	270	24 Lanao-Bulot	117
7 Cagay	40	25 Bagonbon	25
8 Mangyan	80	26 Dumanjug	300
9 Ilamacan	56	27 Mantayupan	170
10 Bagacay	21	28 Aloguinsan	55
11 Ohaob	28	29 Lamak-Punod	128
12 Langud	25	30 Mataba-Ang	52
13 Caibo	20	31 Mainggit	42
14 Agao	110	32 Arpili-Buananoy	128
15 Anajao	25	33 Owak-San Isdro	600
16 Catang	15	34 Bago	65
17 Salug	*	35 Tag-Amakan	55
18 Becerrili	20	36 Mojon-pook	18

FIGURE 1.1.2 IRRIGATION SYSTEMS LOCATION MAP

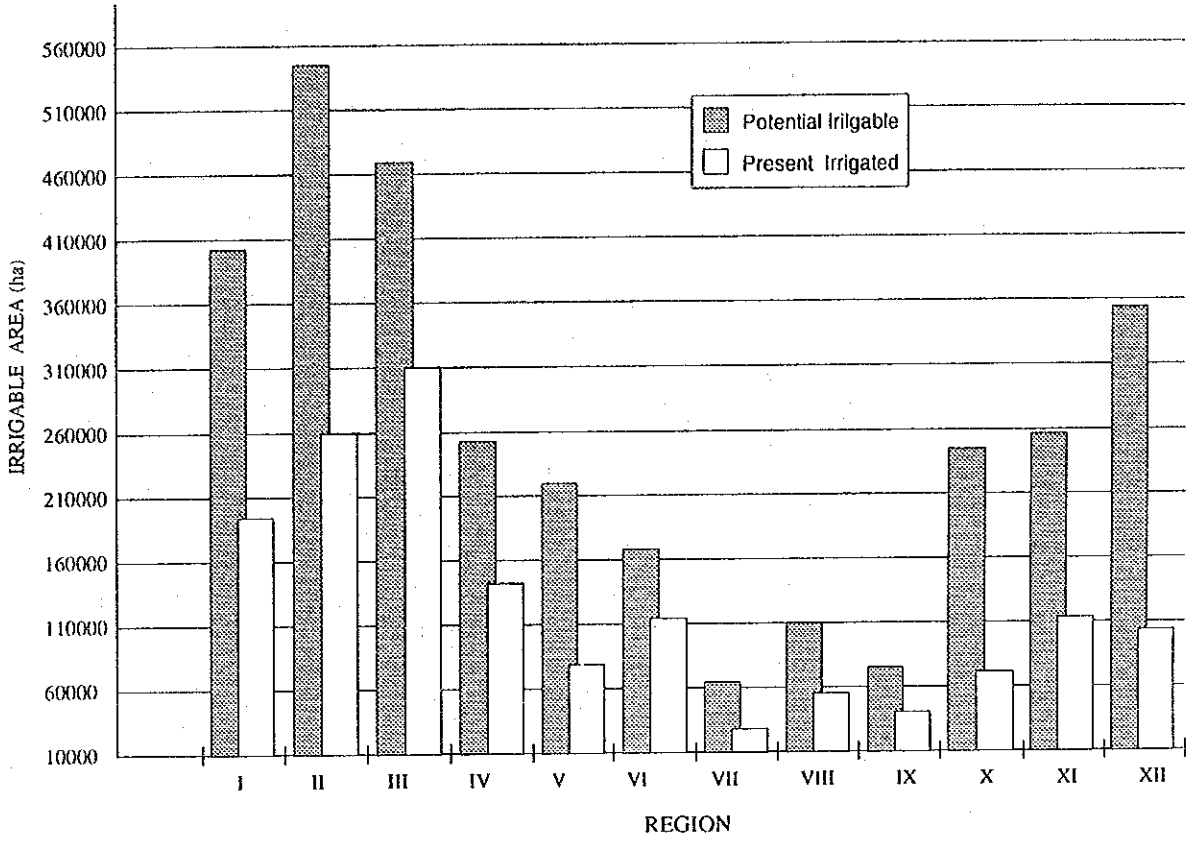


FIGURE 1.1.3 POTENTIAL IRRIGATION LAND BY REGION

TABLE 1.1.2 RECOMMENDED AGRICULTURAL LAND USE IN CEBU PROVINCE

Recommended Agricultural Use	Land Area (ha)	Percent of Total Land
Irrigated rice	4,490	0.94
Rain fed rice	1,026	0.23
Corn-based multi-cropping	63,607	13.33
Vegetable-based multi-cropping	2,294	0.48
Low elevation root crop multi-cropping	13,135	2.75
Coconut mono-cropping	27,691	5.80
Coconut-based multicropping	42,812	8.97
Low elevation fruit trees, multi-alley cropping	40,925	8.57
High elevation fruit trees, multi-alley cropping	509	0.02
Sugar-cane based	22,677	4.75
Coconut/Livestock multi-story system	12,235	2.56
Agro-forestry (Alley cropping) , Rehabilitation system	235,078	49.26
Preservation forest zone	10,746	2.25
Total for Agriculture and Conservation use	477,225	100.00

Source: Cropping System Zone Map, Bureau of Soil and Water Management, DA.

1.2 PRESENT CONDITION OF AGRICULTURE, LIVESTOCK, POULTRY AND FISHERY PRODUCTION

1.2.1 AGRICULTURAL PRODUCTION AND FARMING PRACTICE

(1) Main Crops Grown, Cropping Pattern and Intensity

Corn is the crop that occupies the largest agricultural land area. An average of 350,000 hectares of corn are harvested annually. Corn is commonly grown inter-cropped with coconut. Some 65 percent of corn growers make two harvests of corn per year. White corn is the dominant type planted in the province, it is the staple food for the majority of rural families.

Coconut is the crop that occupies the second largest area in Cebu, covering and area of 58,630 hectares. A large percentage of coconut trees are very old. Sugarcane is the crop that occupies the third largest cropping area covering 8,000 hectares. The area planted with sugarcane has been declining. Sugarcane plantations are concentrated mostly in the northern municipalities of Bogo, San Remigio, Medellin and Daan Bantayan, Danao city in the east coast, and Tuburan in the west. The total area planted with rice is about 6,700 hectares out of which 2,200 hectares are irrigated and 4,500 hectares are grown under rainfed condition. Two harvests are obtained per year in most of the irrigated rice area, while only one harvest is obtained from rain fed rice areas.

Other important crops grown in Cebu are banana, with approximately 6,000 hectares; Cassava, about 3,800 hectares, and sweet potato, approximately 2,800 hectares. Production of vegetables is concentrated mostly in the municipalities of Dalaguete, Sibonga, and Compostela; smaller areas are planted in Cebu city, Barili, and Carcar. Mango production is an important cash crop for many rural families of Cebu. There is a high potential for increasing the area planted with mango. Cutflowers production is a promising economic activity; the area planted with cutflower is increasing, mostly in the area of Cebu City. The areas planted annually with the most important crops in the province are summarized in Table 1.2.1 and Figure 1.2.1. Table 1.2.2 summarizes the land area planted of main crops by municipality. The lands suitable for production of vegetables, orchard, cutflower and corn are shown in Figures 1.2.2 through 1.2.5.

(2) Farming Practices

The agriculture production in Cebu province is mostly in small parcels of land, at subsistence level. Generally, production is only for household consumption, and no excess is produced for market. Farming activities from land preparation to harvesting are mostly done by family labor. Farming is mostly based on corn monocropping and coconut-corn based cropping. Crop rotation is seldom practiced. Farming is generally carried out under rainfed condition, on lands of low natural fertility. Most of the land tillers can not afford to buy the necessary inputs for farming, such as fertilizers and seed materials of improved crop varieties. The seeds used are commonly kept from previous harvest. Organic compost is seldom being used as fertilizer. Farming practices disregard the long-term sustainability of the land resources. The implementation of soil conservation measures is limited to a negligible percentage of the farms, thus causing deterioration of the land potential for agricultural production.

TABLE 1.2.1 AREA, YIELD AND PRODUCTION OF MAIN CROPS

Crop	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Rice (Irrigated)										
Area	1,380	1,760	1,830	2,670	5,170	4,880	5,290	4,180	4,450	3,410
Production	2,015	2,035	2,780	5,055	11,160	10,155	7,645	5,609	6,203	5,773
Yield	1.46	1.16	1.52	1.89	2.16	2.08	1.45	1.34	1.39	1.69
Rice (Rain fed)										
Area	3,780	2,340	2,490	1,480	3,640	2,610	4,790	3,690	3,570	6,510
Production)	4,375	1,825	2,820	1,315	5,755	3,300	5,840	3,726	3,521	7,022
Yield	1.16	0.78	1.13	0.89	1.58	1.26	1.22	1.01	0.99	1.08
Total Rice prod. (ton)	6,390	3,860	5,600	6,370	16,915	13,455	13,485	9,335	9,724	12,795
White Corn										
Area	294,511	302,082	294,301	293,180	299,250	324,320	331,440	309,570	320,970	320,950
Production	124,739	128,837	137,255	155,985	115,780	134,015	147,434	139,676	149,199	145,711
Yield	0.42	0.43	0.47	0.53	0.39	0.41	0.44	0.45	0.46	0.45
Yellow Corn										
Area	24,589	17,378	23,419	14,540	22,660	23,570	20,700	41,000	31,060	29,970
Production	10,961	13,528	9,010	6,710	7,370	10,255	9,661	18,546	15,162	14,355
Yield	0.45	0.78	0.38	0.46	0.33	0.44	0.47	0.45	0.49	0.48

Crop		1986	1987	1988	1989	1990	1991
Coconut	Area	46,530	46,140	45,650	45,270	45,290	45,290
	Production	173,744	165,504	150,816	137,442	138,956	90,285
	Yield	3.73	3.59	3.30	3.04	3.07	1.99
Sugarcane	Area	9,170	8,870	6,530	7,440	7,070	
	Production	510,351	474,736	527,594	603,708	558,725	
	Yield	55.65	53.52	80.80	81.82	79.03	
Banana	Area	6,330	6,230	6,350	6,180	6,210	6,658
	Production	68,509	68,213	68,994	72,129	54,006	51,964
	Yield	10.82	10.95	10.87	11.67	8.70	7.80
Cassava	Area	3,150	3,250	3,460	3,855	3,762	3,565
	Production	21,090	19,007	21,181	24,142	24,450	23,476
	Yield	6.70	5.85	6.12	6.26	6.50	6.59
Sweet potato	Area	2,000	2,700	3,010	2,898	2,820	2,350
	Production	11,200	14,888	16,480	15,951	15,645	13,196
	Yield	5.60	5.51	5.48	5.50	5.55	5.61
Mango	Area	3,590	3,610	3,610	3,620	3,620	3,622
	Production	26,405	27,299	27,944	28,264	23,209	18,990
	Yield	7.36	7.56	7.74	7.81	6.41	5.24
Peanut	Area	1,620	1,700	1,730	1,913	1,460	1,480
	Production	1,022	1,055	1,140	1,173	970	992
	Yield	0.63	0.62	0.66	0.61	0.66	0.67
Mongo bean	Area	1,320	1,050	1,150	980	1,110	1,120
	Production	710	577	602	547	558	567
	Yield	0.54	0.55	0.52	0.56	0.50	0.51
Tobacco	Area	1,250	1,300	1,260	1,300	1,080	949
	Production	551	610	594	576	700	548
	Yield	0.44	0.47	0.47	0.44	0.65	0.58
Tomato	Area	800	820	950	1120	1020	850
	Production	4,300	4,788	5,218	5,384	4,967	4,155
	Yield	5.38	5.84	5.49	4.81	4.87	4.89
Eggplant	Area	550	800	810	900	900	810
	Production	2,150	3,212	3,392	3,476	3,661	3,554
	Yield	3.91	4.02	4.19	3.86	4.07	4.39
Cabbage	Area	385	350	447	438	489	465
	Production	1,797	1,542	1,540	1,573	1,605	1,579
	Yield	4.67	4.41	3.45	3.59	3.28	3.40

Note: Area is in ha; Production in ton copra for Coconut, ton for the rest; Yield: ton/ha copra for coconut, ton/ha for the rest.

