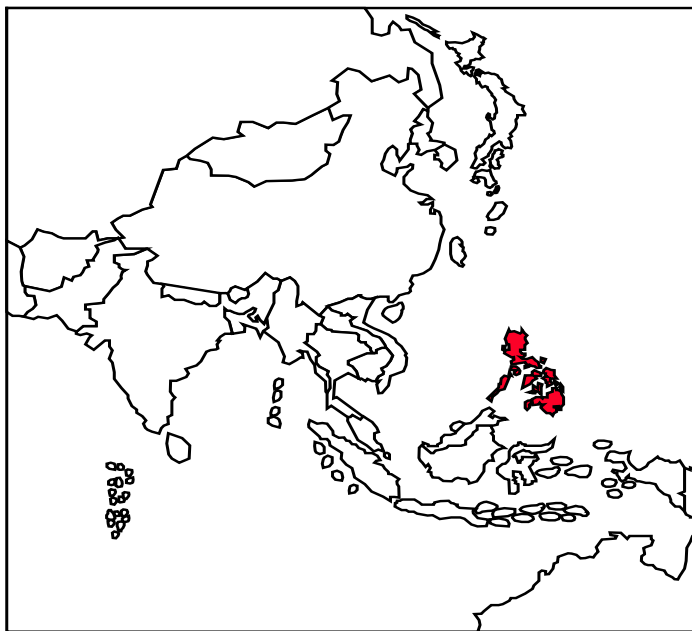


## FAO - NUTRITION COUNTRY PROFILES

# PHILIPPINES

2001



**FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS**

Note for the reader

*The objective of the Nutrition Country Profiles (NCP) is to provide concise analytical summaries describing the food and nutrition situation in individual countries with background statistics on food-related factors. The profiles present consistent and comparable statistics in a standard format. This pre-defined format combines a set of graphics, tables and maps each supported by a short explanatory text. Information regarding the agricultural production, demography and socio-economic level of the country are also presented.*

*In general, data presented in the NCP are derived from national sources as well as from international databases (FAO, WHO...).*

*Technical notes giving detailed information on the definition and use of the indicators provided in the profile can be obtained from ESNA upon request. An information note describing the objectives of the NCP is also available.*

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*The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers .*

FAO, 2001



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-General map of Philippines

Map 1: Population density by region for 1998.

Map 2: Below poverty threshold incidence of the population in the Philippines for 1997.

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Map 7: Prevalence of iodine deficiency disorder in 6-12 year olds by region for 1998.

Map 8: Prevalence of iron deficiency disorder in 0.5-5 year olds by region for 1998.

*Graphs, tables and maps can be visualised by clicking on the words in bold and underline, only in the “Full profile” pdf file.*

## SUMMARY

*Protein-energy malnutrition (PEM) and micronutrient deficiencies remain the leading nutritional problems in the Philippines. The general declining trend in the prevalence of underweight (**Map 3**), stunting (**Map 4**) and wasting (**Map 5**) among Filipino children noted in the past 10 years was countered with the increase in the prevalence rate in 1998. About 4 million (31.8%) of the preschool population were found to be underweight-for-age, 3 million (19.8%) adolescents and 5 million (13.2%) adults, including older persons were found to be underweight and chronically energy deficient, respectively (**Table 4a, 4b & 4c**).*

*The status of micronutrient malnutrition is likewise an important concern in the country. The vitamin A status of the country is considered severe subclinical deficiency affecting children 6 months - 5 years (8.2%) (**Map 6**) and pregnant women (7.1%). Iron deficiency anemia is the most alarming of the micronutrient deficiencies affecting a considerable proportion of infants (56.6%) (**Map 8**), pregnant women (50.7%), lactating women (45.7%) and male older persons (49.1%). Prevalence of IDD was mild (71µg/L). However, 35.8% children 6 – 12 years old still suffer from moderate and severe IDD (**Map 7**) (**Table 5a, 5b & 5c**).*

*Overweight and obesity are also prevalent in the country affecting a significant proportion of children, adolescents and adults, which predispose them to certain nutrition and health risks. This is evident in the rising trend in the prevalence of diseases of the heart and the vascular system (**Table 4a, 4b & 4c**).*

*Malnutrition in the Philippines is caused by a host of interrelated factors – health, physical, social, economic and others. Food supply and how it is distributed and consumed by the populace have consequent impact on nutritional status. While reports indicate that there are enough food to feed the country, many Filipinos continue to go hungry and become malnourished due to inadequate intake of food and nutrients. In fact, except for protein, the typical Filipino diet was found to be grossly inadequate for energy and other nutrients. In order to compensate for the inadequate energy intake, the body utilizes protein as energy source. Thus, the continuing PEM problem in the country.*

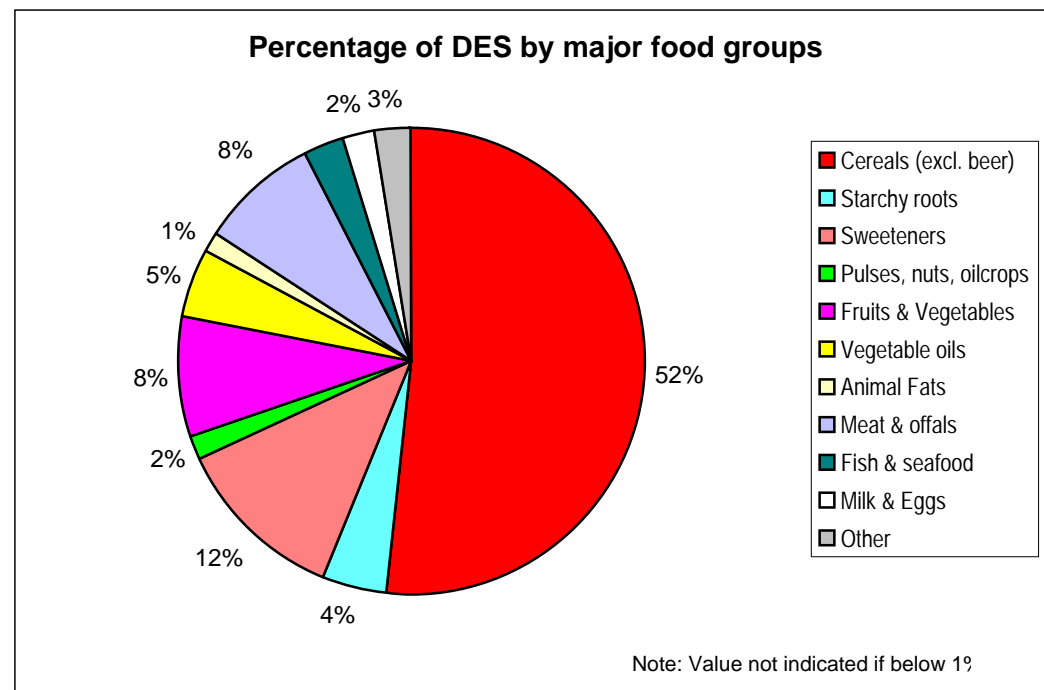
*The present economic situation of the country further aggravates the malnutrition problem with about 28 million Filipinos unable to buy food to meet their nutritional requirements and other basic needs. While it was reported that the health status of Filipinos improved in terms of the decrease in the mortality rates of mothers and infants, the rising incidence of infectious diseases such as diarrhea and respiratory diseases contributed to the poor nutritional status of many Filipinos. The effect of the 1997 Asian financial crisis as well as the El Niño phenomenon was also manifested in the increase in the prevalence of malnutrition in the national nutrition survey of 1998.*

TABLE 1: GENERAL STATISTICS OF PHILIPPINES

Last updated: 03/10/01

Indicator (\$,	Year	Unit	
<b>A. Land in use for agriculture</b>			
1. Agricultural land	1995	ha per person	0.164
2. Arable and permanent crop land	1995	ha per person	0.145
<b>B. Livestock</b>			
1. Cattle	1996-98	thousands	2265
2. Sheep & goats	1996-98	thousands	6537
3. Pigs	1996-98	thousands	9671
4. Chickens	1996-98	millions	130
<b>C. Population</b>			
1. Total population	1998	thousands	72944
2. 0-5 years	1998	% of total pop.	15.8
3. 6-17 years	1998	% of total pop.	28.1
4. 18-59 years	1998	% of total pop.	50.6
5. >= 60 years	1998	% of total pop.	5.6
6. Rural population	1998	% of total pop.	43.2
7. Annual population growth rate, Total	1995-2000	% of total pop.	2.1
8. Annual population growth rate, Rural	1995-2000	% of rural pop.	0.0
9. Projected total population in 2030	2030	thousands	114022
10. Agricultural population	1995	% of total pop.	42.4
11. Population density	1995	pop. per sq Km	227.8
<b>D. Level of Development</b>			
1. GNP per capita, Atlas Method	1997	current US\$	1,200
2. Human Development Index rating (new)	1997	min[0] - max[1]	0.740
3. Incidence of poverty, Total	1997	% of population	37.5
4. Incidence of poverty, Rural or Urban	1997	% of population	28.5
5. Life expectancy at birth (both sexes)	1998	years	68.4
6. Under-five mortality rate	1998	per 1,000 live births	44
<b>E. Food Trade</b>			
1. Food Imports (US \$)	1996-98	% of total imports	6.7
2. Food Exports (US \$)	1996-98	% of total exports	6.0
3. Cereal Food Aid (100 MT)	1996-98	% of cereals imports	0.4
<b>F. Indices of Food Production</b>			
1. Food Production Index	1996-98	1989-91=100	126.5
2. Food Production Index Per Capita	1996-98	1989-91=100	107.5

Indicator (\$,	Year	Unit	
<b>G. Average Food Supply</b>			
1. Dietary Energy Supply (DES)	1996-98	Kcal/caput/day	2389



<b>% Energy from:</b>			
2. Protein	1996-98	% of total energy	9.8
3. Fat	1996-98	% of total energy	16.6
4. Proteins	1996-98	g/caput/day	57
5. Vegetable products	1996-98	% of total proteins	55.7
6. Animal products	1996-98	% of total proteins	44.3

<b>H. Food Inadequacy</b>			
1. Total population "undernourished"	1995-97	millions	15.6
2. % population "undernourished"	1995-97	% of total pop.	22.0
... no data available		§ see References for data sources used	
See Technical Notes for definitions used.			

# PHILIPPINES

## I. OVERVIEW

### 1. Geography

The Philippines is an archipelago of 7,107 islands located 600 miles off the southeastern coast of the Asian mainland. It has a total land area of 300,000 square kilometers and is bounded on the north and west by the South China Sea, on the east by the Pacific Ocean and on the south by the Celebes Sea. Its proximity to the equator gives it a tropical climate with pronounced wet and dry season.

The Philippines is divided into three main island groupings, namely: Luzon, Visayas and Mindanao. The country is divided into 16 administrative regions and autonomous local governments in 78 provinces, 84 cities, 1,525 municipalities and about 42,000 *barangays* or villages.

The Philippines has a varied topography, with lofty highlands and numerous valleys. Its four major lowland plains are the Central Plain and Cagayan Valley in Luzon and Agusan and Cotabato Valleys in Mindanao (**General Map**).

### 2. Population

The Philippine population was estimated to be about 75 million in 1999. The adult population (18-59 years) composed more than half (51%) of the country's population while the 0-5 years composed 15% of the total population. With an annual growth rate of 2.3%, population is expected to reach more than 111 million by 2025 (NSO, 1995).

Agricultural population decreased over the years, from 42.4% of the total population in 1995 to 38.8% in 1999. This may be partly attributed to conversion of agricultural lands into residential and commercial areas (DA-BAS, 1999).

The Philippines is becoming densely populated from 202 persons per square kilometer in 1990 to 229 in 1995 (NSCB, 2000). This implies that the country's land area may not be enough to support the increasing population (**Map 1**).

### 3. Level of development: poverty, education and health

The country's annual per capita poverty threshold in 1994 was ₱ 8,885 (US \$197.44) which increased to ₱ 11,388 (US\$ 253.10) in 1997 and ₱ 14,541 (US \$323.13, at ₱ 45 to US \$1) in 1998. (NSCB, 2000) In 1994, poverty incidence of the population was estimated at 40.6%. This decreased to 37.5% in 1997. Poverty incidence of the population remained skewed toward the rural areas from 1994 to 1997. The proportion of the poor population residing in the rural areas went up from 65.6% in 1994 to 71.5% in 1997 (NSCB, 1997) (**Map 2**).

The average annual income of the Filipino family increased by 49% from ₱ 83,161 (US \$1,848) in 1994 to ₱ 123,168 (US \$2,737.07) in 1997 (NSO 2000).

An increase of 1.7 million in the enrolment of preschool, elementary and secondary students was observed from school year 1991 with 15.2 million enrollees to 16.9 million enrollees in 1996. Simple literacy rate of population 10 years and over increased from 89.8% in 1989 to 93.9% in 1994. Functional literacy, on the other hand, increased from 75.4% in 1989 to 83.8% in 1994 (NSO, 2000).

