MDG #7: ENVIRONMENTAL SUSTAINABILITY

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ROUND TABLE DISCUSSIONS (RTDS)

- **Upland: Forest and Agriculture**

  Convenor: Dr. Rex Victor Cruz

  Speakers: Dr. Florentino Tesoro, Dr. Domingo Angeles

  Discussants: Mr. Marlo Mendoza for Robert Natividad, USEC. Segfredo Serrano and Dr. Gil Saguitguit

- **Aquatic: Freshwater and Coastal/Marine**

  Convenor: Dr. Antonette Juinio-Meñez

  Speakers: Acd. Rafael D. Guerrero III and Mr. Carlo Custodio

  Discussants: Mr. Nelson Lopez, Dr. Porfirio Alexander M. Aliño, Ms. Annabelle Trinidad and Engr. Allan Leuterio

- **Lowland: Urban and Industrial**

  Convenor: Acd. Leonardo Liongson

  Speaker: Dr. Aura Matias

  Discussants: Mr. Rey Goco, Mr. Antonio Principe, Hon. Austere Panadero, Mr. Manuel Gotis and Engr. Lerma Rosario

OBJECTIVES

- Present the status of Philippine Environment from available data and information as basis for evaluation of its sustainability
- Assess the Philippine progress towards the achievement of goal and indicators of MDG #7: Environment Sustainability
- Make recommendations that could enhance the achievement of MDG #7 and, as needed,additional goal and indicators relevant to MDG #7 and other MDGs

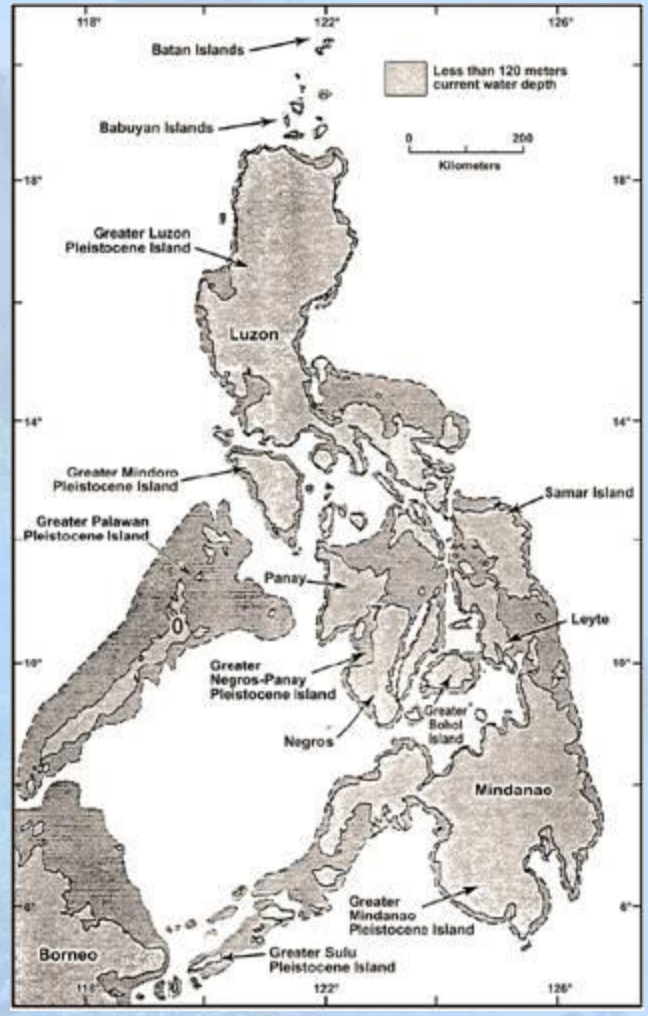
Oceans with declining fish yields or producing unsafe fish; lands that have become unproductive; polluted streams that could no longer provide safe drinking water; degraded ecosystems unfit for residential and other purpose

= these are the major causes of ***IMPOVERISHMENT, NATURAL DISASTERS, HUNGERS, and DISEASES***

-- WSSD Report, Johannesburg, Summit 2002

Introduction

- ***Biodiversity*** coined in 1988: totality of living things in biosphere; e.g. species
- The *Philippines:* a **world's** *mega-biodiversity* **center**
- **One of 5 hotspots in Asia & Pacific region**
- ***Insular*** nature, ***equable*** and ***tropical*** conditions
  - ✓ Geographically isolated
  - ✓ Diverse microhabitats
  - ✓ Volcanic mountain areas with high endemism rates
  - ✓ Sea level rise to 120m after 18,000-20,000 yr ago; level attained 6,000 yr ago



Pleistocene Ice-age islands of the Philippines (After Heaney)

STATE OF FORESTRY

Forestlands titled as CADT/CALT	6.0M ha
Total area under production status	7.809M ha (under various tenure-holders)
Growing stock	1446M m^3 (2000), 1248M m^3 (2005)
Commercial growing stock	446M m^3(2000), 387M m^3 (2005)
Estimate of critical watersheds that need rehabilitation	About 500,000 ha
Estimated forest cover	5.932M ha (2001), 7.168M ha (2003)
Forest cover in forestlands	6.52M ha
Forest cover in private lands	0.64M ha
Estimated plantations	0.329M ha (2003)
Proclaimed protected areas	77 (covering 1.85M ha)