Source: Bureau of Agricultural Statistics

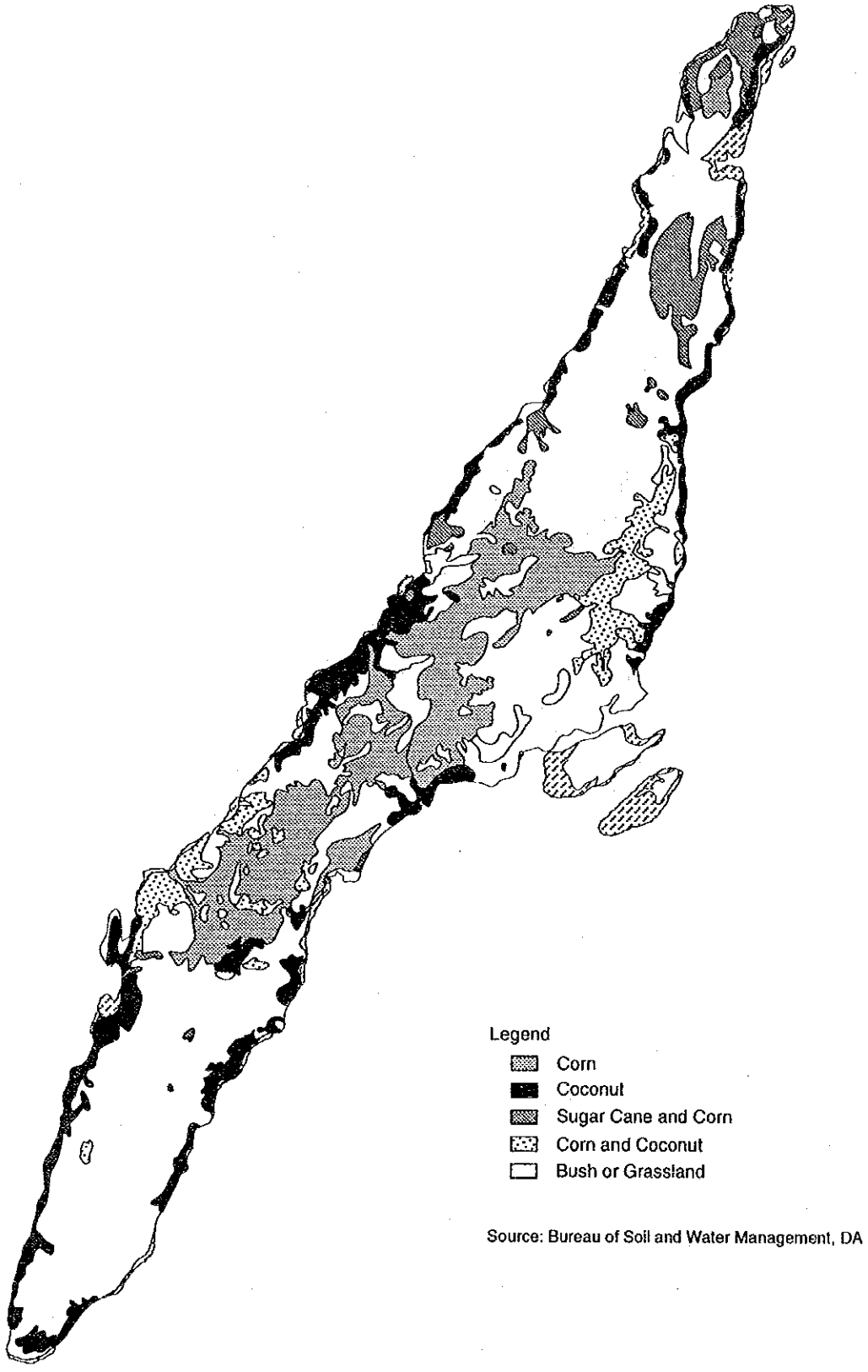


FIGURE 1.2.1 PRESENT AGRICULTURAL LAND USE

TABLE 1.2.2 AREA PLANTED OF MAIN CROPS BY MUNICIPALITY

Unit: ha

	Rice	Corn	Camote	Beans	Sugarcane	Cassava	Vegetables	Peanut
Alcantara	44	984	3			30		
Alcoy	0	1,796	26			70		11
Alegria	4	2,512	378	141	6	92	31	1
Aloguinsan	10	4,076	111			33	6	36
Argao	1,147	7,271	87	139		98	40	5
Asturias	405	3,399	147	378		317	61	35
Badian	55	2,856	330	22		182	51	1
Balamban	355	6,874	838	248		606	25	15
Bantayan	0	2,814	74	66		619	0	27
Barili	209	16,471	34	18	1	19	278	11
Bogo	3	7,518	7	127	1,884	20	9	6
Boljoon	36	2,070	7	3		24	1	1
Borbon	44	4,103	32	34	245	44	5	88
Carcar	364	6,157	62	73		84	33	6
Carmen	2	3,804	26	12	134	19		
Catmon	0	6,186	3	8		1		
Cebu City	347	8,869	98	416	28	196	297	49
Compostela	13	1,042	2	16	20	96	71	11
Consolacion	19	647				1	8	
Cordova	0	26	10	23		15	10	
Daan Bantayan	4	6,080	15	23	448	197	10	50
Dalaguete	351	4,390	226	846		126	528	1
Danao City	3	3,852	51	29	228	229	33	2
Dumanjug	9	10,775	124	185	1	103	45	14
Ginatilan	23	1,322	8	25		0	15	
Lapu-Lapu	6	333	8			165	1	
Liloan	96	1,705	5	64		13	137	3
Madridejos	0	351	4	3		187		13
Malabuyoc	53	1,565	438	356		77	157	9
Mandaue City	55	294	1	1	79	1	1	
Medellin	4	2,027	82	60	1,781	332	8	20
Minglanilla	517	720	35	6		26	6	
Moalboal	106	1,445	155	95		105	73	13
Municipality	0	0						
Naga	25	3,523	31			83	33	3
Oslob	0	3,189	41	5		76		20
Pilar	0	937	174	3		503		
Pinamungahan	625	5,724	45	1		91		1
Poro	173	2,065	60			483		20
Ronda	23	915	1	11		1	0	
Samboan	5	2,870		65		6		8
San Fernando	6	2,180	22	1		71		6
San Francisco	8	3,426	48			1,777	6	0
San Remigio	360	6,001	50	432	181	45	70	35
Santa Fe	2	1,515				195		
Santander	0	795		155		3	0	
Sibonga	286	4,519	14	8		18	164	3
Sogod	25	6,478	149	53		288		7
Tabogon	0	3,246	24	77	88	129	4	28
Tabuelan	0	5,089	14			8		6
Talisay	301	1,076	7	19	0	36	112	33
Toledo City	951	5,228	42	4		85	240	4
Tuburan	155	13,474	104	331	206	129	62	3
Tudela	108	740	47			97		1
Total	7,337	197,324	4,300	4,582	5,330	8,251	2,631	606

Source: Bureau of Agricultural Statistics, Agricultural Census of 1981

(3) Crops Yield and Production

The average yields obtain from most crops in Cebu are generally very low compared with those of other provinces in the Philippines. The main cause of low yields is due to the low fertility of agricultural lands. The lands are, in most cases, unsuitable for growing annual crops. Other important causes of low yields include: (1) the lack of technical assistance for agricultural production, (2) the lack of appropriate farming technologies for low-input farming system, (3) the common use of low quality seeds, (4) low economic capacity of producer for acquiring necessary inputs, (5) very old trees in the case of coconuts, and (6) lack of infrastructures for post-harvest handling of production. A comparison of average corn yields obtained in Cebu and other provinces is shown in Table 1.2.3.

TABLE 1.2.3 COMPARISON OF CORN YIELD FOR CEBU AND OTHER PROVINCES

Unit: ton/ha

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
National	0.95	1.00	1.01	1.00	1.01	1.10	1.14	1.16	1.18	1.23
CAR	0.88	0.89	1.08	0.96	1.04	1.01	1.00	1.05	1.30	1.13
Ilocos	0.69	0.73	0.83	0.93	0.91	0.95	0.84	0.88	0.90	0.93
Cagayan Valley	0.68	0.85	0.86	0.75	0.99	1.11	1.10	1.20	1.26	1.29
Central Luzon	0.66	0.66	0.76	0.72	0.67	0.78	0.80	0.91	0.98	0.99
Southern Tagalos	1.17	1.09	0.91	0.94	0.85	0.98	1.00	0.97	0.95	0.94
Bicol	0.65	0.60	0.64	0.72	0.71	0.76	0.77	0.65	0.71	0.68
Western Visayas	0.50	0.60	0.69	0.77	0.46	0.49	0.49	0.54	0.52	0.51
Central Visayas	0.48	0.50	0.52	0.58	0.44	0.47	0.50	0.51	0.53	0.53
Eastern Visayas	0.92	1.07	1.08	0.95	1.09	1.10	0.97	0.94	0.98	0.96
Western Mindanao	0.68	0.68	0.74	0.75	0.66	0.75	0.73	0.76	0.81	0.92
Nort Mindanao	0.85	0.96	0.93	1.08	0.87	1.01	1.12	1.12	1.23	1.37
South Mindanao	1.37	1.37	1.44	1.35	1.42	1.54	1.67	1.71	1.65	1.67
Central Mindanao	1.30	1.36	1.28	1.40	1.40	1.57	1.66	1.72	1.78	1.83
CEBU Province	0.43	0.45	0.46	0.53	0.38	0.41	0.45	0.45	0.47	0.45

Source: Bureau of Agricultural Statistics

the province's demand. Although large areas of land are annually planted with corn, the province is short on self supply of corn. The white corn produced in Cebu province in 1989 was about 155,000 metric tons, while the demand in the same year was about 217,000 metric tons, equivalent to 72 percent of the total demand of corn for human consumption. The local production of yellow corn represents less than 10% of the demand for animal feed.

TABLE 1.2.4 PRODUCTION AND DEMAND OF WHITE CORN IN CEBU

Year	Population	Per Capita Consumption (kg)	Production (ton)	Surplus or (Deficit) (ton)	Production as Percent of Demand
1983	2,235,143	90.70	167,455	-35,272	82.60
1984	2,282,160	93.15	123,230	-89,353.	57.97
1985	2,329,803	87.99	145,015	-59,984.	70.74
1986	2,377,943	88.10	155,375	-54,122	74.17
1987	2,426,444	88.17	157,869	-56,0701	73.79
1988	2,475,182	86.58	153,680	-60,621	71.71
1989	2,524,013	85.57	154,978	-61,002	71.76

Source: Bureau of Agricultural Statistics

The production of rice in Cebu province in 1989 was approximately 8,400 metric tons, while the local demand was estimated at 215,000 metric tons for the same year. The local production of rice satisfied only approximately 4% of the province total demand. Cebu's production and demand of white corn and rice are shown in Tables 1.2.4 and 1.2.5.

TABLE 1.2.5 PRODUCTION AND DEMAND OF RICE IN CEBU

Year	Population	Per Capita Consumption (kg)	Production (ton)	Surplus or (Deficit) (ton)	Production as Percent of Demand
1980	2,099,174	78.70	4,154	-161,051	2.51
1981	2,143,462	78.97	2,509	-166,760	1.48
1982	2,188,885	80.27	2,640	-173,062	1.50
1983	2,235,143	78.27	4,153	-170,792	2.37
1984	2,282,160	85.25	11,062	-183,492	5.69
1985	2,329,803	81.47	8,800	-181,009	4.64
1986	2,377,943	81.10	8,819	-184,032	4.57
1987	2,426,444	81.78	6,105	-192,330	3.08
1988	2,475,182	82.27	6,359	-197,274	3.12
1989	2,524,013	85.05	8,368	-206,299	3.90

Source: Bureau of Agricultural Statistics

(3) Poultry Production

The poultry production in Cebu is the largest agricultural-based economic activity in the province. Central Visayas region is the fourth largest in poultry production in Philippines, and Cebu accounts for 95% of the commercial production and 40% of the backyard production of the region's poultry industry. The poultry industry in Cebu is often affected by high death losses due to diseases and typhoons. Commercial producers are reported to suffer larger losses compared with backyard producers.