Health status of Filipinos has improved through the years as indicated by an increase in life expectancy from 67.4 years in 1995 to 68.2 years in 1999; decrease of infant mortality rate from 57 per 1,000 live births in 1990 to 35 in 1998; decrease of under-five mortality from 24 per 1,000 live births in 1990 to 14 in 1998. Maternal mortality rate also decreased from 209 per 100,000 live births in 1990 to 172 in 1998. (NSCB, 2000)

The human development index (HDI) rating of the Philippines, a measure of a country's average achievement in three basic dimensions of human development, namely: life expectancy, income and education, declined from 0.677 in 1995 to 0.625 in 1997 (NSCB, 1999) (**Table 1**).

#### **4. Agricultural production, land use and food security**

The Philippines is an agricultural country with a land area of 30 million hectares, 47% (14.1 million hectares) of which is agricultural land. The prime agricultural lands are located around main urban and high population density areas. In terms of classification, 93% of alienable and disposable lands (13 million hectares) are classified as agricultural lands and are devoted to agricultural crops. This is further distributed among food grains (31% or 4 million ha.); food crops (52% or 6.8 million ha.) and non-food crops (17% or 2.2 million ha.). Food grains consist of rice and corn, which are considered staples of the country. Food crops include rootcrops, vegetables and legumes, fruits and commercial crops (coconut, sugarcane, coffee) while non-food crops are abaca, tobacco, rubber, cotton and cutflowers (DA, 1999).

Farming is generally undertaken in small farms with an average size of two (2.0) hectares. These are either owned or managed by single families ranging from subsistence to commercial production (DA, 1999).

Notwithstanding the Asian financial crisis and the effects of El Niño and La Niña phenomena, 1999 had been a productive year for the agriculture sector surpassing its target growth of 6% and almost balancing out the -7.2% production drop recorded in 1998 due to El Niño and La Niña phenomena. Paddy rice production reached 11.8 million metric tons indicating a 37.8% increase from the previous year's record. Improved irrigation facilities, availability of good seed materials and improved usage of farm inputs contributed to the good production performance of paddy rice in 1999. Corn production, on the other hand, reached 4.6 million metric tons. Livestock and fish production also increased with 1.41 million metric tons for livestock and 220,000 metric tons for fish produced, an increase of 25% over that of 1998. Price of rice was relatively stable with a kilo of rice ranging from ₱ 18.94 to ₱ 19.37 (DA, 1999).

From 1996 to 1998, about 54 million head of cattle, carabao, goats and pigs; and about 390 million head of chicken were recorded (DA-BAS, 1999).

## 5. Economy

Despite the downward trend of the global market and the impact brought about by the El Niño and La Niña phenomena, the Philippine economy showed considerable gains as reflected in the per capita Gross National Product (GNP) from 934 US\$ in 1998 to 1,050 US\$ in 1999. The country's gross domestic product (GDP) per capita also showed a steady rise from ₱ 24,671 in 1994 to ₱ 38,930 in 1999 (NSCB, 2000).

A fluctuating trend in the volume of agricultural exports was observed from 1994 to 1999. An increasing trend was seen between 1994 and 1996 and a downward trend between 1997 to 1999. Agricultural share in the country's international trade was about 8.6% while agricultural exports vis-à-vis total exports accounted for only less than 10% in 1997 and a lower 8% in 1998. The 1997 value was considered as the lowest in the last five years (DA, 1999).

The country's food import trade is 4% of total imports while food export trade is about 6%, excluding the non-food commodities such as fertilizer and animal feeds.

In 1998, even with the total phase out of the provision of food commodities for feeding operations under the US PL 480 Title II program, the country received 11,048 tons of wheat and wheat flour as cereal food aid which is 2.6% of the total imports of the country.

The current database for indices of food production used only selected food commodities with a baseline production of 1988. For 1996-98, the food production index is at 116.8 while the food production index per capita is 99.1 (DA-BAS, 1999).



## II. THE FOOD AND NUTRITION SITUATION

### 1. Trends in energy requirements and energy supplies

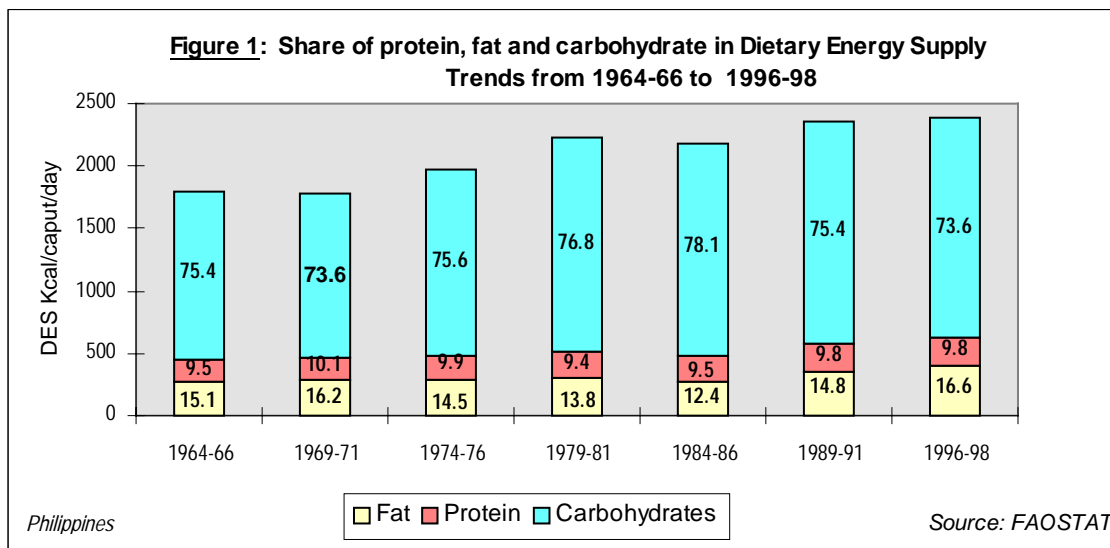
The Philippine population doubled between 1965 and 1995, and is projected to increase by 55% in 2025 (**Table 2**). During the same period, the urban population also increased by about 71% from 1965 to 1995 and is projected to increase by about 33% by 2025. In response to the growing needs of the population, energy requirements also increased, although marginally. Between 1965 and 1995, average daily per caput energy requirement increased from 2073 to 2108 kcal. In the same period, average daily per caput dietary energy supply (DES) increased from 1799 kcal to 2366 kcal.

**Table 2: Total population, urbanisation, energy requirements and dietary energy supplies (DES) per person and per day in 1965, 1997 and 2030**

Year	1965	1997	2030
Total population ( <i>thousands</i> )	32030	69902	114022
Percentage urban (%)	31,6	55,0	73,8
Per caput energy requirements ( <i>kcal/day</i> )	2073	2114	2160
Per caput DES ( <i>kcal/day</i> )*	1799	2389	--

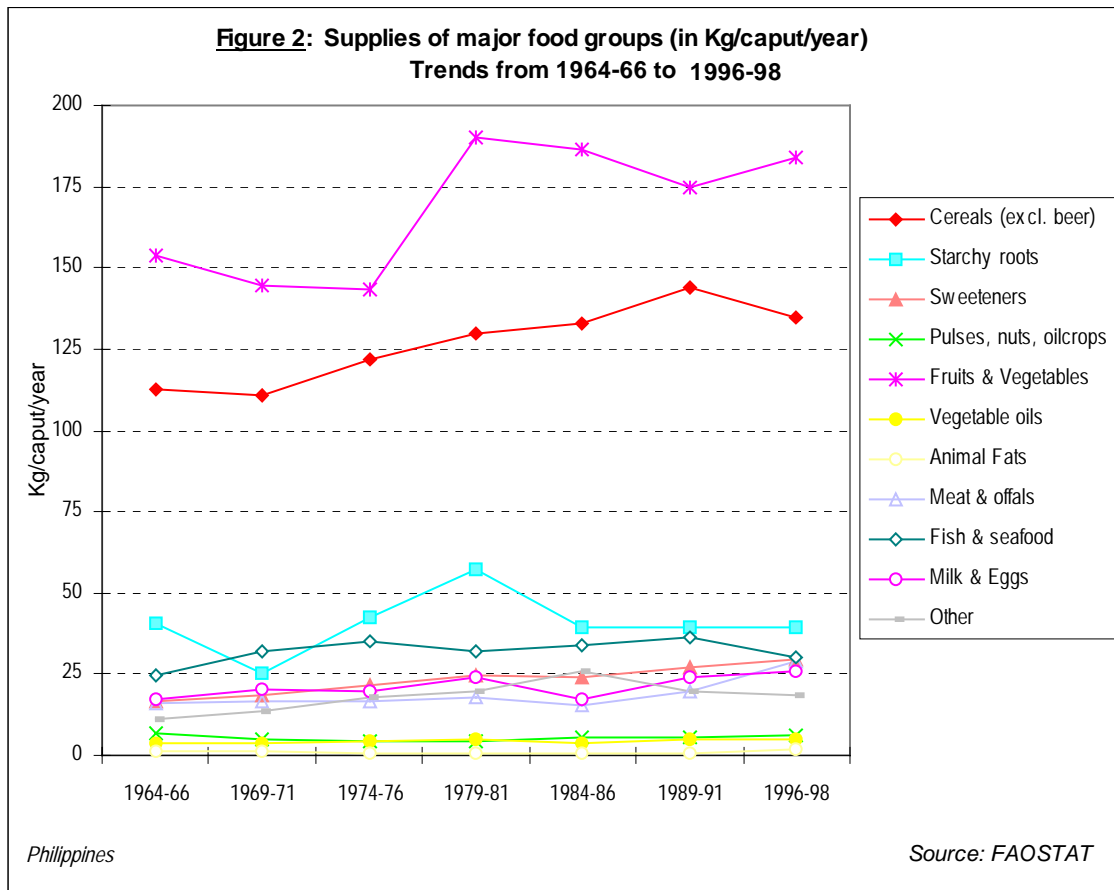
\* Three-year average calculated for 1964-66 and 1996-98 (*Source: FAOSTAT*)

Based on the past three Philippine Food Balance Sheet (FBS) reports, the period 1990 to 1998 saw a fluctuating trend in the dietary energy supply (DES) per caput per day. This is reflected in the fluctuating trend in the percentage share of the three macronutrients in the dietary energy supply (**Figure 1**). The highest average energy supply was seen between 1993 to 1995 (2578.3 kcal). Carbohydrates remain to be the major source of energy with the highest average seen between 1996 to 1998 at 72.9%.