The poultry production are mostly concentrated in Bantayan island and in the municipalities near the large consumption market of Cebu city, such as in Talisay, Minglanilla, San Fernando, Liloan, Lapu-lapu city, Cordova and Consolacion. Chicken population for both, backyard and commercial production is shown in Table 1.2.6.

TABLE 1.2.6 CHICKEN POPULATION IN CEBU

Unit: thousands of chicken heads

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Back Yard	1,586	1,415	1,526	1,507	1,507	1,599	1,557	1,477	1,465	1,576	1,612
Commercial	940	1,710	1,915	1,708	1,993	739	677	740	743	1,207	1,418
Total	2,526	3,125	3,491	3,515	3,501	2,537	2,231	2,217	2,207	2,782	3,030

Source: Bureau of Agricultural Statistics

(4) Livestock Production

Livestock production is the second most important sub-sector of Cebu's agriculture. It is largely carried out in small scale, at backyard level; very few livestock producers of Cebu province are considered as commercial growers. Livestock production of less

than 20 adult heads is considered by the Department of Agriculture as backyard activity. From a total of 70,750 cattle heads reported in 1990, only 170 heads were in commercial farms. Only three cattle producers were considered as of commercial scale. The water buffaloes (Carabaos) are grown only at backyard level. The hog population in Cebu was 329,280 heads, with 317,680 heads from backyard production. There were only 24 commercial hog farms in Cebu province in 1990. Goat production is entirely a backyard activity in Cebu.

The population of cattle decreased at about - 5.2% annually between the years 1987 to 1990. The population of water buffalo also decreased from 1988 to 1990. The population of hog did not increased during the years from 1987 to 1989, but an important increase occurred in 1990. The population of goat increased from 1987 to 1990. The major areas for livestock production are the municipalities of Liloan, Consolation, Minglanilla, Naga, San Fernando, Sibonga, Bogo and Barili. Data on livestock population are summarized in Tables 1.2.7 and 1.2.8; The production and demand of meat is summarized in Table 1.2.9.

TABLE 1.2.7 LIVESTOCK POPULATION IN CEBU

Unit: heads

Year	Cattle	Carabao	Hog	Goat
1980	90,190	39,460	286,950	184,990
1981	99,880	47,070	299,890	201,500
1982	101,190	48,340	316,230	184,980
1983	102,520	50,170	359,690	186,430
1984	87,480	45,710	324,040	213,240
1985	81,590	45,010	274,730	190,470
1986	87,160	41,690	263,070	192,270
1987	89,610	44,690	281,320	153,280
1988	86,940	45,490	279,430	164,270
1989	72,210	44,180	279,900	166,520
1990	70,750	42,080	329,280	219,500

Source: Bureau of Agricultural Statistics, DA

(5) Fishery

Fishery is an important economic activity in Cebu province. Some estimates indicate that approximately 11% of the province's households depend on the various fishery activities. In 1990 there were about 60,000 fishermen in Cebu province. The fishery activity is classified into three categories namely municipal fishing, commercial fishing and aqua-culture. Fishing in municipal waters is carried out within seven kilometers from the shoreline, using small non-motorized boats. On the other hand, commercial fishing is carried out at distance greater than seven kilometers from the shoreline, using larger motorized boats and more effective fishing equipment compared to municipal fishing.

The average volume of fish caught by each fisherman in the municipal water was about 1.4 tons per year, while the annual average volume of fish caught by each fisherman of commercial category was 11.1 tons per fisherman. In 1980 municipal fishing accounted for about 80 percent of total marine fish caught. However, the share of fish caught in municipal waters has declined at - 5% during the period from 1980 to 1989. The main causes of decline of the volume of fish caught in municipal waters may be attributed to the use of dynamite and poisons for illegal fishing, as well as the deforestation of mangrove areas.

TABLE 1.2.8 CORN AND RICE AREA AND LIVESTOCK POPULATION BY MUNICIPALITY OF CEBU PROVINCE

Municipality	Corn Area (ha)	Rice Area (ha)	Number of Carabao	Number of Cattle	Number of Hog	Number of Goat
Bantayan	8,320	1	2,309	7,322	17,380	13,570
Cebu City	2,140	5	2,731	4,593	10,184	8,814
Argao	5,020	350	2,218	3,830	9,706	7,902
Balamban	6,390	240	1,199	3,404	5,484	6,670
Sibonga	2,600	120	1,682	3,368	3,905	4,397
Sogod	3,110	0	437	2,993	5,033	6,263
Badian	2,460	30	65	2,976	3,399	6,924
Dumanjug	4,480	3	910	2,914	7,447	5,236
Barili	5,260	70	3,819	2,906	8,178	9,092
Borbon	1,850	0	2,113	2,680	3,409	5,054
Tuburan	7,840	40	1,514	2,654	6,112	8,959
Daan Bantayan	3,870	10	1,266	2,647	8,423	4,983
Alegria	1,520	20	675	2,501	4,601	3,899
Toledo City	4,550	720	2,793	2,371	3,117	6,128
Carcar	2,880	180	911	2,225	7,121	2,609
Asturias	2,200	150	991	2,181	6,255	6,776
Moalboal	1,790	55	245	2,145	5,675	4,768
San Fernando	1,380	0	640	2,082	4,641	7,909
Pinamungahan	3,470	200	1,001	2,056	5,355	5,726
San Francisco	4,320	30	924	1,974	3,937	2,345
Tabogon	1,860	0	1,151	1,953	4,225	4,337
Bogo	3,660	0	318	1,805	10,333	11,272
Dalaguete	1,510	20	99	1,722	6,997	3,936
Liloan	450	100	299	1,720	2,037	1,897
San Remigio	2,820	0	950	1,688	5,678	3,782
Ronda	3,080	40	698	1,683	3,290	2,138
Consolacion	630	0	181	1,654	2,194	2,557
Minglanilla	420	100	291	1,640	8,213	3,307
Malabuyoc	2,940	30	943	1,572	3,211	3,416
Mandaue City	180	20	334	1,556	4,033	2,127
Poro	1,627	60	732	1,474	4,947	2,298
Catmon	2,300	10	968	1,366	4,456	4,043
Madridejos	1,960	0	362	1,308	3,977	2,680
Tabuelan	1,170	0	309	1,292	3,845	2,340
Santa Fe	620	0	22	1,242	4,312	2,258
Naga	1,890	25	1,525	1,234	8,776	5,876
Alcantara	1,740	9	506	1,179	1,731	1,872
Oslob	1,640	0	91	1,174	8,782	7,232
Aloguisan	6,980	14	1,397	1,166	5,006	4,421
Tudela	710	35	558	1,135	2,069	382
Danao City	4,530	0	1,229	1,109	6,293	3,705
Samboan	1,860	0	38	991	3,768	2,251
Compostela	1,400	6	424	984	1,327	1,676
Santander	560	0	1,106	940	5,111	3,311
Medellin	1,180	0	452	916	3,317	1,863
Pilar	550	0	321	700	3,082	708
Carmen	1,820	0	300	546	2,346	2,577
Boljoon	170	10	209	484	1,750	2,926
Talisay	300	10	91	435	4,997	1,672
Ginatulan	1,070	5	313	378	1,607	1,681
Lapu-Lapu	60	0	79	239	1,607	1,681
Alcoy	760	0	493	230	2,124	1,533
Cordova	30	0	0	152	2,662	2,334
Total	127,927	2,718	45,232	97,489	267,465	228,113

Source: Bureau of Agricultural Statistic, Agricultural Census of 1981

TABLE 1.2.9 PRODUCTION AND DEMAND OF MEAT IN CEBU

Unit: metric tons

	1985	1986	1987	1988	1989	1990	1991	1992
- Beef								
Production	827	1,409	2,227	1,537	1,565	1,593	1,622	1,651
Demand	2,865	3,234	3,494	3,564	3,635	3,722	3,811	3,903
Balance	- 2,038	- 1,825	- 1,267	- 2,027	- 2,070	- 2,129	- 2,189	- 2,252
- CaraBeef								
Production	1,567	418	859	1,576	744	764	785	806
Demand	1,165	1,427	1,427	1,485	1,514	1,551	1,588	1,626
Balance	+ 402	- 1,008	- 596	+ 91	- 771	- 787	- 803	- 820
- Pork								
Production	90	69	86	84	76	80	84	89
Demand	18,405	21,164	22,323	22,772	23,221	23,778	24,349	24,933
Balance	- 18,315	- 21,095	- 22,237	- 22,687	- 23,145	- 23,699	- 24,265	- 24,845
- Goat								
Production	439	852	258	372	283	302	323	346
Demand	1,142	1,189	1,237	1,262	1,287	1,318	1,350	1,382
Balance	- 702	- 337	- 979	- 890	- 1,005	- 1,016	- 1,026	- 1,036
- Chicken								
Production	2,590	2,022	2,005	1,411	2,284	2,465	2,821	3,044
Demand	6,314	6,634	6,940	7,079	7,219	7,392	7,569	7,751
Balance	- 3,724	- 4,612	- 4,935	- 5,668	- 4,935	- 4,926	- 4,748	- 4,707
- Eggs								
Production	9,237	8,122	8,071	8,036	10,130	10,930	12,104	13,060
Demand	4,660	4,660	4,853	4,950	5,048	5,169	5,293	5,420
Balance	+ 4,578	+ 3,366	+ 3,218	+ 3,086	+ 5,082	+ 5,762	+6,811	+ 7,640

Source: Bureau of Agricultural Statistics, DA

While the volume of fish caught by municipal fishermen decreased, the volume of fish caught by commercial fishermen increased at a rate of 18 percent for the period 1980 to 1989. Fishing in municipal water is done in almost all municipalities, while commercial fishing is mostly undertaken in Bantayan and Mactan islands. The volume of fish caught in Cebu province satisfies only 20% of the local demand. The commercial and municipal fishing activities are summarized in Table 1.2.10. The volume of fish caught and estimated demand of Cebu province are summarized in Table 1.2.11.

Aqua-culture production, including seed weeds, brackish water milkfish and prawn, is an important sub-sector of Cebu economy. In 1991 the fishery industry of Cebu generated more than US $70 millions, and out of that total US $53.14 millions were generated from export of shrimps and carrageenan. The Carrageenan industry is increasing in Cebu. There are several fish processing plants in Cebu province, mostly located in Mandaue city and Cebu city, as well as a crab processing plant located in Bantayan.

Most of the fish caught in Cebu province is brought to Cebu city and Mandaue city, where the large market is located. The wholesale market for fresh fish in Cebu city and neighboring municipalities is located at Pasil. The commercial vessels, that come mostly from Bohol and other provinces, land their fish in Mandaue port, and from there the fish is transported to Pasil market by truck. Fish from the municipalities of Cebu province, such as Danao, Daan Bantayan, and Bantayan are also brought by truck to Pasil market. Approximately 95 percent of the fish sold in Pasil market is brought there by land transportation due to the lack of facilities for direct fish landing in Pasil market.

Only small municipal vessels fishing nearby Cebu city usually land their fish directly to Pasil market.

A project for the construction of a modern fish landing port in Kauit islet, near Cebu city, has proceeded up to design level. This project include facilities for handling and storage of fish. The completion of this project will eliminate the need to transport fish by land, and will solve the fish handling and storage problems now prevailing in Pasil fish market.

TABLE 1.2.10 FISHERY ACTIVITIES IN CEBU

	Commercial fishing	% of Total	Municipal fishing	% of Total
No. of Operators	82			
No. of Fishermen	2,162	3	57,842	97
Production (ton)	24,080	22	80,692	78
Tons of fish per fishermen	11.1		1.4	

Source: DA, Agricultural Profile of Cebu province

TABLE 1.2.11 FISH PRODUCTION AND DEMAND IN CEBU PROVINCE

Year	Commercial Fishing	Municipal Fishing	Aqua-culture Production	Total Fish Production	Total Fish Demand	Balance of Fish Supply
1980	4,886	12,134	1,637	18,657	167,934	- 149,277
1981	15,097	11,402	1,709	28,208	171,477	- 143,269
1982	17,458	11,048	1,709	30,215	175,111	- 144,896
1983	16,554	13,037	1,064	30,655	178,811	- 148,156
1984	33,961	12,878	958	47,797	182,573	- 134,776
1985	22,403	14,154	1,148	37,705	186,384	- 148,679
1986	14,615	13,863	2,058	30,536	190,235	- 159,699
1987	10,078	10,692	2,058	22,828	194,116	- 171,288
1988	19,819	10,275	2,001	32,095	198,015	- 165,920
1989	21,638	11,629	2,102	35,432		