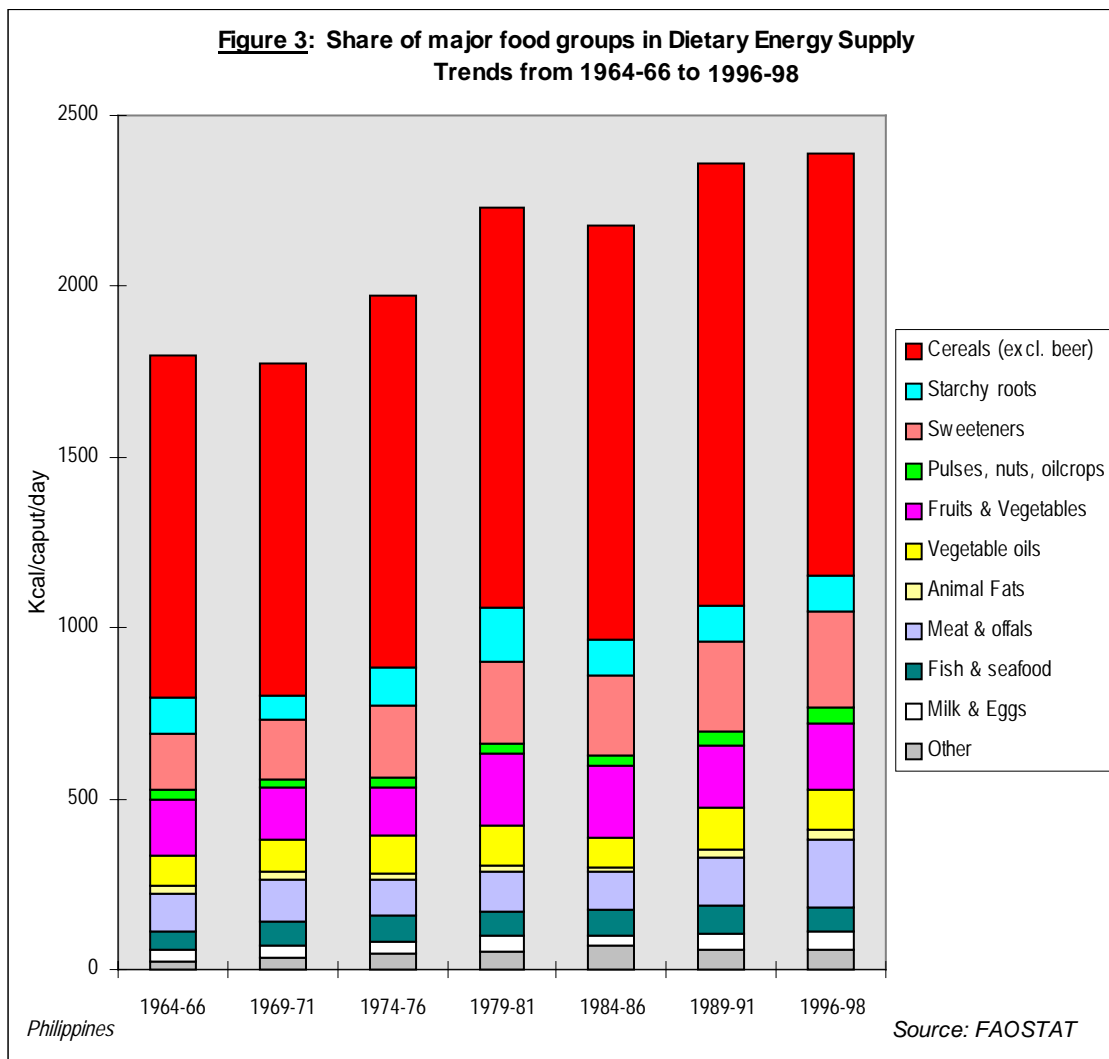


## 2. Trends in food supplies

*Quantity:* The trends in the supply of major food groups in the Philippines are shown in **Figure 2**. Data from the FBS for the years 1990 to 1998 showed a decline in the supply of cereal and cereal products; starchy roots and tubers; and fish and other marine products. The decrease in supply for the three food groups, particularly for starchy roots and tubers, and fish and other products, can be attributed to the occurrence of the El Niño phenomenon, which occurred within the years 1996 to 1998. On the other hand, average supply of fruits and vegetables; and meat and meat products continued to increase for the three-year average. Quantity of sugars and syrups; pulses and nuts; fats and oils; and other food commodities, e.g. spice and seasoning, coffee, varied between 1990 to 1998, with the years 1993 to 1995 recording the highest average amount for the three food groups except for sugars and syrups. Quantity of other food commodities was observed to have doubled between 1993–1995 and 1996–1998 while supply for fats and oils decreased to less than half (3.7 kg.) the quantity of its preceding years (8.3 kg.). Only milk and eggs maintained a three-year average of 6 kilograms per caput. Supply of milk, some cereals (wheat grain) and pulses and nuts rely heavily on importation.



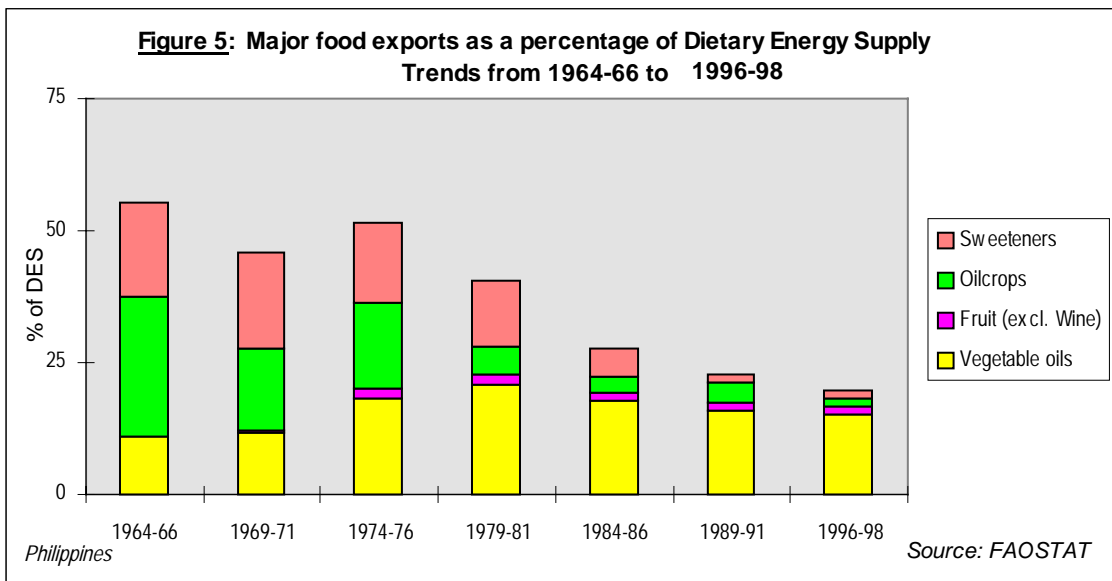
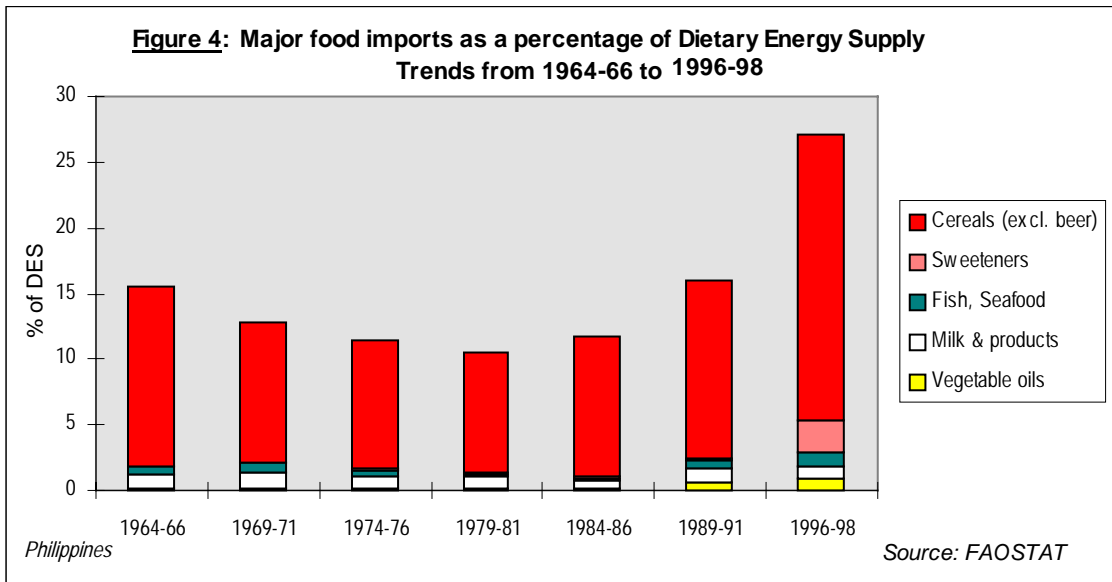
*Energy:* The share of major food groups to DES is presented in **Figure 3**. Cereals and cereal products contributed the bulk of DES between the periods 1990 to 1998. However, for 1996 to 1998 the share of cereals and cereal products decreased by 12.7% from 1993–95, due to the decline in its quantity. Other food commodities, e.g. spice and seasoning, coffee, are the other major contributors to DES providing about a tenth of the total DES. Share of fruits and vegetables; pulses and nuts; and meats and products to total DES continued to increase from 1990 to 1998 while share of starchy roots and tubers; sugars and syrups; fats and oils, and fish and other marine products fluctuated over the same period.



*Major food imports and exports:* Contribution of the major food imports and exports to DES is shown in **Figures 4** and **Figure 5**. Major food imports as percent of DES generally increased for the period 1990 to 1998. Cereals and cereal products continued to provide the bulk of DES since cereals, particularly wheat, rely heavily on importation. Cereals and cereal products also registered the highest contribution to DES in 1996 to 1998 although percent of DES fluctuated between 1990 to 1992 and 1993 to 1995. The 450% increase in percent of DES from cereals and cereal products was due to the importation of rice to augment supply during the El Niño and La Niña phenomena in 1998. There was minimal increase in the percent of DES from imported starchy roots and tubers; fruits and vegetables and fluctuating values for fats and oils; meat and meat products; fish and other marine products; and milk and milk products. Share of imported eggs to the total DES remained at 0.02% from 1990 to 1998.

There is a general decline in the percent of DES from major food exports from 1990 to 1998 (**Figure 5**). A marked decrease for starchy roots and tubers; sugars and syrups; pulses and nuts; and fats and oils was registered. Sugars and syrups, and fruits contributed the bulk of the percent DES. Although a fluctuating trend of percent DES for cereals and cereal products was observed, the percent DES increased almost thrice its previous value.

Contribution of vegetables, and fish and other marine products also increased although marginally.



### 3. Food consumption

Results of the 1993 national nutrition survey (**Table 3**) conducted by the Food and Nutrition Research Institute of the Department of Science and Technology (FNRI-DOST) showed that the typical Filipino diet remains to be rice, boiled fish with a little vegetable. This diet meets less than 90% of the Recommended Dietary Allowances (RDA) for energy and even lesser for other nutrients.

Of the 16 geographical regions of the country, Ilocos and Cagayan Valley remain the top consumers of rice and products, and along with the Cordillera Administrative Region (CAR), were recorded as the highest consumer of vegetables in the country. Visayas, (except Western Visayas) and Mindanao, (except for the Autonomous Region in Muslim Mindanao (ARMM)), remained corn eating regions. All of Visayas and Mindanao (except Central Mindanao) consumed more fish and products than Luzon regions (except for Bicol). Fish consumption in Luzon regions was supplemented with comparatively high consumption of meat when compared with Visayas and Mindanao. Comparing the urban and rural population, the urban populace are the heavy consumers of prestige foods such as meat, poultry, eggs as well as milk and milk products. The amounts consumed by those in the urban areas were twice the amount consumed in the rural areas. However, rural areas consumed more of the cheaper quality foods such as rice and products, corn and products, starchy roots and tubers and all types of vegetables.

Based on the same survey, the mean one-day per capita food energy intake was 1684 kcal which met only 87.8% of the 1919 kcal recommended amount. Energy intake in the regions ranged from a low of 1587 kcal (83.4% adequate) in Western Visayas to 1839 kcal (94% adequate) in CAR. Along with Western Visayas, five other regions were below the mean energy intake of 1684 kcal for the country.

Further analysis of the food consumption pattern of Filipinos showed that the vulnerable groups, namely: preschoolers (3-59 months), pregnant women and lactating women barely met their energy requirements with an average of less than 70%. Likewise, mean iron and calcium intakes at 45.1% and 42.6%, respectively were found to be grossly inadequate for the three groups (especially for lactating women). Pregnant women had relatively high vitamin A intakes (125.7%).

Results of the 1998 National Demographic and Health Survey (NDHS) commissioned by the Department of Health indicated that the practice of exclusive breastfeeding declines as the infants grow older. The survey noted that at three months, almost half (47%) of infants were exclusively breastfed with a small proportion of infants (4.0%) already introduced to weaning foods. Most infants (99.5%) cease to be breastfed before they reach 1 year. The survey also noted that bottlefeeding was thrice as popular in the urban areas (27.3%) than in the rural areas (9.9%). This practice was attributed to the fact that most of the mothers in the urban areas work outside the home to augment the family income.