Source: Bureau of Agricultural Statistics, DA

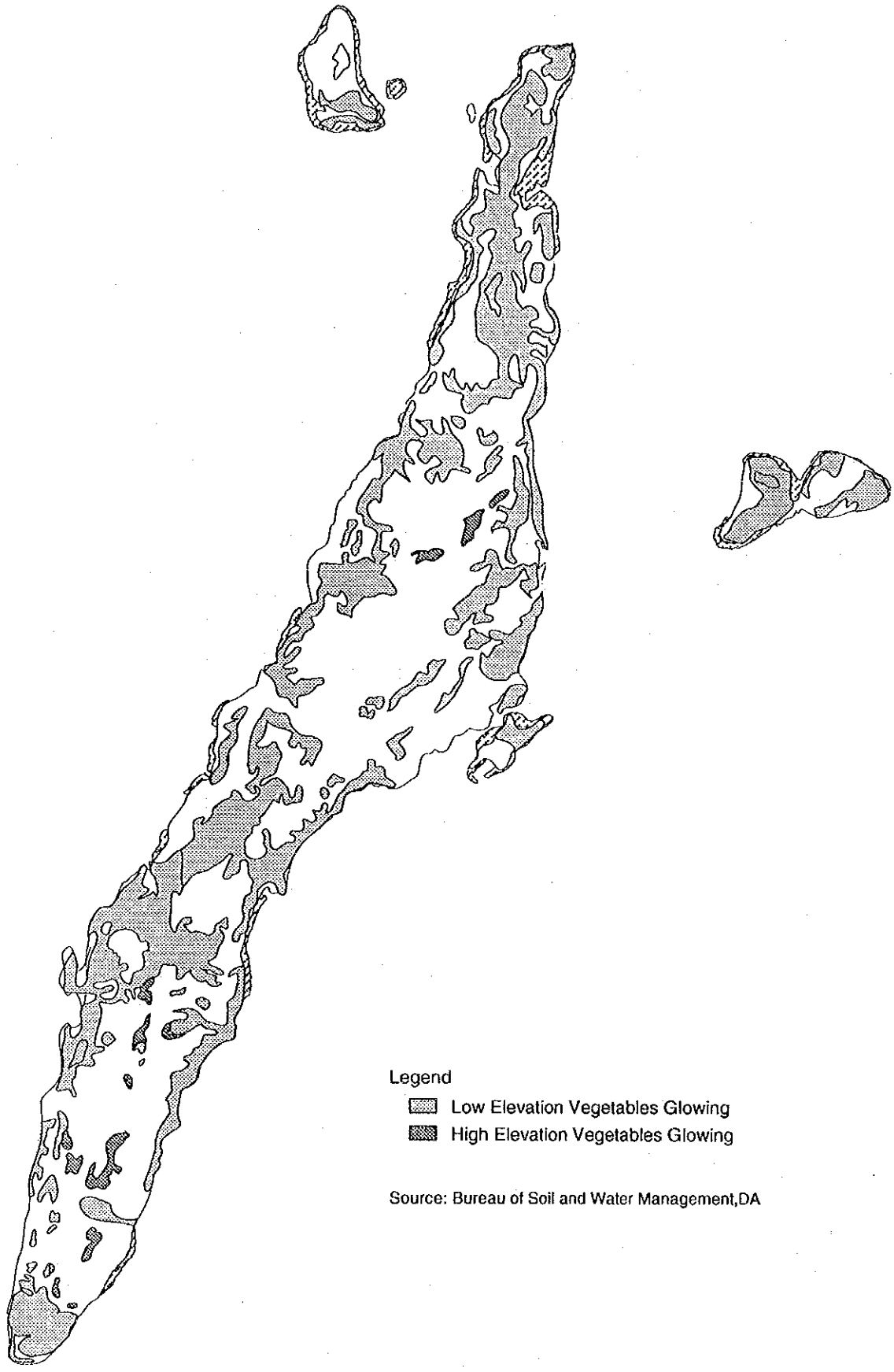


FIGURE 1.2.2 POTENTIAL LAND USE FOR VEGETABLE PRODUCTION

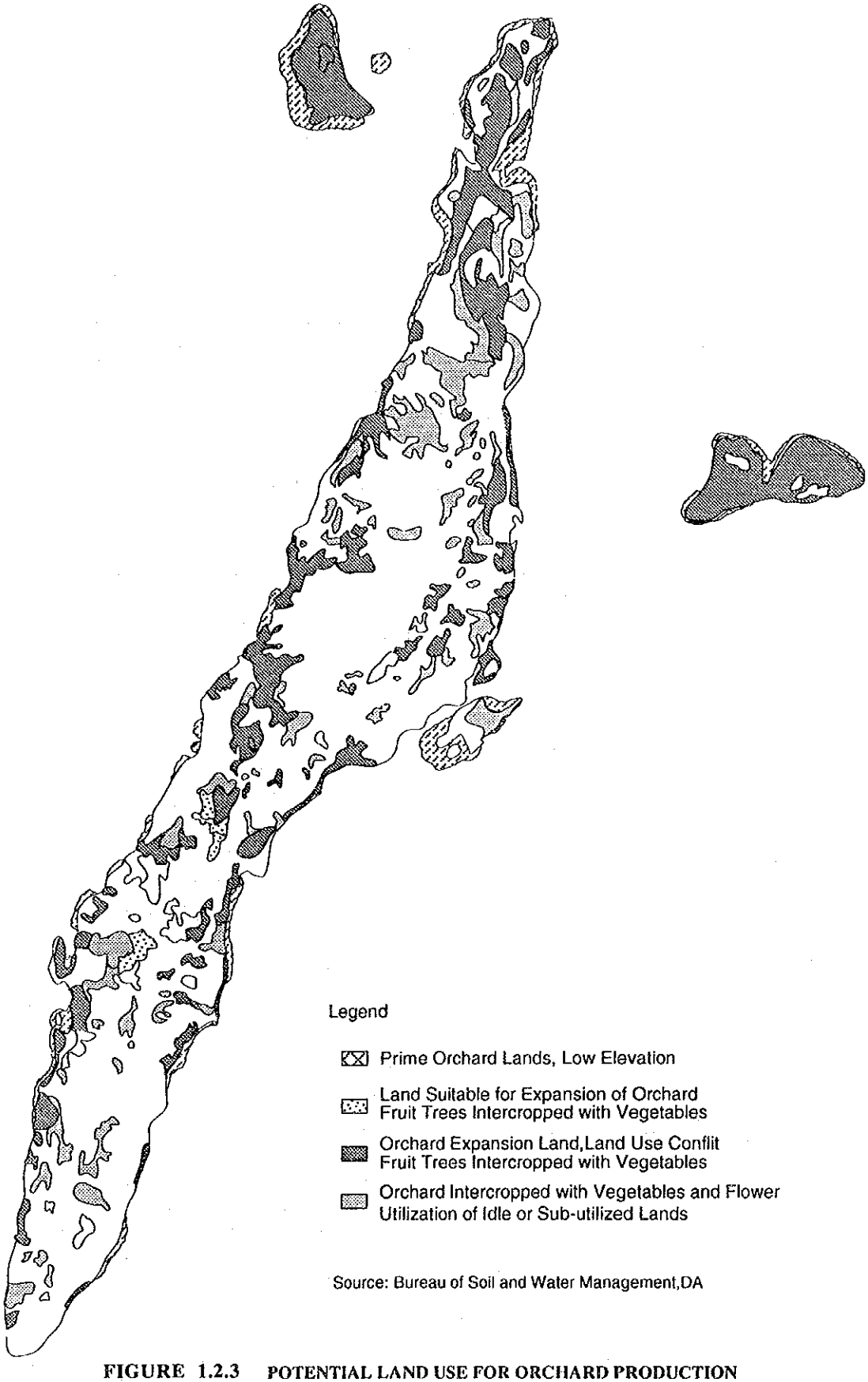


FIGURE 1.2.3 POTENTIAL LAND USE FOR ORCHARD PRODUCTION

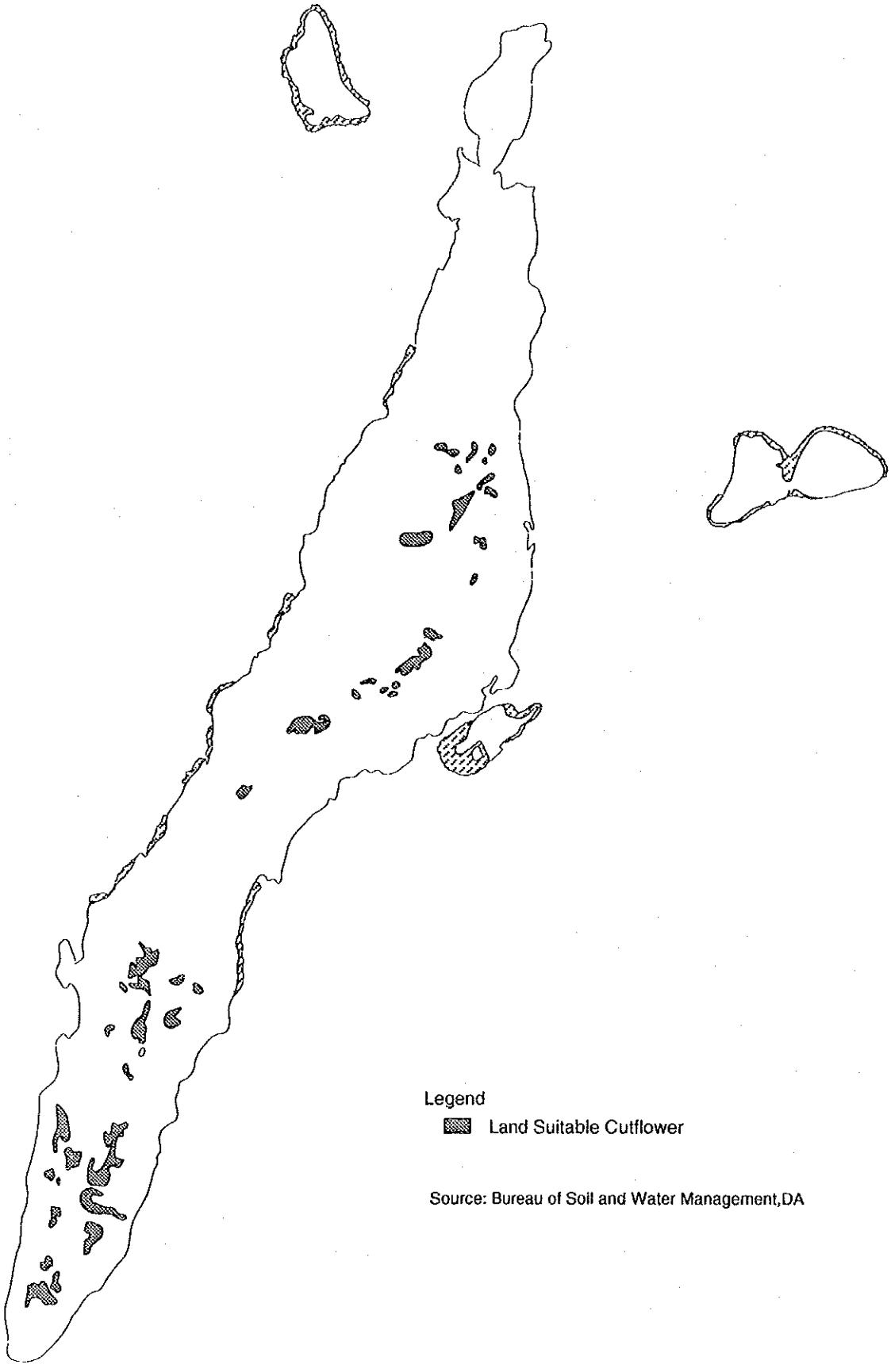


FIGURE 1.2.4 POTENTIAL LAND USE FOR CUTFLOWER PRODUCTION

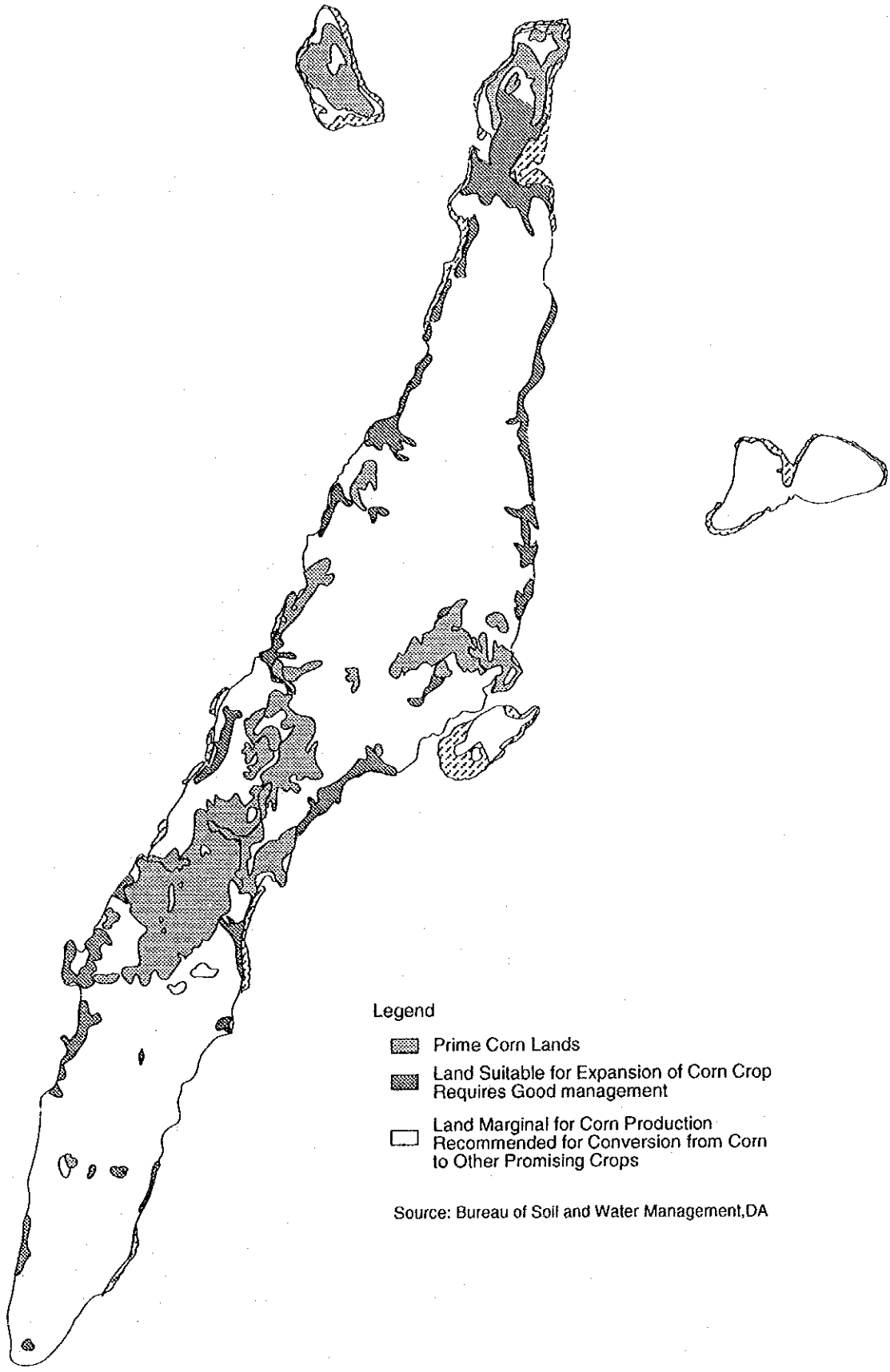


FIGURE 1.2.5 POTENTIAL LAND USE FOR CORN PRODUCTION

1.2.2 KEY PRODUCTION AREAS: THE MEDIUM TERM AGRICULTURAL DEVELOPMENT PLAN

The Medium Term Agricultural Development Plan (1993-1998) adopted by the Department of Agriculture is meant to concentrate the support for agricultural production in certain priority areas based on land suitability and market availability. The program divided the agricultural production into Key Grain Production Areas (KGPA), Key Commercial Crops Areas (KCCPA), and Key Livestock Areas (KLPA). In Cebu province there is no land considered as KGPA, hence the target of the program is that the lands areas now being marginally planted with corn and rice should be converted for diversified agriculture and livestock production. The five year medium-term program target an area of 50,000 hectares for livestock production and 27, 000 hectares for commercial crop production in Cebu province. The distribution of Key Production Areas by municipality is summarized in Table 1.2.12; Location of Key Production Areas is shown in Figure 1.2.6.

The target of the KLPA in Region VII is to increase livestock population during the five years period as follows: cattle population increase 25%; water buffalo (Carabao) population increase by 20%; goat population increase by 30%, hog population increase by 25, and chicken population increase by 10%. The actions to be implemented by the KLPA include: Expansion and upgrading of the breeder base, strengthening of production system, and establishment of support systems.

The KCCPA identified cutflower, jack fruit, and mango as priority crops for Cebu hinterlands. The target land areas during the program period are as follows: 1,240 hectares of cutflower, 13,300 hectares of mango, and 270 hectares of jack fruit.

1.2.3 AGRICULTURAL SUPPORTING SERVICES AND INFRASTRUCTURE

The basic agricultural supporting services such as extension, organization, credit and marketing are not provided to most of the land tillers and fishermen of Cebu province. Approximately 80% of respondents of the CIADMPS household survey do not receive those basic agricultural supporting services. Only those land tillers who are direct beneficiaries of some specific projects or programs such as CVRP and CUP have received extension service and/or credit. More than 80% of respondents of the farm household survey are not participating in any type of rural organization. Similarly, more than 80% of respondents do not qualify for availing agricultural credit for farming or livestock growing purpose. About 60% of the land tillers do not receive any type of extension service; Almost 90% of them do not receive any type of marketing support service.

The main reason why most of the land tillers can not avail of agricultural loans include: (1) the land tenure system, (2) the subsistence level of agriculture production, and (3) the lack of effective farmers organization. The majority of respondents of the farm household survey cited low input capacity as their most crucial problem for farming, especially the lack of agricultural loans.

Marketing support service and facilities are commonly absent in many barangays. Most land tillers produce only for home consumption. Those who produce for marketing are mostly engaged in vegetable production. They have no protection against the power of middlemen in the marketing process. Up to date there is not a marketing system favorable to the agricultural producers.

TABLE 1.2.12 KEY PRODUCTION AREAS FOR CEBU PROVINCE

Municipality	Livestock Production Area (ha)	Crop Production Area (ha)	Total area (ha)	% of total
Alcantara	500	114	614	0.80
Alcoy	171	50	221	0.29
Alegria	1,070	708	1,778	2.32
Aloguisan	1,303	1,000	2,303	3.00
Argao	1,084	1,500	2,584	3.37
Asturias	2,500	1,471	3,971	5.17
Badian	450	323	773	1.01
Balamban	3,000	907	3,907	5.09
Bantayan	2,000	403	2,403	3.13
Barili	2,685	1,896	4,581	5.97
Bogo	146	300	446	0.58
Boljoon	800	220	1,020	1.33
Borbon	428	200	628	0.82
Carcar	2,025	2,000	4,025	5.24
Carmen	363	113	476	0.62
Catmon	500	386	886	1.15
Cebu City	3,000	1,137	4,137	5.39
Compostela	700	275	975	1.27
Consolacion	400	101	501	0.65
Cordova	169	20	189	0.25
Daan Bantayan	1,745	1,500	3,245	4.23
Dalaguete	300	808	1,108	1.44
Danao City	630	665	1,295	1.69
Dumanjug	2,000	933	2,933	3.82
Ginatulan	300	114	414	0.54
Lapu-Lapu	350	133	483	0.63
Liloan	886	100	986	1.28
Madridejos	668	400	1,068	1.39
Malabuyoc	385	200	585	0.76
Mandaue City	36	0	36	0.05
Medellin	350	130	480	0.63
Minglanilla	781	500	1,281	1.67
Moalboal	850	215	1,065	1.39
Naga	1,201	500	1,701	2.22
Oslob	599	100	699	0.91
Pilar	180	24	204	0.27
Pinamungahan	2,000	550	2,550	3.32
Poro	435	100	535	0.70
Ronda	560	400	960	1.25
Samoan	250	57	307	0.40
San Fernando	1,100	611	1,711	2.23
San Francisco	757	200	957	1.25
San Remigio	510	200	710	0.93
Santa Fe	500	104	604	0.79
Santander	130	63	193	0.25
Sibonga	2,674	2,500	5,174	6.74
Sogod	479	300	779	1.02
Tabogon	600	315	915	1.19
Tabuelan	650	203	853	1.11
Talisay	500	152	652	0.85
Toledo City	3,020	667	3,687	4.80
Tuburan	1,000	800	1,800	2.35
Tudela	280	74	354	0.46
Total	50,000	26,742	76,742	100.00

Source: Department of Agriculture, 1993-1998 Development Plan

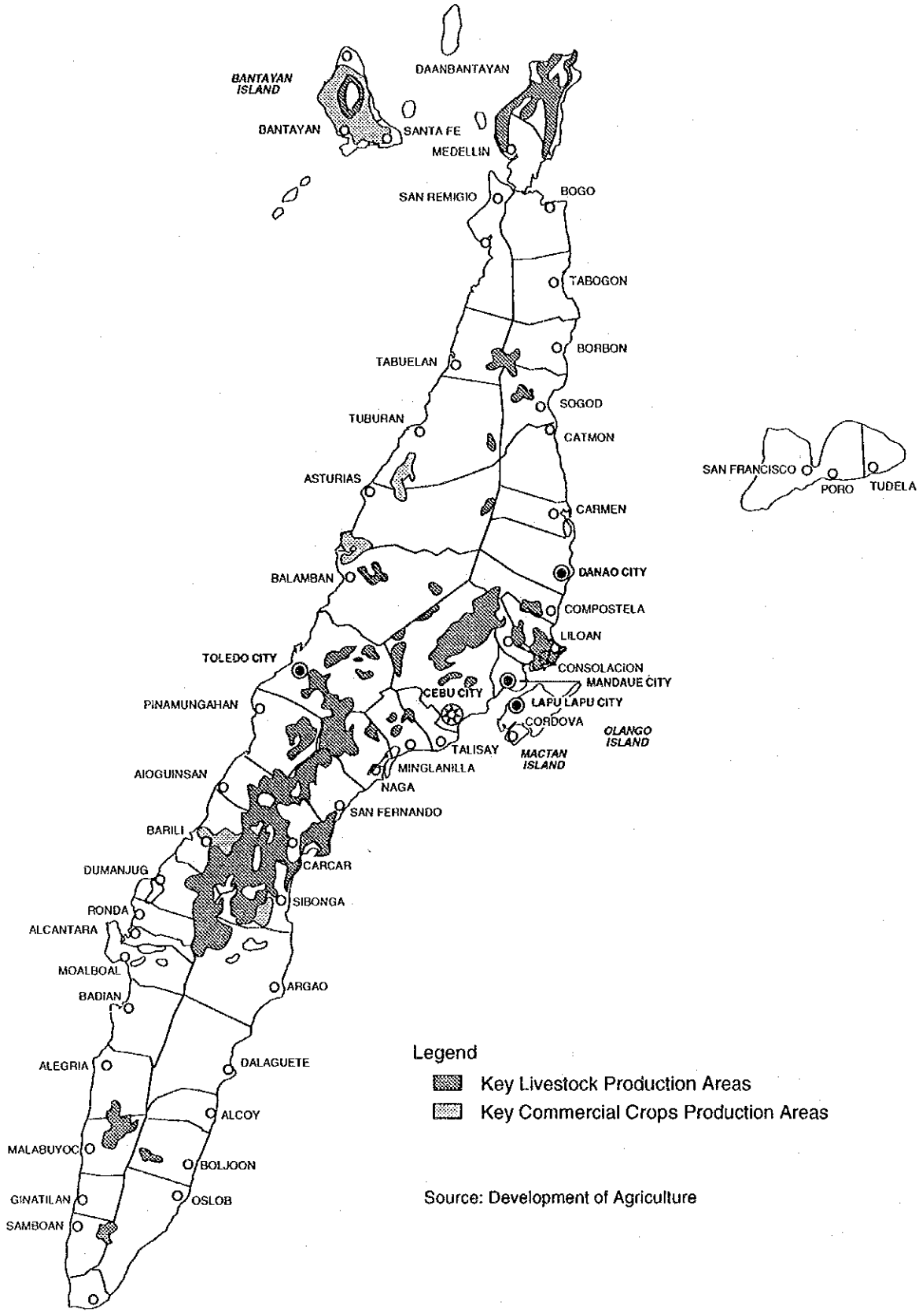


FIGURE 1.2.6 KEY PRODUCTION AREAS

The need of farm to market roads is the most common marketing supporting service cited by respondents of the farm household survey, and by local authorities. Water supply system, farm to market roads, municipal market and electrification are the types of infrastructure mostly requested by rural folks.

1.2.4 AGRICULTURAL MARKETING SYSTEM

The agricultural production in Cebu is largely at subsistence level. The supply of agricultural commodities for Cebu markets and agri-industries come mostly from others provinces of the country. Figure 1.2.7 shows the origin of the agricultural commodities flow into Cebu. In addition to the scarcity of suitable agricultural lands, the most important constraints to intensification of local agricultural production are related to the marketing problems; The lack of a favorable marketing system intended to reduce the long chain of middlemen in the marketing process, and the lack of support infrastructure and means of transpiration to facilitate marketing are disincentive for land tillers to engage in market oriented intensive agricultural production.

The organization of farmers and fishermen cooperative with continuos linkages bottom up from barangay to provincial and regional level is considered to be the most effective way of mitigating marketing problems. The multipurpose district centers are proposed to support the organization and strengthening of the cooperative production and marketing system. The marketing support component of the proposed multipurpose centers will include food terminals, warehouse, cold storage and milling facilities. Also, the acquisition of vehicles through a loan program for the transportation of farm produces by the cooperative is proposed.

1.2.5 SOCIOECONOMIC CHARACTERISTICS OF FARM HOUSEHOLDS

The available data on some socioeconomic characteristics of farms households refer to the entire Central Visayas region, and are not specific for Cebu; The data source is the 1987 farm household survey of BAS.

(1) Education

The percent distribution of formal educational levels in Central Visayas is as follows: Approximately 60% of farm household members attained only elementary education; about 18% reached high school; and 8% got college education; about 0.3% has vocational education, and 14% has no formal education. The percent of those who got only elementary education level is higher in Central Visayas compared with the national average of 50%; while the percent that got high education is lower in Central Visayas compared with national average of 25%.

(2) Main Agricultural Activity

The percentages distribution of farm household by their usual agricultural activity are as follow: Corn production 48%, rice production 25%, fishery 11%, and coconut production 9%. The percentage distribution of agricultural activities in Central Visayas region differ from those of the national average. At national average, 57% of farm households are engaged in rice production, and only 16% in corn production. Less than 4% of rural households are engage in fishery at national level.

(3) Income Levels

The average monthly income level of farm households in Central Visayas region was 35% lower than the national average income of farm households. The sources of income for farm households are divided into on-farm income which accounted for 46% of total income; non-farm income representing 28%, and off-farm income accounts for 12% of total income.

1.2.6 RESULTS OF CIADMPS FARM HOUSEHOLD SURVEY

The available data related to agricultural production in Cebu are incomplete and no updated. Therefore the JICA's Study Team conducted a farm household survey to update data on crop and livestock production, income of farm household, land holding system, farming practices, and agricultural supporting services. The findings from the survey give the bases for selecting and recommending the projects and programs necessary to improve agricultural production and income generation in the Study area. The results and findings of the survey are summarized as follows:

(1) Age of Farm Household Heads

Approximately 73% of farm household operators are old people; about 59% of respondents are 50 years old or older. These data differ significantly from those provided by Bureau of Agricultural Statistics in its survey made in 1987 that shows that a large percentage of heads of farm households is younger than 50 years old. The large percentage of old people heads of farm household might be considered as an indicator that under the present condition farming is not attractive for young people. The condition for agricultural production and marketing shall be improved to attract the young engagement in this economic activity. The age is also an important factor to be consider in the design of the material to be used for the extension service.

(2) Size of Farm Land

The small land area available for most of the farm households is one of the main constraints for increasing agricultural production in Cebu, and one of the main causes of low income reported by land tillers. Approximately 72% of survey's respondents have land area smaller than 2.0 ha. About 42% of farm households are tilling land area smaller than 1.0 ha. The problem of the small land area available for farming is worse considering that a significant percentage of the farms is covered with rocks, and therefore, there are not much land available for tilling. This factor shall be considered fro the implementation of CARP.

(3) Land Tenure System

Approximately half of the farm operators are owners of the land their till while the other half does not own the land that there are tilling, but are tilling the land based on shared production system or other type of arrangements that imply giving a part of the production or pay in cash to the land owner. There is a direct relationship between land tenure system and the attitude of farmers to apply measures for land conservation. Those land tillers who own the land their till are more ready for applying land conservation measures while those who are tilling the land under shared crop or lease arrangement are not much concerned with the long-term sustainability of the land productive capacity. The mitigation of the present land tenure system throughout the implementation of CARP is strongly recommended as this will promote the application

of land conservation measures in Cebu's hilly lands, and at the same time will favor the increase of income for farm households.

(4) Production and Income Level

The agricultural production for 65% of the survey respondents is only for family consumption while the rest (35%) have agricultural production for marketing purpose. A large percentage of Cebu's land tillers is dedicated to corn mono-crop cultivation for self-consumption. The economic benefit from corn production is the lowest among the crops planted in Cebu, with only about 6,000 pesos per hectare per year. Cutflowers, vegetables, and mango are the crops from which farmers obtain higher economic benefit per unit area. The average annual income from cutflower cultivation is 40,000 pesos per hectare; that from vegetables 21,000; that from mango 17,000. The above data show that even though the poor natural condition for agricultural production in Cebu, proper cropping systems can bear income above the poverty line.

This finding is the base for recommending the change and diversification of the existing unsustainable cropping system. According to the answers given by the survey respondents, the main problems affecting crop production are: low soil fertility, insects and disease, and lack of seeds of improved crop's variety.

The main production factors that farmers want to improve are: their capability to obtain farming inputs, to have large land areas and better land. Special attention shall be given to facilitate the application of measures for soil fertility improvement and conservation.

Besides the main crop, almost 90% of the respondents are growing some type of livestock at backyard level for income generation. Under the present circumstances, most of the farm households are obtaining only small income by growing livestock; but the results of the survey show that there is potential for obtaining relatively high income from backyard livestock raising, if enough supports are provided.

Approximately 80% of the respondents are considered to live below the poverty line with annual income of less than 36,000 pesos, including both farm and non-farm incomes. These data differ significantly from NEDA's estimates for Central Visayas Region as of 1988 which indicates that approximately 54% of the rural population was bellow poverty level. Among the main causes of low income level are:

1. the above mentioned constraints of small land are and the land tenure system,
2. the dominant monocropping system based on corn production,
3. the subsistence level of farming, and
4. the unfavorable marketing system.

To achieve the objective of reducing the high incidence of poverty, the following measures shall be pursued:

1. Effective and rapid implementation of CARP program
2. Effective support for crop diversification program
3. Effective support for intensification of poultry and livestock production as complementary or main agricultural activity
4. Effective support for developing a favorable marketing system

(5) Agricultural Supporting Services

Another fact coming out from the farm household survey is the lack of supporting services for agricultural production and marketing. Approximately 58% of the

interviewed land tillers said that they did not receive any kind of extension service. It seems that an ineffective extension service is provided to 42% of the respondents who said they were receiving some kind of extension services.

Almost 70% of the respondents said that they were not members of any type of farmer's organization; Half of the respondents said that they were willing to become a member of farmer's organization, such as farmer's cooperative as this type of organization might help to improve their income through better marketing. More than 80% of the respondents said they were not able to get agricultural loans; about 60% consider that they did not need agricultural loans because of the subsistence level of agricultural production they were carrying out.

The main marketing problems identified by the survey are:

1. Low and unstable commodity prices
2. Difficulty in transportation of products to the market site
3. Poor condition of farm to market roads

Data on the farm household survey are presented in Appendix to this chapter.

1.2.7 LAND HOLDING SYSTEMS AND FARM SIZES

The land holding system is one of the most critical problems affecting farm households in Cebu. More than fifty percent of farmers do not own the land that they are tilling. This large percentage of rural families are working the land under some type of lease or crop sharing condition; The landless farm operators must give a percentage of the production to the land owner; the share of production given to the land owner varies from 30 up to 75%, depending on the type of crop and the participation of the land owner in providing the cost of input for the production process.

The size of farms is another limiting factor affecting Cebu's rural families. Approximately 30% of the farm household are tilling land area of less than 0.5 hectare. More than 60% of the farm household are tilling land area of less than 1.0 hectare. About 27% of the farm household are managing land area of size from 1.0 to 2.0 hectares. The problem of small land area available for the land tillers of Cebu is even worse considering that a large percentage of farm lands content considerable amount of surface rocks which reduce the effective available farming area.

1.2.8 THE COMPREHENSIVE AGRARIAN REFORM PROGRAM IN CEBU PROVINCE

The law that creates the Comprehensive Agrarian Reform Program says in Chapter I, Section 2:

> "It is the policy of the State to pursue a Comprehensive Agrarian Reform Program (CARP). The welfare of the landless farmers and farm workers will receive the highest consideration to promote social justice and to move the nation toward sound rural development and industrialization, and the establishment of owner cultivatorship of economic-size farms as the basis of Philippine agriculture. To this end, a more equitable distribution and ownership of land, with due regard to the rights of landowners to just compensation and to the ecological needs of the nation, shall be undertaken to provide farmers and farm workers with the opportunity to enhance their dignity and improve the quality of their lives through greater productivity of agricultural lands."