**Table 3: Food consumption surveys**

Source/ Year of survey	Location	Sample			Average food intake											
		Number household	Sex	Age Years	Major Food Groups (kg/caput/year)											
					Cereals	Roots/ Tubers	Pulses	Fruits/ Vege- tables	Oils/ Fats	Meat	Fish	Milk prod.	Sweet- eners	Eggs	Poultry	Other
NNS, 1993	National	4050	MF	0-70+	124.0	6.0	4.0	67.0	4.0	12.0	36.0	16.0	7.0	4.0	5.0	7.0
	Urban	2208			116.0	5.0	4.0	66.0	5.0	16.0	36.0	23.0	7.0	6.0	7.0	8.0
	Rural	1842			132.0	8.0	3.0	68.0	4.0	8.0	36.0	9.0	6.0	3.0	3.0	6.0
	Ilocos	192			132.0	3.0	4.0	88.0	4.0	17.0	31.0	12.0	7.0	5.0	3.0	4.0
	Cagayan	240			135.0	7.0	4.0	83.0	4.0	12.0	24.0	11.0	8.0	3.0	3.0	5.0
	CAR	240			130.0	8.0	5.0	92.0	5.0	20.0	20.0	29.0	8.0	4.0	5.0	6.0
	C. Luzon	288			124.0	4.0	5.0	78.0	5.0	16.0	28.0	27.0	8.0	7.0	12.0	9.0
	S. Luzon	528			119.0	4.0	4.0	82.0	5.0	16.0	32.0	19.0	9.0	6.0	4.0	7.0
	NCR	384			107.0	4.0	4.0	60.0	5.0	23.0	35.0	31.0	8.0	6.0	8.0	10.0
	Bicol	288			118.0	10.0	2.0	64.0	6.0	8.0	38.0	13.0	6.0	3.0	3.0	6.0
	W. Visayas	288			123.0	2.0	3.0	52.0	4.0	6.0	42.0	12.0	5.0	3.0	4.0	8.0
	C. Visayas	192			129.0	5.0	4.0	37.0	3.0	7.0	51.0	10.0	4.0	3.0	3.0	5.0
	E. Visayas	288			132.0	11.0	1.0	45.0	3.0	5.0	46.0	8.0	5.0	2.0	3.0	7.0
	W. Mindanao	144			131.0	5.0	4.0	70.0	4.0	8.0	43.0	8.0	5.0	4.0	8.0	6.0
	N. Mindanao	336			132.0	8.0	4.0	56.0	4.0	6.0	39.0	9.0	6.0	4.0	3.0	7.0
	S. Mindanao	288			132.0	8.0	4.0	49.0	4.0	7.0	36.0	9.0	6.0	4.0	3.0	7.0
	C. Mindanao	144			134.0	3.0	3.0	74.0	4.0	10.0	33.0	8.0	6.0	7.0	2.0	7.0
ARMM	210			130.0	26.0	2.0	69.0	4.0	2.0	44.0	5.0	9.0	3.0	3.0	4.0	
					Nutrient Intake (person/day)											
					Energy (kcal)	% Protein	% Fat	Protein (g)	% Animal products	Fat (g)	% Animal products					
NNS, 1993	National	4050	MF	0-70+	1684	11.5	14.9	49.9	40.3	28.0	42.9	...	...	...		
	Urban	2208			1673	...	...	50.8	...	33.0	...	...	...			
	Rural	1842			1696	...	...	49.1	...	24.0	...	...	...			
	Ilocos	192			1732	...	...	49.4	...	...	...	...	...			
	Cagayan	240			1741	...	...	47.4	...	...	...	...	...			
	CAR	240			1839	...	...	50.8	...	...	...	...	...			
	C. Luzon	288			1758	...	...	51.0	...	...	...	...	...			
	S. Luzon	528			1709	...	...	48.9	...	...	...	...	...			
	NCR	384			1651	...	...	52.2	...	...	...	...	...			
	Bicol	288			1618	...	...	46.0	...	...	...	...	...			
	W. Visayas	288			1587	...	...	47.2	...	...	...	...	...			
	C. Visayas	192			1640	...	...	54.2	...	...	...	...	...			
	E. Visayas	288			1696	...	...	49.4	...	...	...	...	...			
	W. Mindanao	144			1699	...	...	53.0	...	...	...	...	...			
	N. Mindanao	336			1652	...	...	49.4	...	...	...	...	...			
	S. Mindanao	288			1679	...	...	50.2	...	...	...	...	...			
	C. Mindanao	144			1688	...	...	49.6	...	...	...	...	...			
ARMM	210			1759	...	...	46.9	...	...	...	...	...				
					Share of major food groups in total energy intake (%)											
					Cereals	Roots/ Tubers	Pulses	Fruits/ Vege- tables	Oils/ Fats	Meat	Fish	Milk prod.	Sweet- eners	Eggs	Poultry	Others
NNS, 1993	National	4050	MF	0-70+	71.8	1.0	1.2	3.6	5.7	4.4	3.9	1.4	4.2	1.0	1.0	1.0

Notes:... data not available

#### 4. Anthropometric data

The Fifth National Nutrition Survey (5<sup>th</sup> NNS) conducted in 1998 by the FNRI-DOST showed that protein-energy malnutrition (PEM) continues to prevail among the vulnerable groups of the population, despite efforts to control and eliminate this nutritional problem. Overnutrition is also another equally important nutritional concern that has emerged in both children and adults.

Using the National Center for Health Statistics (NCHS) standards, about 31.8% of preschoolers aged 0-59 months were underweight-for-age, 32.0% were stunted, 6.6% were wasted and 1.0% were overweight (**Table 4a**). Boys of the same age group were more vulnerable to wasting and stunting (32.4% and 6.6%) than girls (31.8% and 6.3%). Underweight-for-age and wasting were more prevalent among children aged 12-23 months for both sexes (38.6% and 14.8%) while stunting was more prevalent among 48-59 months children (43.6%).

A study conducted by FNRI and UNICEF in 1998 in 41 UNICEF-assisted provinces and cities confirmed the result of the national survey. Children 12-23 months were more vulnerable to underweight-for-age and wasting (42.1% and 15.8%) while children 48-59 months were vulnerable to stunting (44.3%) (**Map 3, Map 4 & Map 5**). However, a slightly lower prevalence of overweight (0.4%) was found among children of the same age group.

Preschoolers in Eastern and Western Visayas were most at-risk to underweight. Prevalence of stunting was high in Eastern Visayas and CARAGA while Western Visayas and the Autonomous Region in Muslim Mindanao (ARMM) had the highest prevalence of wasting. These regions, particularly Bicol, Eastern Visayas and ARMM are located along the eastern seaboard of the country, areas that are regularly hit by tropical storms and typhoons.

A general declining trend in the prevalence of the various forms of undernutrition was observed from 1987 to 1996. In 1998, however, the prevalence for the three forms of undernutrition increased considerably by an average of 2.2 percentage points from 1996.

Based on the same survey, the mean height of female adolescents, aged 11–12 years at 138.1 cm. was found to be higher than the mean height of the male adolescents of the same age group (**Table 4b**). However, at 13–19 years, mean height of male adolescents surpassed their female counterpart. The mean body mass index (BMI) of female adolescents, aged 11–12 years at 16.4 was slightly higher than their male counterparts at 16.1. The same was noted for adolescents 13–19 years old.

The Must's table for BMI was used to determine risk of thinness and overweight among adolescents where 19.8% of adolescents 11–19 years were found to be underweight-for-age. Underweight-for-age was more prevalent among male adolescents (23%) than female adolescents (16.4%). Both male and female 11-12 years were more vulnerable to being thin (30.6%) than their 13-19 year old counterpart (16.2%). On the other hand, overweight and obesity were more prevalent among 13-19 year old adolescents (3.1%) than 11-12 year old adolescents (2.5%). Female adolescents 11-12 years and 13-19 years were more vulnerable to overweight and obesity (3.2% and 5.2%) than their male counterparts (1.8% and 1.0%).



**Table 4a: Anthropometric data on children**

Source/ Year of survey	Location	Sample			Percentage of malnutrition						
		Size Number	Sex	Age Months	Underweight		Stunting		Wasting		Overweight
					% Weight/Age	% Height/Age	% Weight/Age	% Weight/Height	% Weight/Height		
					< -3SD	< -2SD*	< -3SD	< -2SD	< -3SD	< -2SD	> +2SD
<b>NNS,</b>	National	24308	M/F	0-59	...	31.8	...	32.0	...	6.6	1.0
<b>1998</b>		12326	M	"	...	31.2	...	32.4	...	6.6	...
		11982	F	"	...	32.4	...	31.8	...	6.3	...
		2916	M/F	0-5	...	2.4	...	3.7	...	3.0	...
		2963	"	6-11	...	22.7	...	13.4	...	8.0	...
		4649	"	12-23	...	38.6	...	32.9	...	14.8	...
		4570	"	24-35	...	37.2	...	31.5	...	5.9	...
		4619	"	36-47	...	34.1	...	40.0	...	3.6	...
		4591	"	48-59	...	34.6	...	43.6	...	3.5	...
<b>NNS, 1998</b>	Ilocos	985	M/F	0-59	...	33.9	...	24.5	...	6.5	...
	Cagayan	1085	"	"	...	31.6	...	30.9	...	8.3	...
	CAR	1419	"	"	...	27.0	...	39.3	...	4.0	...
	C. Luzon	1664	"	"	...	26.6	...	21.4	...	6.4	...
	S. Tagalog	2933	"	"	...	26.1	...	25.5	...	5.4	...
	NCR	2928	"	"	...	26.0	...	24.3	...	6.5	...
	Bicol	1500	"	"	...	36.3	...	34.3	...	5.1	...
	W. Visayas	1877	"	"	...	39.0	...	35.1	...	10.4	...
	C. Visayas	1729	"	"	...	33.0	...	38.0	...	3.7	...
	E. Visayas	1377	"	"	...	38.8	...	40.4	...	6.1	...
	W. Mindanao	772	"	"	...	35.1	...	37.3	...	8.5	...
	N. Mindanao	1097	"	"	...	31.0	...	36.1	...	4.7	...
	S. Mindanao	2017	"	"	...	33.7	...	38.6	...	6.1	...
	C. Mindanao	1107	"	"	...	32.6	...	38.4	...	6.3	...
	ARMM	879	"	"	...	30.2	...	36.9	...	9.2	...
	CARAGA	939	"	"	...	34.3	...	40.4	...	6.2	...
<b>FNRI-</b>	UNICEF	10668	M/F	0-59	...	33.9	...	34.3	...	6.7	0.4
<b>UNICEF,</b>	assisted	5391	M	"	...	33.4	...	34.9	...	6.7	...
<b>1998</b>	provinces and	5297	F	"	...	34.6	...	33.5	...	6.7	...
	cities	2589	M/F	0-11	...	13.7	...	10.2	...	5.2	...
		2034	"	12-23	...	42.1	...	36.1	...	15.8	...
		2020	"	24-35	...	38.7	...	33.5	...	5.6	...
		2035	"	36-47	...	38.1	...	43.6	...	4.0	...
		2010	"	48-59	...	35.5	...	44.3	...	4.0	...

Notes: ... no data available

Each index is expressed in terms of the number of standard deviations (SD) units from the median of the NCHS/CDC/WHO international reference population. \* Includes children who are below -3 SD.

**Table 4b: Anthropometric data on adolescents**

Source/ Year of survey	Location	Sample			Anthropometric status					
		Size Number	Sex	Age Years	Height (cm)			Body Mass Index (kg/m <sup>2</sup> )		
					mean	SD	median	mean	SD	median
<b>NNS, 1998</b>	National	1508	M	11-12	134.9	...	...	16.1	...	...
		1521	F	11-12	138.1	...	...	16.4	...	...
		3029	M/F	11-12	136.4	...	...	16.6	...	...
		1532	M	13-19	155.3	...	...	18.5	...	...
		1518	F	13-19	149.1	...	...	19.5	...	...
		3050	M/F	13-19	152.2	...	...	19.0	...	...
<b>Must's Table for BMI</b>										
					Underweight <P5	Mild P5-<P15	Normal P15-<P85	Overweight ≥P85-<P95	Obese ≥P95	
<b>NNS, 1998</b>	National	1508	M	11-12	34.0	23.3	40.9	1.6	0.2	
		1532	"	13-19	19.3	24.3	55.4	0.9	0.1	
		3040	"	All	23.0	24.1	51.8	1.1	0.1	
		1521	F	11-12	27.2	19.3	50.2	2.4	0.8	
		1518	"	13-19	12.9	15.7	66.2	4.7	0.5	
		3039	"	All	16.4	16.6	62.3	4.1	0.6	
		3029	M/F	11-12	30.6	21.4	45.5	2.0	0.5	
		3050	"	13-19	16.2	20.1	60.7	2.8	0.3	
		6079	"	All	19.8	20.4	57.0	2.6	0.3	

Notes: ... data not available

Adult malnutrition in the form of chronic energy deficiency (CED) was also found to persist in the country. The 5<sup>th</sup> NNS revealed that 13.2% of Filipino adults, aged 20 years and above, were found to be chronically energy deficient with approximately 11.1% and 15.4% of males and females being underweight, respectively (**Table 4c**). Females were found to be more vulnerable to CED than males. Severity of CED prevalence increased with age, thus the older persons, aged 60 years and above, exhibited the highest prevalence rate at 25.4%. Lactating women who were 20 years old and over were more at-risk to both CED and overweight condition than lactating women less than 20 years of age.

Prevalence of obesity was 3.3% with female adults having a prevalence rate (4.4%) twice than that of the males (2.1%). Obesity was more prevalent among adults 40-59 years.

Obesity has been recognized as a predisposing factor in the development of heart and vascular diseases such as congestive heart disease, hypercholesterolemia and hypertension. The 1993 Philippine Health Statistics published by the Department of Health ranked diseases of the heart and the vascular system as first and second, respectively, among the ten leading causes of death in the country (Solon, 1997). The prevalence rates of these diseases have risen steadily over a seven-year period, from 1988 to 1994. In 1994, a 73.3% prevalence rate for diseases of the heart was recorded and accounted for 15.7% of total deaths, followed by diseases of the vascular system at 57.1% contributing 12.2% of total deaths.