The CARP contemplates the distribution of 49,656 hectares in Cebu province, covering both, government and private lands. The CARP program is divided into three phases, and targets to complete the distribution of land by the year 1999. Up to date, 5,586 hectares of land have been distributed under the CARP program. The area distributed until now, represents only approximately 11 percent of the total target area of the CARP in Cebu province. Special effort shall be made to complete the implementation of the CARP by the target year of 1999. The land areas to be affected by the CARP program in Cebu province are shown in Table 1.2.13 and Figure 1.2.7.

1.3 POTENTIALS AND CONSTRAINTS TO AGRICULTURAL AND RURAL DEVELOPMENT

1.3.1 POTENTIAL FOR AGRICULTURAL DEVELOPMENT

The potential for physical expansion of the agricultural production areas is very limited in Cebu province. The main limiting factor is the scarcity of suitable land and/or irrigation water resources. The expansion of agricultural land area in Cebu has almost reached its physical frontier. In those area with relatively large areas of flat lands the availability of irrigation water is scarce. Although the land area suitable for intensive farming is small, still there is potential for a sustainable increase of the gross value added of the agricultural sector. The Increase of gross value added might come as result of: (1) Increase in production of high value crops; (2) Higher marketable value as a result of improving quality of produce; (3) Large reduction in post-production losses; (4) Increase in livestock, poultry and fishery production; and (5) Added value by local processing.

The agricultural and Fishery production in Cebu should be redirected toward attaining an economically and environmentally sustainable development. The land and water resources should be used wisely according to the maximum economic potential and taking into consideration the environmental constraints. The maximum return from a sustainable use of natural resources might be achieved by diversification of the agricultural production pattern. The diversification and integration of the agricultural activities should be one of the objectives of the agricultural development program for Cebu province.

The diversification towards cash crops such as Cutflowers, fruit trees, vegetables, livestock and fishery production should be emphasized, based on comparative advantages such as land suitability, market accessibility, transportation facilities, and potential for industrialization. The diversification and integration of agricultural production might be the most effective mean to achieve the objective of uplifting the living condition of rural families.

The increase in yield of crops such as corn and rice should be pursued only in land areas classified as suitable for those crops. The land no suitable for corn production should be converted to pasture or orchard production; land unsuitable for rice production should be shifted to vegetable production. Large increase on yield of coconut production might be achieved by a combination of harvesting at proper time, proper fertilization of coconut trees , and by re-planting those very old coconut plantations.

TABLE 1.2.13 CARP TARGET AREA IN CEBU BY MUNICIPALITY

Municipality	Total Land Area (ha) *	Total Farming Area (ha) **	Farming Area as % to Total	Number of Farmers	Average Farm Size (ha)	CARP Target (ha)***
Total	492,047.0	163,537.1		149,893.0		49,655.8
Toledo City	22,915.0	9,438.5	41.1	5,839.0	1.6	6,610.1
Borbon	7,848.0	2,435.1	31.0	3,085.0	0.8	4,607.7
Medellin	6,794.0	3,622.9	53.3	1,849.0	2.0	4,140.5
Balamban	23,440.0	6,145.1	26.2	4,804.0	1.3	2,676.5
Cebu City	32,800.0	14,731.0	44.9	7,433.0	2.0	2,392.5
Naga	5,107.0	2,742.5	37.6	3,472.0	0.8	2,389.3
Tabuelan	14,113.0	3,458.4	24.5	2,192.0	1.6	1,894.7
Pinamungahan	11,201.0	4,083.5	36.4	3,925.0	1.0	1,776.8
Barili	11,518.0	7,405.2	64.4	6,067.0	1.2	1,720.3
Tuburan	24,648.0	8,230.7	33.3	5,198.0	1.6	1,617.4
Bogo	10,545.0	6,419.4	60.8	3,440.0	1.9	1,490.7
Dumanjug	14,253.0	4,586.0	32.1	4,210.0	1.1	1,138.9
Daan Bantayan	6,794.0	4,176.4	61.4	4,202.0	1.0	1,121.2
Minglanilla	7,197.0	728.5	10.1	872.0	0.8	1,080.1
Carcar	9,610.0	3,791.5	39.4	4,845.0	0.8	966.8
Sogod	11,744.0	4,047.5	34.4	3,313.0	1.2	924.0
Bantayan	9,710.0	2,400.4	24.7	3,230.0	0.7	907.1
Talisay	8,928.0	1,225.1	13.7	1,106.0	1.1	896.7
Dalaguete	10,883.0	3,610.3	33.1	4,979.0	0.7	896.6
Tabogon	7,115.0	1,737.1	24.4	3,050.0	0.6	849.0
Carmen	6,640.0	2,913.1	43.8	2,154.0	1.4	791.1
Asturias	12,039.0	4,704.1	39.0	3,131.0	1.5	776.2
Badian	7,972.0	2,831.7	35.5	3,595.0	0.8	760.8
Santa Fe	4,036.0	1,242.0	30.7	1,742.0	0.7	736.2
Danao City	10,728.0	4,067.8	37.9	3,448.0	1.2	713.1
Aloguinsan	6,251.0	2,046.0	32.7	2,382.0	0.9	674.3
Argao	21,045.0	4,086.6	19.4	6,075.0	0.7	609.0
San Francisco	6,822.0	2,866.6	42.0	4,192.0	0.7	567.7
San Remigio	11,978.0	2,627.8	21.9	3,436.0	0.8	561.8
Sibonga	11,154.0	4,396.9	39.4	3,288.0	1.3	494.2
Alegria	11,327.0	2,301.5	20.3	2,415.0	1.0	459.5
Poro	4,218.0	2,293.0	54.3	2,387.0	1.0	369.4
Oslob	18,327.0	2,242.5	12.2	2,841.0	0.8	304.3
San Fernando	7,034.0	2,203.5	31.3	2,831.0	0.8	297.5
Ronda	5,393.0	1,303.9	24.1	1,773.0	0.7	258.0
Malabuyoc	5,369.0	1,854.8	34.5	2,064.0	0.9	226.3
Moalboal	7,291.0	2,142.1	29.3	2,135.0	1.0	196.0
Samboan	4,464.0	1,169.5	26.1	2,016.0	0.6	144.8
Madridejos	9,634.0	759.5	7.8	976.0	0.8	105.4
Compostela	5,390.0	1,721.3	31.9	1,380.0	1.3	104.3
Pilar	3,776.0	963.5	25.5	1,823.0	0.5	102.5
Alcantara	2,510.0	1,343.2	53.5	1,013.0	1.1	73.2
Alcoy	4,981.0	995.6	19.9	1,336.0	0.7	66.4
Liloan	5,208.0	1,684.0	32.3	1,708.0	1.0	59.3
Consolacion	3,703.0	1,179.7	21.3	1,117.0	1.1	56.3
Boljoon	9,266.0	1,900.1	20.5	1,775.0	1.1	15.1
Tudela	11,564.0	1,516.8	13.1	1,490.0	1.0	14.4
Santander	2,478.0	934.6	37.7	1,483.0	0.6	9.0
Ginatilan	6,846.0	930.6	13.5	1,538.0	0.7	8.9
Catmon	9,635.0	4,682.4	48.5	3,030.0	1.6	3.9
Cordova	1,176.0	72.6	6.1	206.0	0.4	0.0
Lapu-Lapu	7,508.0	616.7	8.2	1,298.0	0.5	0.0
Mandaue City	3,013.0	1,929.1	64.0	704.0	2.7	0.0

Sources: * Cebu PPDO, 1993
** 1980 Census of Agriculture
*** DAR, Cebu , 1993

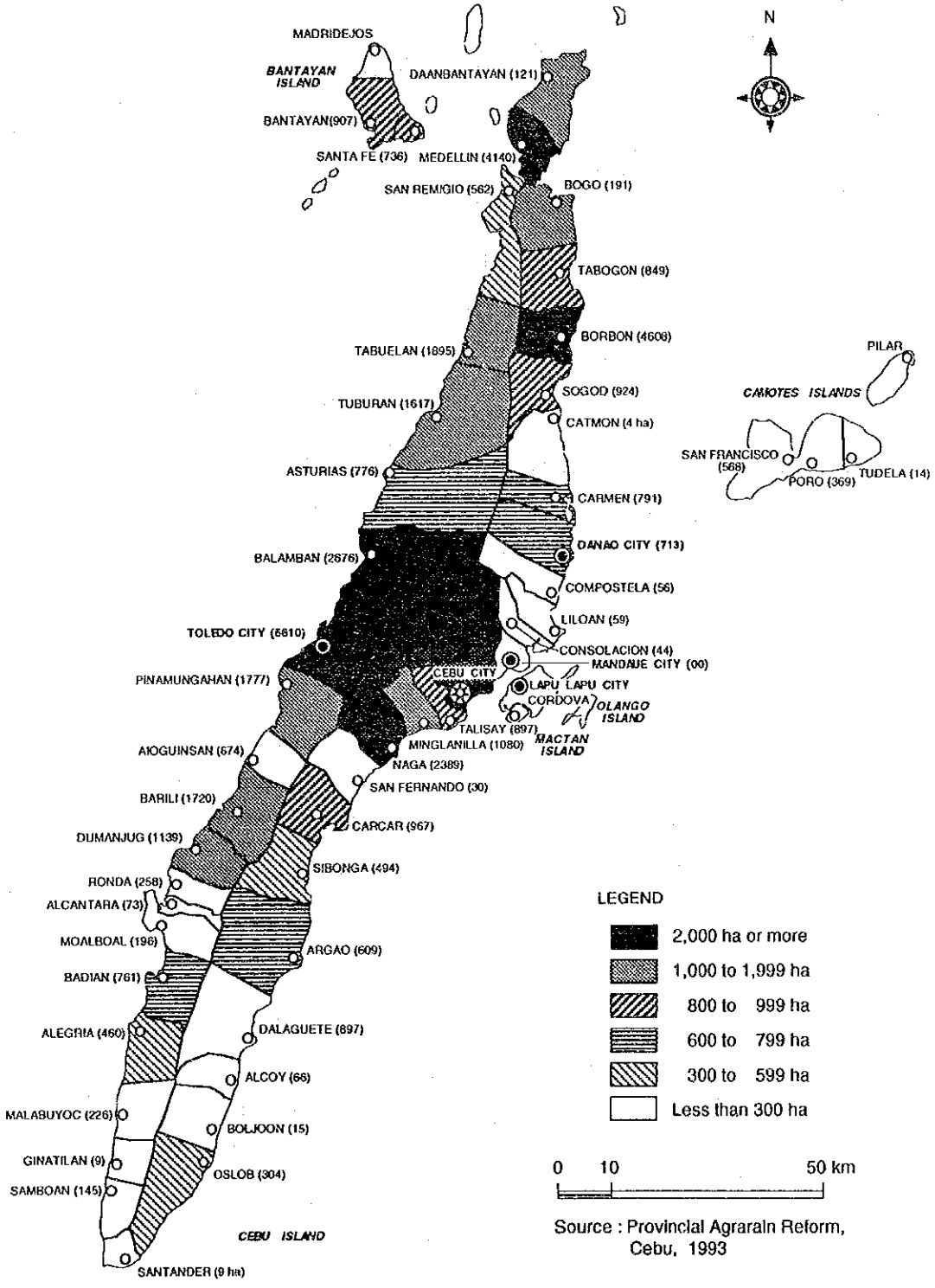


FIGURE 1.2.7 CAR'PS TARGET AREA BY MUNICIPALITY AND CITY

The above concept agrees with the Key Production Area (KPA) approach of the Medium-Term Agricultural Development Plan of the Department of Agriculture for the period of 1993 to 1998. The KPA approach will encourage rural folks to use the natural resources according to suitability classification. According to the KPA approach, the government support for agricultural production will concentrate on some defined areas, based on the criteria of potential for economic benefit and sustainable land use.