One of the risk factors associated with cardiovascular diseases is diet, which plays a key role in determining the cholesterol in the body. Cholesterol was also identified as a risk factor for hypertension, atherosclerosis and stroke (DOH, 1998). In the 1998 Nutrition Survey, 17.1% of Filipinos less than 20 years old were found to be suffering from hypertension (FNRI, 1999).

Other diseases that precipitate poor nutritional status and cause death are diarrhea and diseases of the respiratory system. In 1994, 9.3% of the population died from diarrhea (2.0%

of total death) and 2.6% died from respiratory diseases, excluding chronic obstructive pulmonary diseases. The diseases were reflective of inadequate safe water supply and poor environmental sanitation (Council for Health and Development, 1998).

**Table 4c: Anthropometric data on adults**

Source/ Year of survey	Location	Sample			Anthropometric status and Percentage of malnutrition							
		Size Number	Sex	Age Years	Body Mass Index (kg/m <sup>2</sup> )			Chronic Energy Deficiency % BMI			Overweight % BMI	Obesity % BMI
					mean	SD	median	<16.0	16.0-16.9	17.0-<18.5	25.0 - 29.9	>30.0
NNS, 1998	National	3123	MF	20-39	...	...	...	0.7	2.1	8.4	15.8	2.7
		3106	"	40-59	...	...	...	2.1	2.3	7.6	20.8	4.5
		3030	"	60+	...	...	...	6.1	5.7	13.6	12.0	2.6
		9299	"	All	...	...	...	1.8	2.6	8.8	16.9	3.3
		1556	M	20-39	...	...	...	0.5	1.7	6.5	15.1	1.5
		1547	"	40-59	...	...	...	1.4	1.4	7.9	17.1	3.6
		1539	"	60+	...	...	...	3.0	6.4	15.1	8.2	1.2
		4652	"	All	...	...	...	1.0	2.2	7.9	14.9	2.1
		630	F	<20	...	...	...	0.3	2.7	8.4	4.4	0.5
		1557	"	20-39	...	...	...	0.9	2.6	10.4	16.7	4.0
		1559	"	40-59	...	...	...	2.9	3.1	7.3	24.5	5.4
		1531	"	60+	...	...	...	8.8	5.1	12.3	15.4	3.9
		4647	"	All	...	...	...	2.6	3.1	9.7	18.9	4.4
		2360	F*	20+	...	...	...	0.8	2.9	9.7	11.7	2.4
		2,990	"	All	...	...	...	0.8	2.9	9.7	11.3	2.3

Notes: ... data not available

## 5. Micronutrient Deficiencies

The 1998 Nutrition Survey also identified vitamin A deficiency (VAD), iodine deficiency disorders (IDD) and iron deficiency anemia (IDA) as the major micronutrient deficiencies which prevail among children 6 months to 5 years old, schoolchildren, pregnant and lactating women, and older persons.

Vitamin A status in the Philippines is considered severe subclinical deficiency when measured using plasma retinol levels. The prevalence of deficient serum vitamin A levels among 6 months to 5 years old children was 8.2% indicating that VAD is a significant public health problem in this age group (**Table 5a & Map 6**). Although the prevalence rate was lower than the 1993 rate, it still exceeded the WHO cut-off of 5%. Among pregnant women, the prevalence rate is 7.1%, more than half of the 1993 rate of 3.0%, also considered a public health problem. However, the prevalence rate of VAD for lactating women declined to 3.9% from the 1993 rate of 5.2%.

Prevalence of VAD among 6 months to 5 years old children was highest in Western Mindanao. Central Visayas exhibited the highest prevalence rates for VAD for pregnant and lactating women.

The same study conducted by FNRI in 1998 in 41 UNICEF–assisted provinces and cities in the country showed that 10.6% of mothers/caregivers were suffering from nightblindness. At the time of the survey, mothers/caregivers who were neither pregnant nor lactating registered the highest prevalence of nightblindness at 11.9% compared with the pregnant mothers (7.2%), mothers lactating for the first six months (9%) and mothers lactating for seven months and over (9.9%). Lactating women, on the other hand, had higher prevalence rate of nightblindness than pregnant women.

Data from the same 1998 Nutrition Survey showed that the prevalence of iodine deficiency in the Philippines is mild, with a median value of urinary iodine excretion (UIE) of 71µg/L, which is lower than the desirable reference value of 100µg/L (**Table 5b**). About 36 out of 100 (35.8%) schoolchildren 6-12 years old had moderate to severe IDD (**Map 7**).

Only two regions (Central Luzon and ARMM) had median UIE values greater than 100µg/L. However, IDD was not completely absent in the region as the proportion of schoolchildren with moderate and severe IDD was more than 20%. Northern Mindanao exhibited the lowest median UIE value at 34µg/L and the highest proportion of schoolchildren with moderate and severe IDD at 63.9µg/L.

Iron deficiency anemia (IDA) is the most prevalent, and continues to afflict more age groups than the other micronutrient deficiencies. The overall prevalence rate of 30.6% indicates that anemia is a persistent public health problem in the Philippines (**Table 5c**). More than half of the population of infants (56.6%); 50.7% of pregnant women; almost half of the male population of older persons, aged 60 and above (49.1%); and 45.7% of lactating women were found to be anemic in 1998. Prevalence of IDA was considered high in four (4) out of the 16 regions for infants and preschoolers (**Map 8**), and 12 out of 16 regions for pregnant and lactating women.

The 1998 overall IDA prevalence rate of 30.6% was higher than the 1993 rate of 28.9%.

**Table 5a: Surveys on micronutrient deficiencies**

Source/ Year of survey	Deficiency	Location	Sample			Percentage	
			Size Number	Sex	Age Years		
<b>Vitamin A</b>							
NNS, 1998	<10 ug/dL	National	20419	M/F	6 mos.-5 yrs.	8.2	
				F	Pregnant (P)	7.1	
					F	Lactating (L)	3.9
	<10 ug/dL	<u>Regional</u> - Ilocos	...	M/F	6 mos.-5 yrs.	4.6	
		Cagayan				2.4	
		CAR				6.3	
		C. Luzon				6.8	
		S. Tagalog				6.8	
		NCR				2.5	
		Bicol				7.5	
		W. Visayas				7.9	
		C. Visayas				12.2	
		E. Visayas				10.4	
		W. Mindanao				22.7	
		N. Mindanao				8.7	
		S. Mindanao				6.9	
		C. Mindanao				9.4	
		ARMM				11.8	
		CARAGA				12.7	
		<u>Regional</u> - Ilocos	...	F	Pregnant (P)	1.3	
		Cagayan				4.2	
		CAR				6.3	
		C. Luzon				3.4	
		S. Tagalog				4.8	
		NCR				1.5	
		Bicol				4.9	
		W. Visayas				5.9	
		C. Visayas				18.5	
		E. Visayas				9.2	
		W. Mindanao				19.1	
		N. Mindanao				12.1	
		S. Mindanao				6.9	
		C. Mindanao				7.7	
		ARMM				7.6	
		CARAGA				8.0	
		<u>Regional</u> - Ilocos	...	F	Lactating (L)	1.2	
		Cagayan				4.0	
		CAR				1.2	
		C. Luzon				7.7	
		S. Tagalog				3.9	
		NCR				1.2	
		Bicol				2.6	
		W. Visayas				1.5	
		C. Visayas				6.2	
		E. Visayas				4.3	
		W. Mindanao				8.6	
		N. Mindanao				4.2	
		S. Mindanao				2.8	
		C. Mindanao				3.4	
		ARMM				1.5	
	CARAGA				4.3		
	Nightblindness	41 UNICEF-assisted provinces and cities	937	F	Pregnant	7.2	
			1537	F	Lactating, <6 mos.	9	
			2409	F	Lactating, >7mos.	9.9	
			4885	F	Neither P/L	11.9	
			9760	F	All	10.5	

Notes: ... data not available

**Table 5b: Surveys on micronutrient deficiencies**

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Sex	Age Years	
<b>Iodine</b>						
<b>NNS, 1998</b>	median UIE level					(< 50 ug/L)
	71 ug/L	National	10616	M/F	6-12	35.8
<b>ICCIDD/WHO</b>						
1998	median UIE level	<i>Regional</i>				
	82.0 ug/L	Ilocos	459	M/F	6-12	30.7
	83.0 ug/L	Cagayan	515	"	"	30.5
	63.0 ug/L	CAR	668	"	"	40.1
	110.0 ug/L	C. Luzon	741	"	"	23.4
	79.0 ug/L	S. Luzon	1294	"	"	30.5
	94.0 ug/L	NCR	1143	"	"	21.7
	56.0 ug/L	Bicol	668	"	"	42.8
	69.0 ug/L	W. Visayas	850	"	"	38.8
	67.0 ug/L	C. Visayas	767	"	"	35.2
	67.0 ug/L	E. Visayas	644	"	"	35.9
	56.0 ug/L	W. Mindanao	348	"	"	44.6
	34.0 ug/L	N. Mindanao	498	"	"	63.9
	63.0 ug/L	S. Mindanao	880	"	"	39.2
	58.0 ug/L	C. Mindanao	402	"	"	45.9
	103.0 ug/L	ARMM	319	"	"	44.9
	56.0 ug/L	CARAGA	420	"	"	24.7

**Table 5c: Surveys on micronutrient deficiencies**

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Sex	Age Years	
<b>NNS, 1998</b>	<b>Iron</b>	National	2790	M/F	6 mos.-<1 yrs.	56.6
<b>WHO, 1972</b>	<12.0 g/dL	"	12089	M/F	1-5 yrs.	29.6
	<12.0 g/dL	"	1542	M	6-12 yrs.	34.8
	<12.0 g/dL	"	1527	F	6-12 yrs.	36.5
	<12.0 g/dL	"	1516	M	13-19 yrs.	26.2
	<12.0 g/dL	"	1495	F	13-19 yrs.	33.2
	<13.0 g/dL	"	1516	M	20-39 yrs.	14.5
	<12.0 g/dL	"	1495	F	20-39 yrs.	31.7
	<13.0 g/dL	"	1509	M	40-59 yrs.	27.7
	<12.0 g/dL	"	1521	F	40-59 yrs.	33.3
	<13.0 g/dL	"	1509	M	60+ yrs.	49.1
	<12.0 g/dL	"	1501	F	60+ yrs.	39.2
	<11.0 g/dL	"	3103	F	Pregnant	50.7
	<12.0 g/dL	"	3260	F	Lactating	45.7
	"	"	36364	M/F	All	30.6
	<11.0 g/dL	<i>Regional: Ilocos</i>	14879 (Total)	M/F	6 mos.-5 yrs.	35.5
		Cagayan	...	"	"	48.8
		CAR	...	"	"	25.4
		C. Luzon	...	"	"	30.5
		S. Tagalog	...	"	"	20.7
		NCR	...	"	"	31.9
		Bicol	...	"	"	34.3
		W. Visayas	...	"	"	32.1
		C. Visayas	...	"	"	28.8
		E. Visayas	...	"	"	47.3
		W. Mindanao	...	"	"	42.4
		N. Mindanao	...	"	"	19.8
		S. Mindanao	...	"	"	27.5
		C. Mindanao	...	"	"	33.8
		ARMM	...	"	"	50.6
		CARAGA	...	"	"	25.6
	<11.0 g/dL	<i>Regional: Ilocos</i>	3103 (Total)	F	Pregnant (20+ years)	56.5
		Cagayan	...	"	"	61.6
		CAR	...	"	"	39.8
		C. Luzon	...	"	"	55.0
		S. Tagalog	...	"	"	35.8
		NCR	...	"	"	40.8
		Bicol	...	"	"	64.4
		W. Visayas	...	"	"	54.9
		C. Visayas	...	"	"	58.0
		E. Visayas	...	"	"	61.7
		W. Mindanao	...	"	"	53.9
		N. Mindanao	...	"	"	33.1
		S. Mindanao	...	"	"	49.5
		C. Mindanao	...	"	"	52.1
		ARMM	...	"	"	60.4
		CARAGA	...	"	"	32.1
	<12.0 g/dL	<i>Regional: Ilocos</i>	3260 (Total)	F	Lactating (20+ years)	41.6
		Cagayan	...	"	"	68.0
		CAR	...	"	"	44.4
		C. Luzon	...	"	"	44.2
		S. Tagalog	...	"	"	34.0
		NCR	...	"	"	41.7
		Bicol	...	"	"	47.8
		W. Visayas	...	"	"	46.5
		C. Visayas	...	"	"	41.9
		E. Visayas	...	"	"	59.9
		W. Mindanao	...	"	"	71.9
		N. Mindanao	...	"	"	30.9
		S. Mindanao	...	"	"	49.4
		C. Mindanao	...	"	"	30.9
		ARMM	...	"	"	46.6
		CARAGA	...	"	"	34.0

Notes: ... data not available

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References of data presented in Table 1, unless otherwise stated:

<i>Source:</i>	<i>Indicator:</i>
<b>FAOSTAT.</b> 1999	A.1-2, B, C.10-11, E.1-3, F, G
<b>UN.</b> 1998 rev.	C.1-9, D.5
<b>World Bank.</b> 1999.	D.1
<b>UNDP.</b> 1997.	D.2
<b>NSCB,</b> 1998	D.3-4
<b>UNICEF.</b> 2000.	D.6
<b>FAO/WFS.</b> 1996.	H

## **NCP of PHILIPPINES MAPS**

**-General map** of Philippines

**Map 1:** Population density by region for 1998.

**Map 2:** Below poverty threshold incidence of the population in the Philippines for 1997.

**Map 3:** Prevalence of underweight among children 0-59 months by region.

**Map 4:** Prevalence of stunting among children 0-59 months by region.

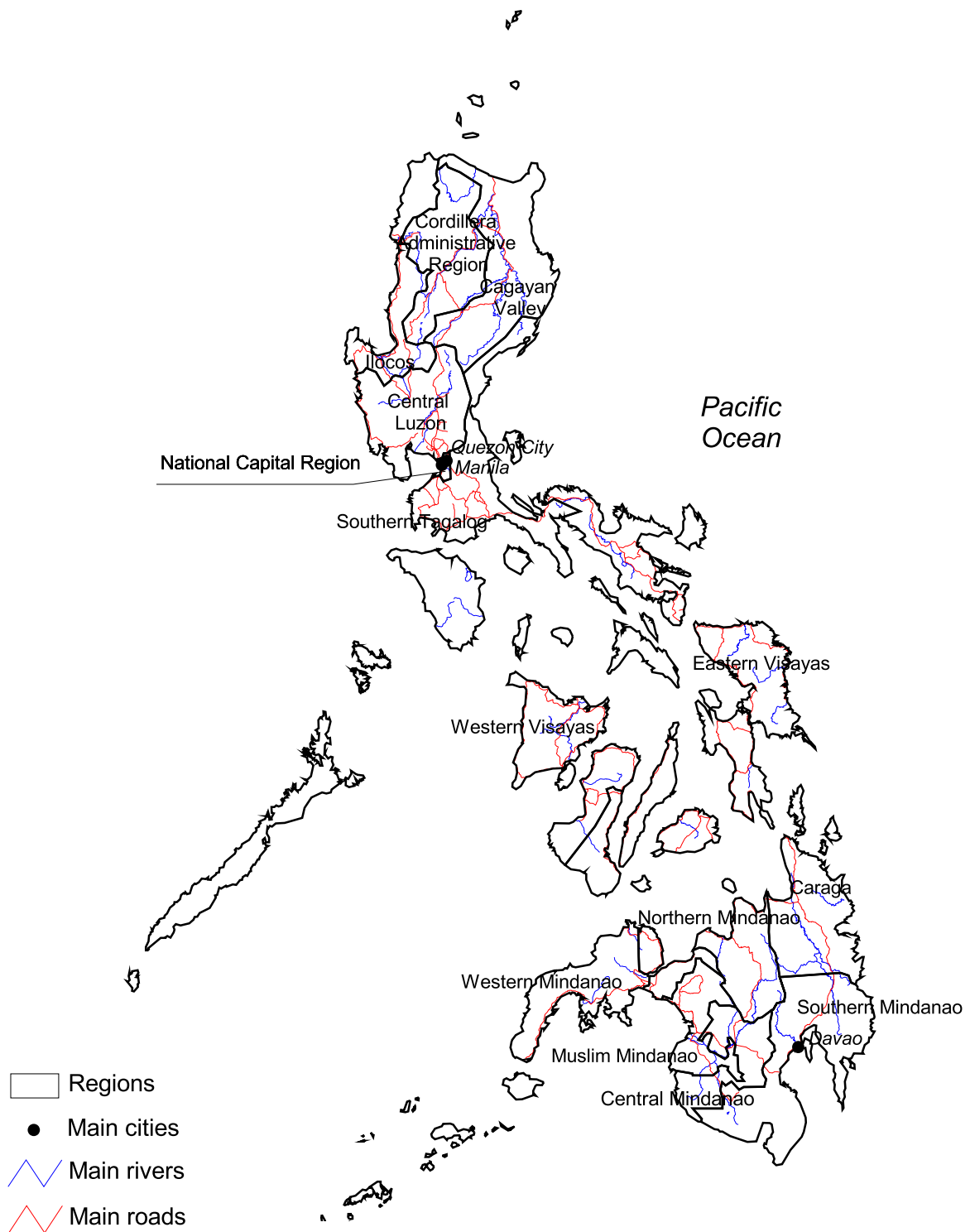
**Map 5:** Prevalence of wasting among children 0-59 months by region.

**Map 6:** Prevalence of vitamin A deficiency among children 0.5-5 years by region.

**Map 7:** Prevalence of Iodine Deficiency Disorder in 6-12 year olds by region for 1998.

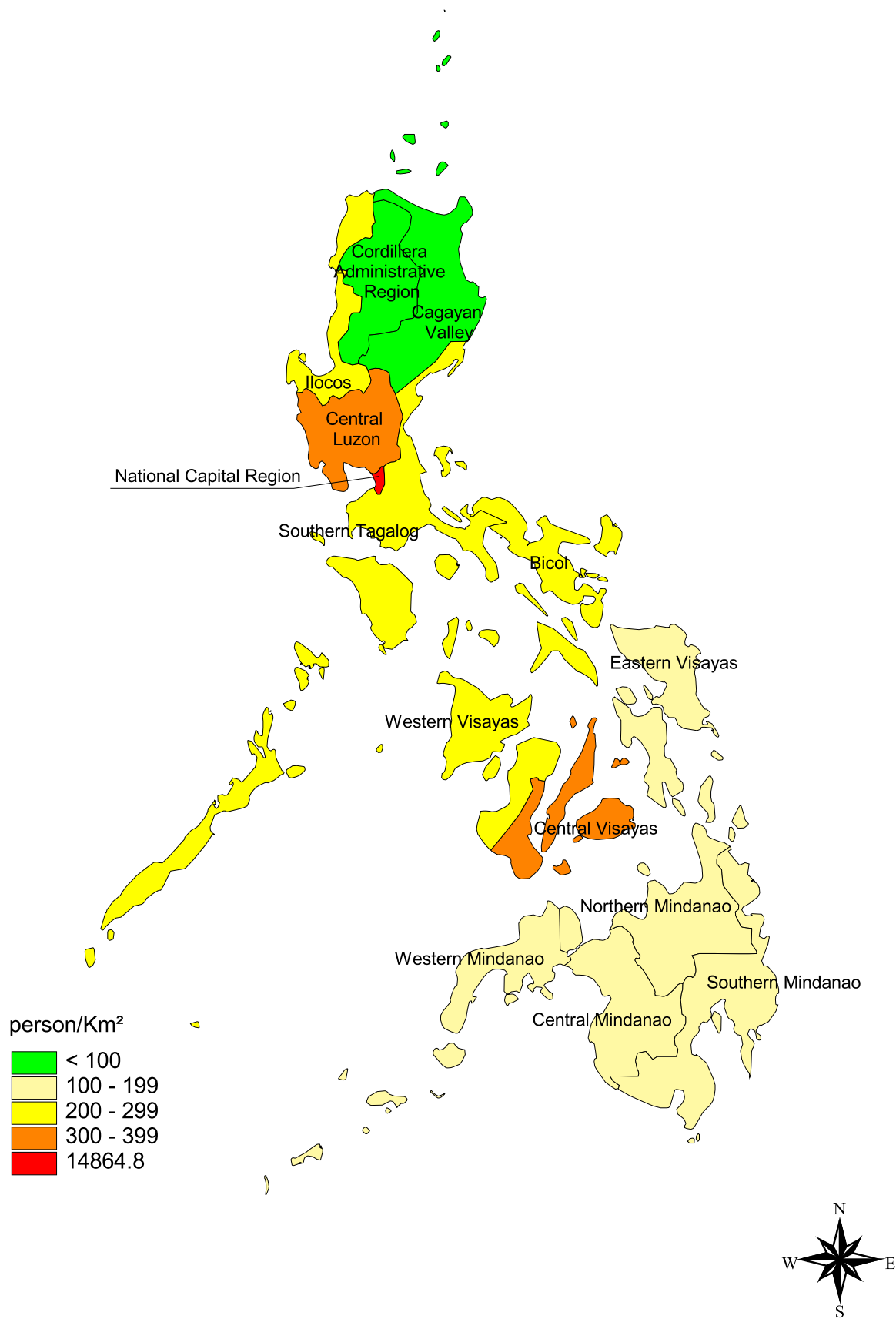
**Map 8:** Prevalence of Iron Deficiency Disorder in 0.5-5 year olds by region for 1998.

# General map of Philippines (1990)



# Map 1: Population density by region

Source: National Statistical Board, Philippine Statistical Yearbook, 1998



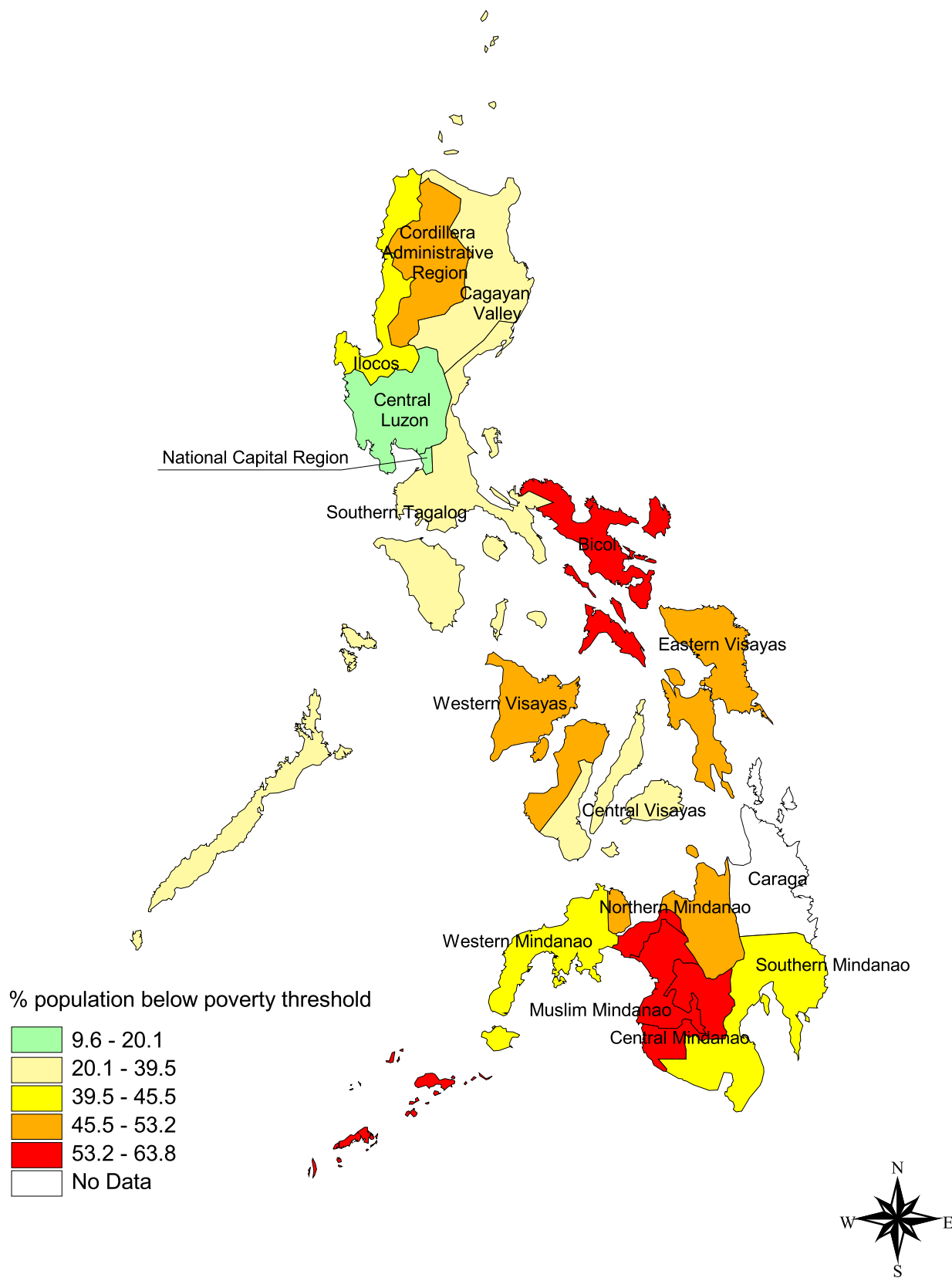
Scale 1: 9 000 000 (approx.)  
Geographic Projection (Lat/Long)