The potential for marine fishery production in Cebu have been reduced considerably due to accelerated destruction of the mangrove forest, and frequent use of destructive fishing methods such as dynamite and cyanides. Special effort are needed to restore the productivity of the fishery industry. Controlled marine fish production, such as fish cages, should be encourage and facilitated through the provision of investment loan to organized producers cooperatives.

1.3.2 CONSTRAINTS TO AGRICULTURAL DEVELOPMENT

The constraints to development of Cebu's agriculture might be summarized as follows:

(1) Physical Constraints

1. Scarcity of suitable land and irrigation water resources
2. Rugged topography of most of the land
3. Low natural soil fertility
4. Insufficient or inadequate irrigation facilities
5. Insufficient farm-to-market roads network
6. Lack of infrastructure to support marketing.

(2) Technical Constraints

1. Scarcity of Updated data necessary for planning purpose
2. Little adoption of available techniques on farming, livestock raising, and fishery production.
3. Economic limitations for producers to obtain the inputs required for the agricultural production process.

(3) Institutional Constraints

1. Very slow pace in the implementation of the CARP
2. Lack of coordination among agencies related to the provision of agricultural services
3. Almost negligible coverage of the extension services
4. Weak or lacking organization system to support agriculture production and marketing.

1.4 AGRICULTURAL AND RURAL DEVELOPMENT PLAN

1.4.1 PLANING ISSUES FOR AGRICULTURE AND RURAL DEVELOPMENT

The main issues to be addressed for the agriculture and rural developments of Cebu province are:

(1) Low Productivity and Production

The yields obtained by Philippine farmers are lower than most of their Asian counterpart. Crop yields obtained by land tillers of Cebu province are among the lowest in the country. Agricultural production is mostly at subsistence level. Large percentage of agricultural commodities demanded by Cebu consumers are supplied by other provinces.

(2) High Incidence of Poverty in The Rural Area

The sum of unemployment and underemployment rate of Cebu province is higher than the respective nation's average rate. The per capita GRDP of Region VII is lower than the nation's average per capita GDP. Estimate of poverty incidence for 1991 indicates that approximately 53% of the population of Region VII was below poverty level. Poverty incidence in rural areas is higher than that of urban areas.

(3) Unsustainable Use of Natural Resources

Only 21% of the total land area of Cebu province is considered suitable for farming without the need for special measures of land conservation. The land area presently under farming activities is almost twice as much as the area classified as suitable for agriculture production; this means that 50% of the land area presently under farming is being used in unsustainable manner. The high population density causes pressure on the land use. In the fishing sector, destructive fishing methods (dynamite and cyanide) are commonly used by fishermen. These unlawful practices cause significant reduction of the fish population.

(4) Lack of Infrastructure to Support Production and Marketing

Infrastructure such as farm-to-market roads, irrigation facilities, storage, market place, fish landing wharf, and other types of infrastructure are often being requested by farmers, fishermen, and local authorities. The lack of these types of infrastructures is recognized by most local authorities as an important factor affecting income level of rural families. The transportation of farm produce is difficult and expensive because of the lack of farm -to-market roads, and post production losses are high due lack of appropriate storage facilities.

(5) Insufficient Coverage of Agricultural Extension Service

The extension services provided by different government agencies are very limited, almost non-existent. Those agencies include very little extension service activities in their annual work program. The farm household survey conducted by JICA's CIADMPS shows that almost 58% of land workers do not receive extension services;

Approximately 42% of survey's respondents received extension services, but the service provided seems to be insufficient and inefficient.

1.4.2 CONCEPTS AND DIRECTIONS OF THE AGRICULTURAL PLANNING

(1) General Concepts

1. The agricultural development of Cebu should be economically and environmentally sound; The objective of the agricultural development shall be to attain the maximum economic benefit from a diversified and intensive use of the land and water resources, and at the same time to prevent the deterioration of those resources.

2. The proposed development packages should ensure the continuity and self sustainability of the programs and projects. The government should provide an initial support for starting the agriculture and rural development. After the initial government support, dependence on government intervention should be reduced to a minimum. The agricultural development should continue to grow based on the economic and human resources generated in the local community.

   The continuity on the implementation of development projects and programs is often affected by political and administrative changes. Those frequent changes in the priority of program are serious obstacle for rural development. One way to ensure continuity in achieving the rural development may be allowing the private sector to play an important role in the identification and implementation of rural development programs and projects.

3. The human resources should be the basic target of programs and project implementation. Development programs and projects should benefit a large portion of the rural population. The common practice of dole-out should be eradicated. The private sector including local private professionals, NGOs, land tillers, fishermen, rural women and youth, all organized in one coherent multipurpose cooperative with common development objectives, should be the leading force in the promotion and implementation of programs and projects conducive to agriculture and rural development.

(2) Planning Directions

(a) Institutional development and/or strengthening

The institutional development should focus on the formation of a strong multipurpose cooperative that will promote and support financing, production, processing, and marketing activities. The administration and operation of the cooperative will be carried out by local private professionals, land workers, fishermen, rural women and rural youth. These segments of the society should be organized into one coherent and strong institution with the objective of working in concerted effort to attain mutual benefits and community development. The government agencies will provide indirect support for the activities of the cooperative, especially at the initial formation stage. The government should facilitate the provision of minimum required infrastructure and the flow of loans to the cooperative.

The lack of coordination among the concerned agencies is one of the main cause of duplication of efforts and the very low achievement in development of the agricultural

sector. There is a need therefore to enhance the capability of these agencies to program, coordinate and implement programs and projects.

(b) Support for effective implementation of CARP

The Comprehensive Agrarian Reform Program is being implemented at a very slow pace. The CARP program contemplates the distribution of 49,656 hectares in Cebu province. Up to date only 5,586 hectares (11.2%) have been distributed. The working capability of agencies involved in the implementation of CARP should be enhanced. The causes of the low pace of implementation must be identified and solved. The implementation procedure should be simplified. Economic resources for compensating landowners should be secured.

The organizing of the cooperative of CARP's beneficiaries should receive special attention. The infrastructure required for production, processing and marketing support should be provided for CARP areas. An efficient extension service should be provided. The loan funds to support agricultural production should be made available through the cooperative organizacion system.

(c) Diversification and intensification of the agricultural production

Corn is the crop that occupies the largest area under cultivation in Cebu. It is the staple food for a large percentage of Cebuanos. Corn is cultivated mostly at subsistence level, obtaining very low productivity. The production obtained by a large percentage of corn grower is not enough even to satisfy their family requirement of corn as food. A large percentage of the land tillers does not produce for marketing purpose. Aside from the problems of low production and low income generation, large areas of lands are being used not in accordance with their suitability. Effort must be directed toward changing the unsuitable present land use, mostly in those areas of steep slopes, highly susceptible to soil erosion. The diversification of the agricultural production should be directed toward an agricultural land use that is more sound from the conservation and economic view points.

The above criteria apply also for the land presently devoted to sugarcane plantation. The long term forecast for sugar price indicates that the sugar industry will continue depressed. The land dedicated to sugarcane in Cebu should be converted to a more intensive type of agricultural production. Alternative agricultural production activities must be introduced for the benefit of rural families and the whole provincial economy.

(d) Development of an efficient and favorable marketing system

Under the present marketing conditions, the land workers get a relatively small share from the sale of their production; normally the middlemen get higher share than the producers. The income of the farm household can be improved by developing a more efficient marketing system, assuring a higher share of benefit to the land workers. One of the most important functions of the proposed multipurpose cooperative is to develop and implement an efficient marketing system that will favor the economic benefit of agricultural producers and fishermen.

(e) Support for rural women and youth development

The potential for agricultural development in Cebu is relatively small. Agriculture by itself can not suffice for uplifting the economic condition of the large rural population. Additional activities for income generation should be supported in the rural areas. Training should be provided to develop the entrepreneurial capability of rural women and youth to identify and develop livelihood projects. Investment loans should be

made available to enable the rural folks to engage in successful income generating businesses.

(f) Measures to stop degradation of natural resources

The sustainability of agriculture and rural development must be based on an appropriate and environmentally friendly management of natural resources. The deterioration of natural resources due to mismanagement is putting at risk not only agriculture and fishery production, but also the whole development potential of the province.

An in depth analysis of the real causes of unsustainable use of natural resources is needed. High population density, high incidence of poverty, lack of alternative livelihood opportunities, persistence of a colonial type of land tenure are among the most important causes of mismanagement of the natural resources. To achieve a sustainable use of the natural resources these causes have to be mitigated. Working only on the effects of the problem will not solve it.

(g) Development of the infrastructure required to support agricultural production and marketing

The provision of the minimum required infrastructure and equipment will increase production quantitatively and qualitatively. It will also reduce the transportation costs and post production losses, therefore it will translate into increase of the gross value added for the whole economy and increase of income for the rural families. The economic and social justifications of the proposed infrastructure to support agricultural and rural development need to be evaluated.

1.4.3 FRAMEWORK FOR THE AGRICULTURE AND RURAL DEVELOPMENT

The agricultural sector accounts for approximately 15% of the GRDP. In Cebu province, except Cebu city and Mandaue city, the agricultural sector provides job for 45% of the labor force. The socioeconomic analysis made by CIADMPS indicates that some 29 thousands of new gainful employment could be created in the agricultural sector by the year 2010 if proper attention is given to the implementation of sound programs and projects for agricultural and rural development. Otherwise, if the existing structural constraints are not mitigated, there will be 26 thousands fewer employees in the agricultural sector by the year 2010 compared to the present level. Large migration from the rural to the urban areas will cause reduction in self sufficiency level of food supply, and worsen the provision of services in the urban areas due to the concentration of population.

The result of CIADMPS farm household survey indicates that the population engaged in farming is composed mostly of old people. More than 58% of households' heads engaged in farming are 50 years or older; only 22% of households' heads are less than 40 years old. It might be one indication that, under present conditions, farming is not attractive for young the generations. The living condition in the rural area can be made more economically attractive and environmentally sustainable; Investment for rural development will produce multiple effects such as to increase food self-sufficiency levels, arrest degradation of natural resources, and to reduce undesirable excessive rural to urban migration.

Although the land area suitable for intensive farming is small, still there is potential for a sustainable increase of the gross value added from the Cebu's agricultural sector. The increase of gross value added from Cebu's agricultural sector might come as a result of:

(1) Increase in production of high value crops, (2) Higher marketable value as a result of improving quality of produce, (3) Large reduction in post-production losses, (4) Increase in livestock, poultry and fishery production, and (5) Added value by the local processing.

1.5 LONG LIST OF PROGRAMS AND PROJECTS FOR AGRICULTURAL AND RURAL DEVELOPMENT

1.5.1 PROJECTS AND PROGRAMS FOR INSTITUTIONAL DEVELOPMENT AND/OR STRENGTHENING, AND IMPROVEMENT OF SUPPORTING SERVICES (SOFT TYPE)

1. Program for organizing and/or strengthening farmers and fishermen multi-purpose Cooperative to support production and marketing.
2. Support program for the effective implementation of CARP.
3. Program for the implementation of an effective extension service
4. Marketing system development program.
5. Zoning of the agriculture production based on land suitability
6. Promotion and support program for the diversification and intensification of agricultural production based on some combination of: orchard, vegetables, Cutflowers, backyard poultry and livestock production.
7. Promotion and support program for fiber crops production in marginal lands of the southern municipalities; Local processing and marketing of fiber produce.
8. Study for the market demand of citronella oil
9. Promotion program for organic farming and Integrated Pest Management
10. Promotion program for Neem plantation, processing, and utilization.
11. Implementation of Non conventional training method, such as utilizing successful farmers as trainers, and documentation of successful stories.
12. Soil and water conservation project.
13. Promotion and support program for sea-water fishery production, seaweed production; and improvement of fishing condition of municipal fishermen by organizing cooperatives and facilitating loans; Multiplication and distribution of fingerlings.
14. Program for Rural Women and Youth Human Resources Development (training, entrepreneurial development, identification of investment opportunities and financial support for additional income generation projects development).