FAO - GIS/ESNA, December 2000

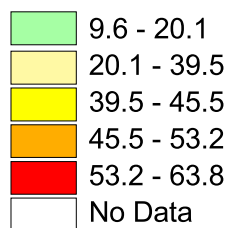
Philippines

# Map 2: Below poverty threshold incidence of the population in the Philippines for 1997

Source: PPE97, 1997 Philippine Poverty Estimates, National Statistical Coordination Board, NSCB 1998



% population below poverty threshold



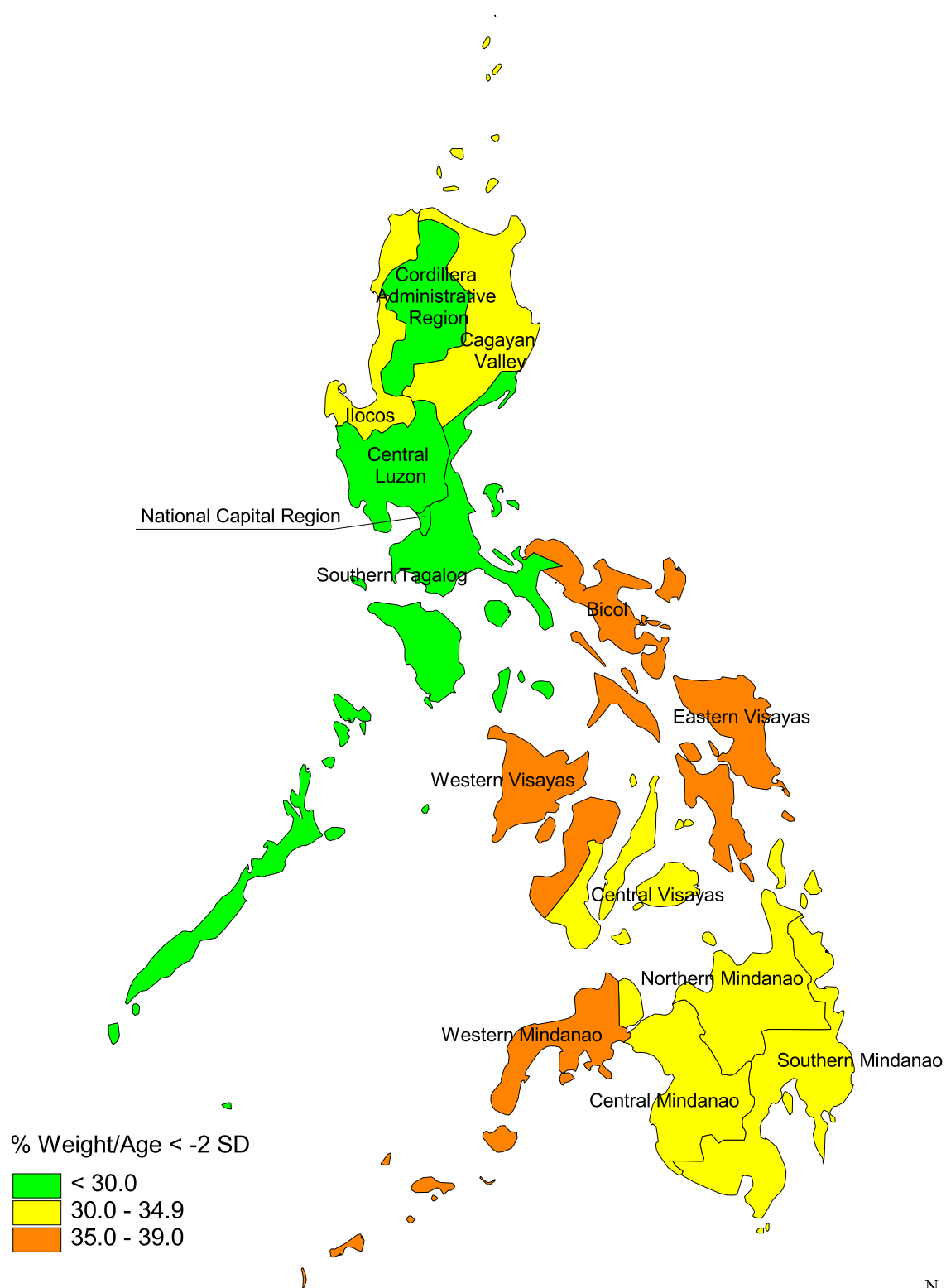
Scale 1: 9 000 000 (approx.)  
Geographic Projection (Lat/Long)

FAO-GIS/ESNA, August 2001

Philippines

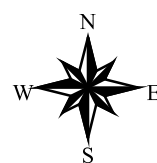
# Map 3: Prevalence of Underweight among children 0-59 months by region

Source: National Survey of 1998, FNRI-DOST 1999



% Weight/Age < -2 SD

- < 30.0
- 30.0 - 34.9
- 35.0 - 39.0



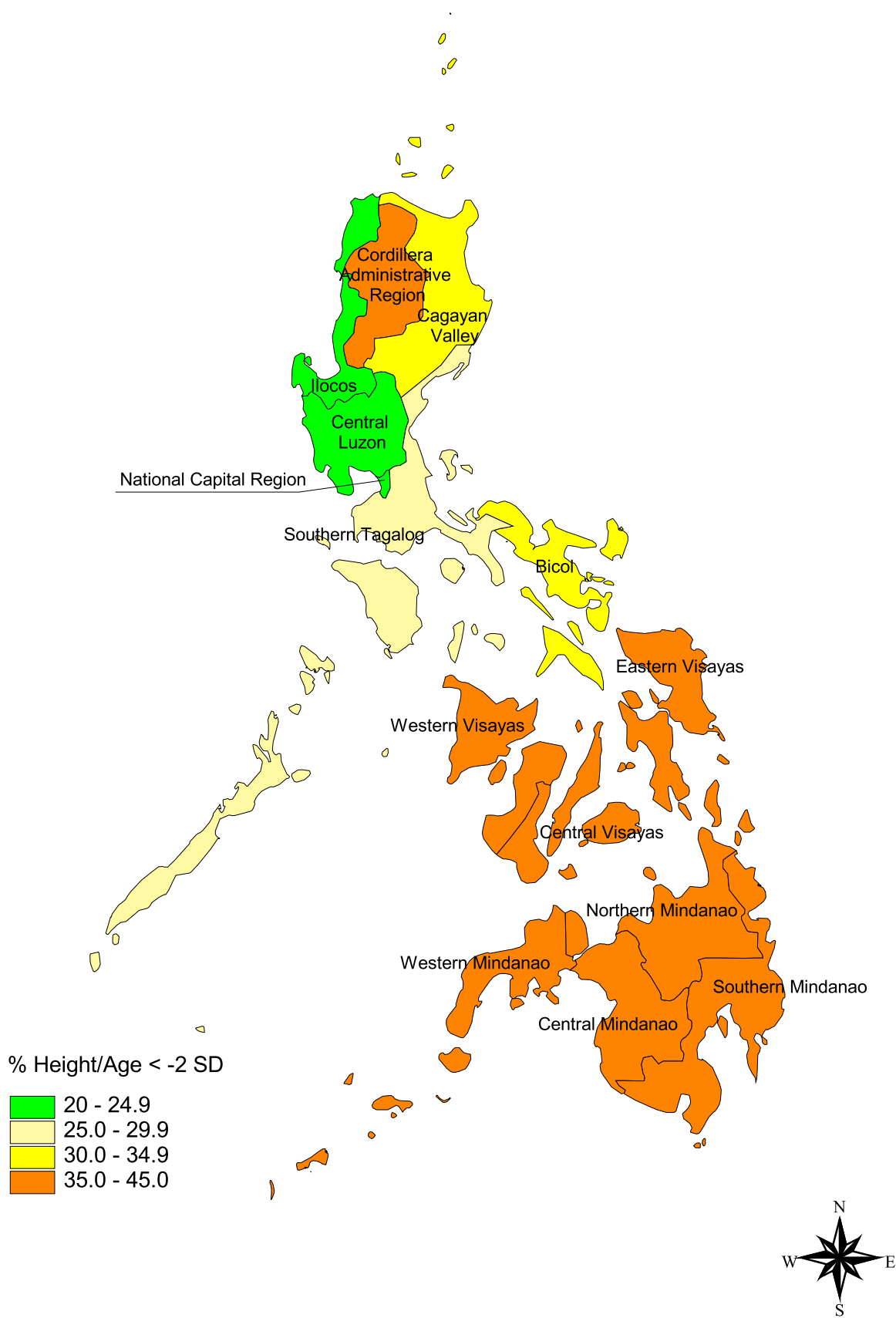
Scale 1: 9 000 000 (approx.)  
Geographic Projection (Lat/Long)

FAO - GIS/ESNA, December 2000

Philippines

# Map 4: Prevalence of Stunting among children 0-59 months by region

Source: National Survey of 1998, FNRI-DOST 1999



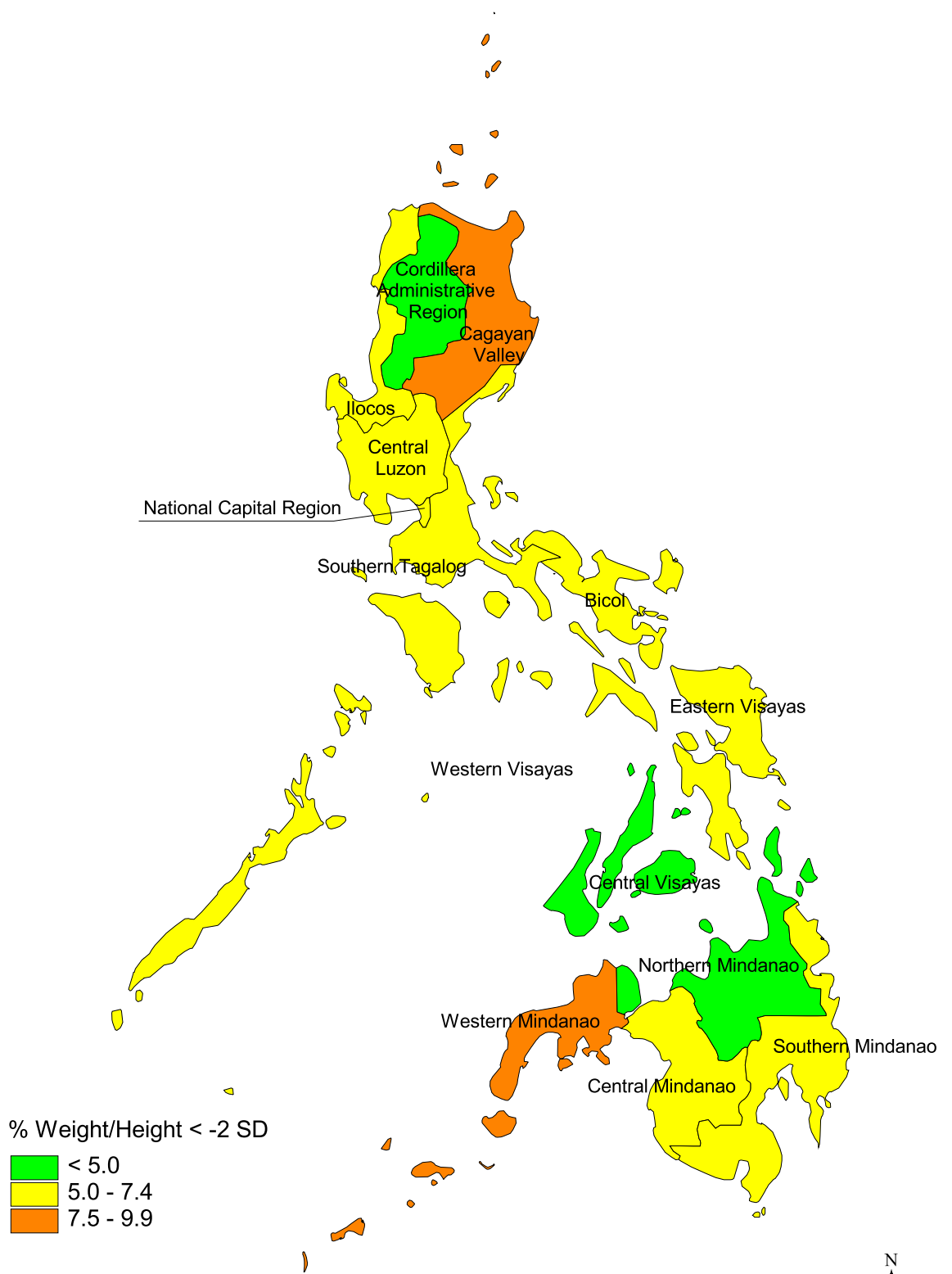
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Geographic Projection (Lat/Long)

FAO - GIS/ESNA, December 2000

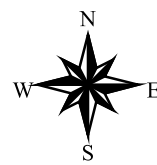
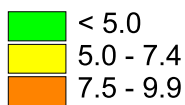
Philippines

# Map 5: Prevalence of Wasting among children 0-59 months by region

Source: National Survey of 1998, FNRI-DOST 1999



% Weight/Height < -2 SD



Scale 1: 9 000 000 (approx.)  
Geographic Projection (Lat/Long)

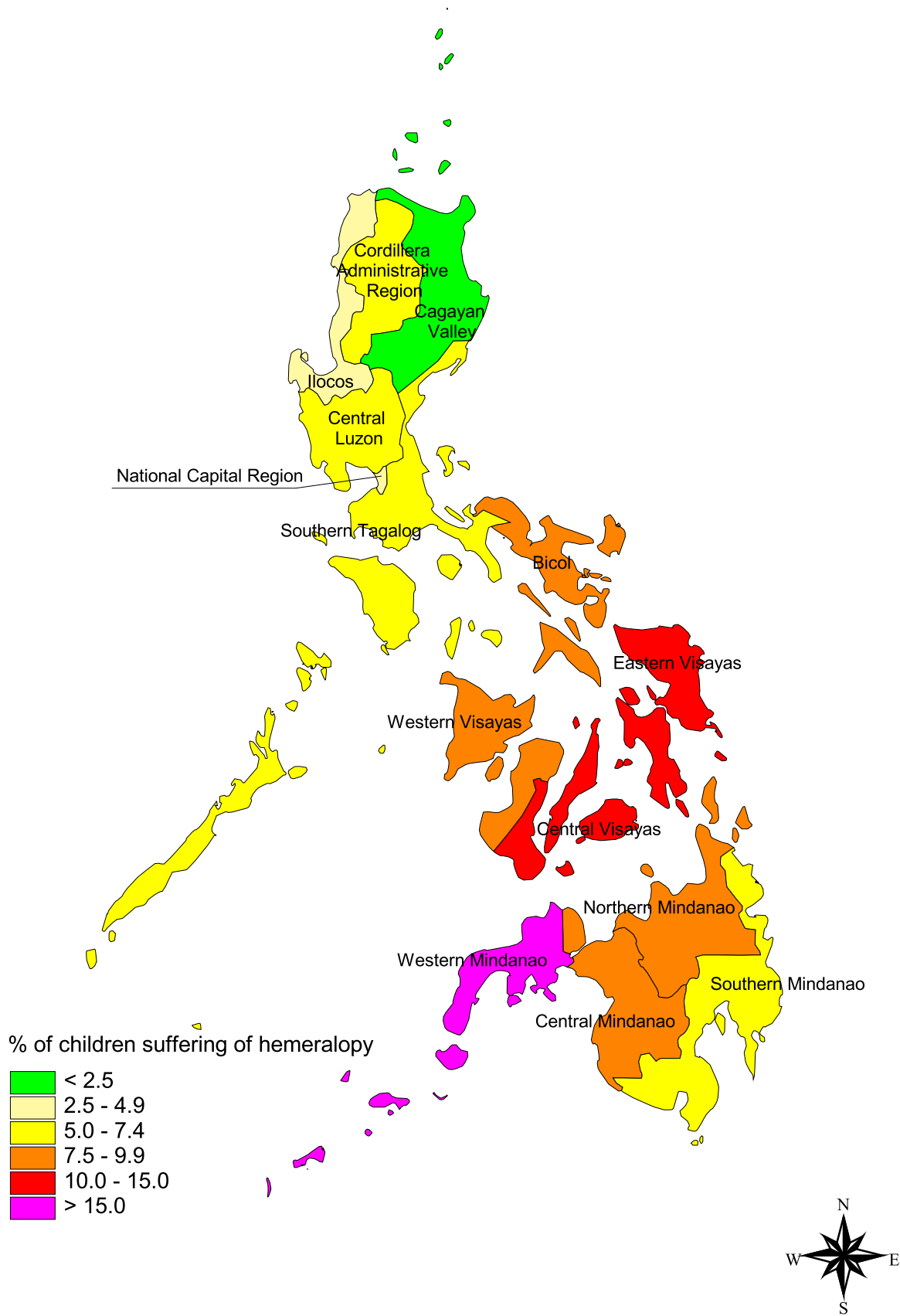
FAO - GIS/ESNA, December 2000

Philippines



# Map 6: Prevalence of Vitamin A deficiency among children 0.5-5 years by region

Source: National Survey of 1998, FNRI-DOST 1999



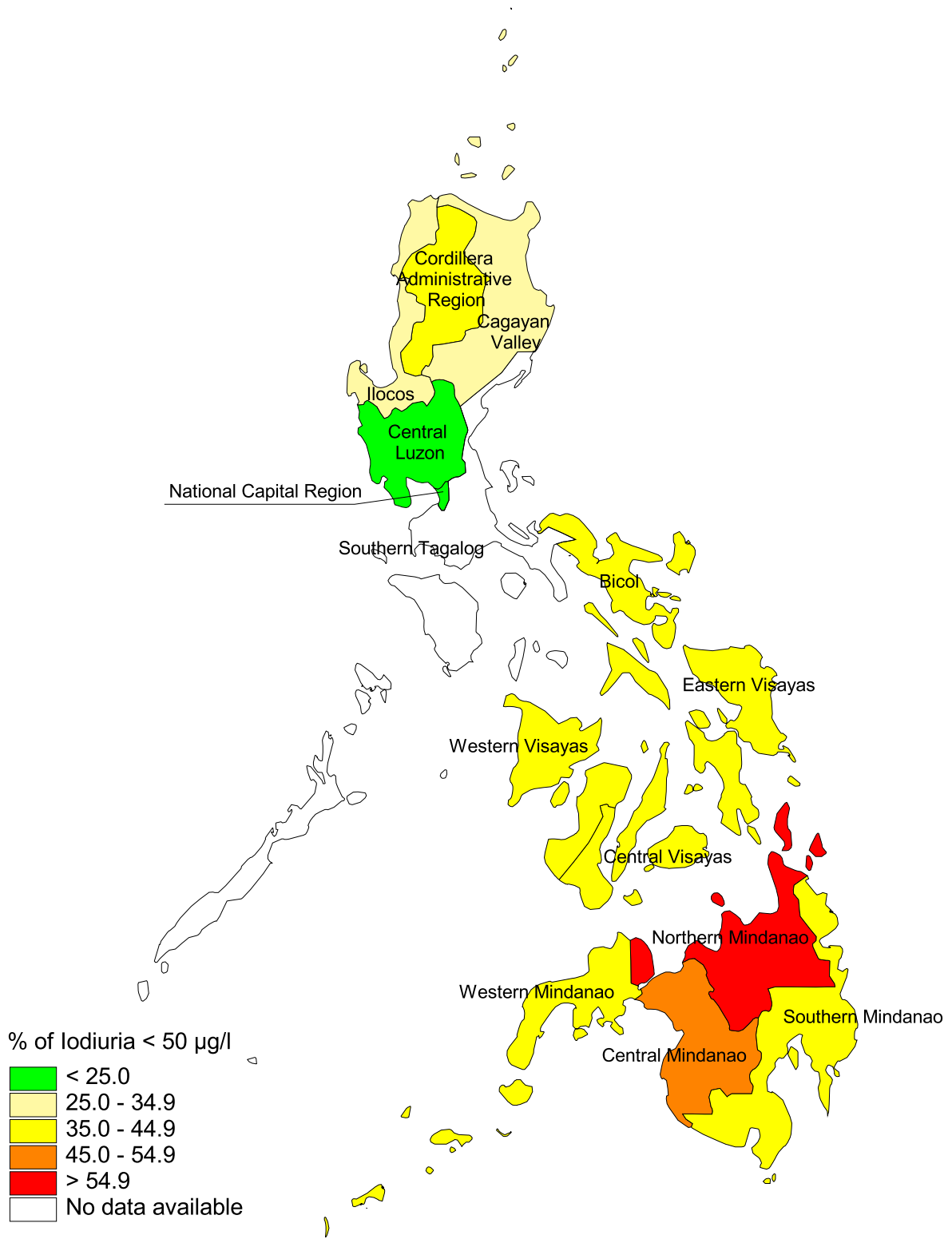
Scale 1: 9 000 000 (approx.)  
Geographic Projection (Lat/Long)

FAO - GIS/ESNA, December 2000

Philippines

# Map 7: Prevalence of Iodine Deficiency Disorder in 6-12 year olds by region

Source: National Survey of 1998, FNRI-DOST 1999



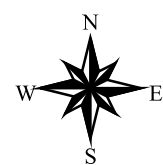
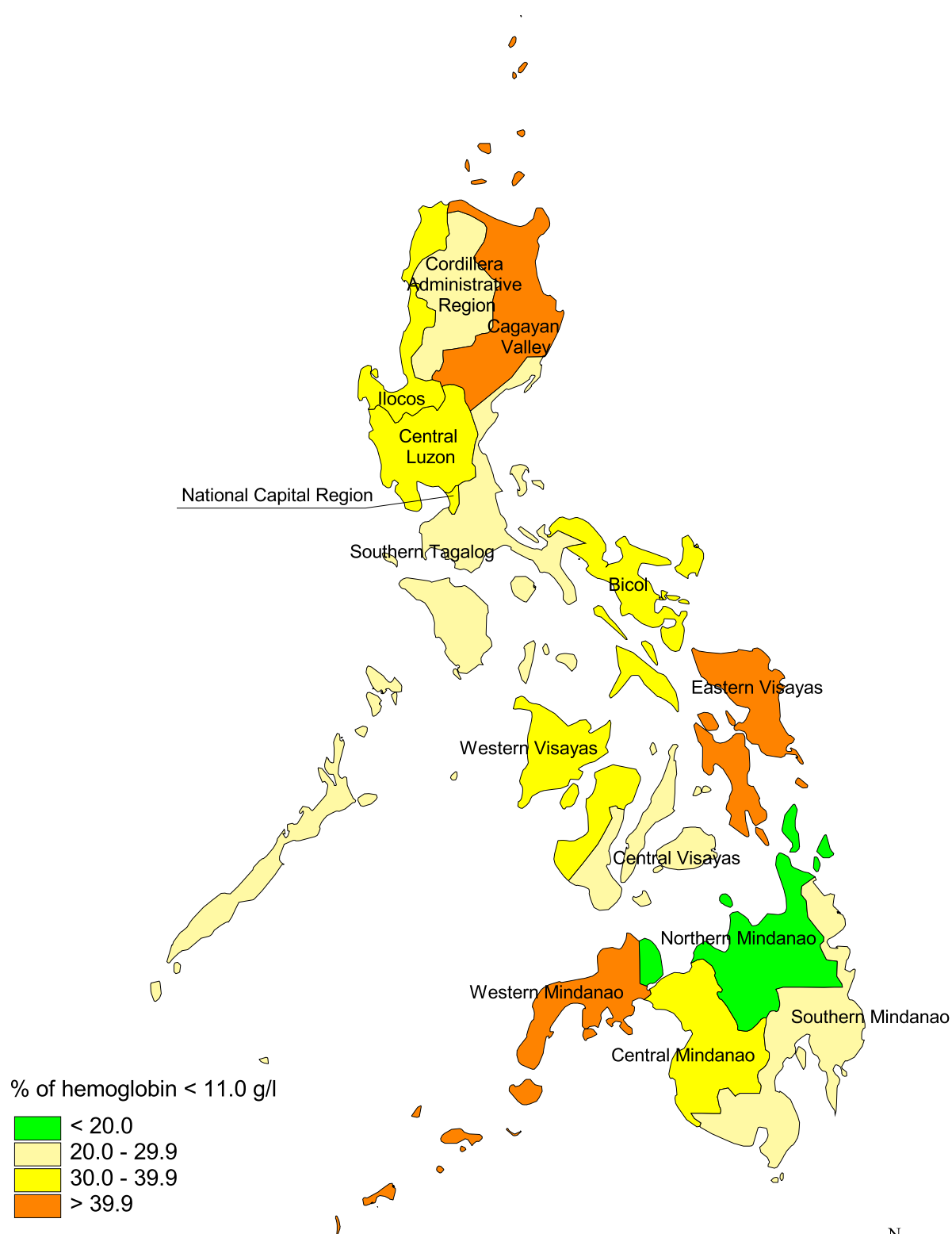
Scale 1: 9 000 000 (approx.)  
Geographic Projection (Lat/Long)

FAO - GIS/ESNA, December 2000

Philippines

# Map 8: Prevalence of Iron Deficiency Disorder in 0.5-5 year olds by region

Source: National Survey of 1998, FNRI-DOST 1999



Scale 1: 9 000 000 (approx.)  
Geographic Projection (Lat/Long)

FAO-GIS/ESNA, August 2001  
**Philippines**