From Philippine Forestry Outlook Study 2020

SEVERE FOREST COVER LOSS IN WATERSHEDS

- Only watersheds in regions II, IV, VIII and XI – more than 30% of land area covered with forests
- Region V and VII – least forest cover
- Low ratio of forest cover to irrigated and irrigable lands

  -- *serious implication on soil erosion and availability/quality of water for irrigation*

PRIORITIES AND STRATEGIES

- Passage of the Sustainable Forest Management Act
- Develop effective governance in the sector including improvement of climate for the investment in the sector
- Paradigm shift in the perception of DENR from regulatory to development harmonized with conservation efforts
- Meet demand for environmental goods and services, water, conservation of biodiversity,
- Reduce impacts of Climate Change
- 27 M has in 1521 down to 6.5 M rainforest in 2003

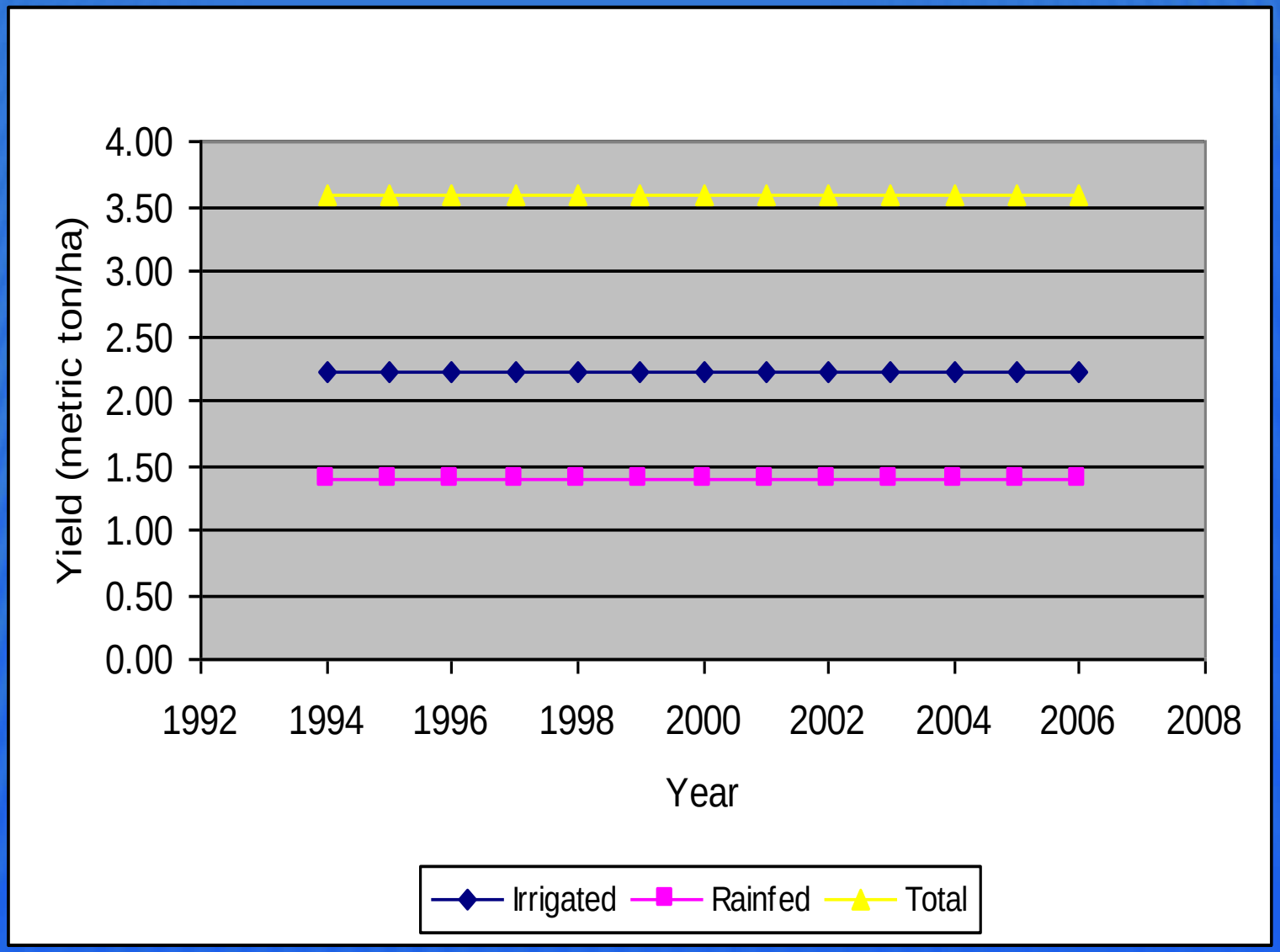
From Philippine Forestry Outlook Study 2020

AGRICULTURAL SYSTEM

Rice = Most Important Crop; consumption from harvest and import

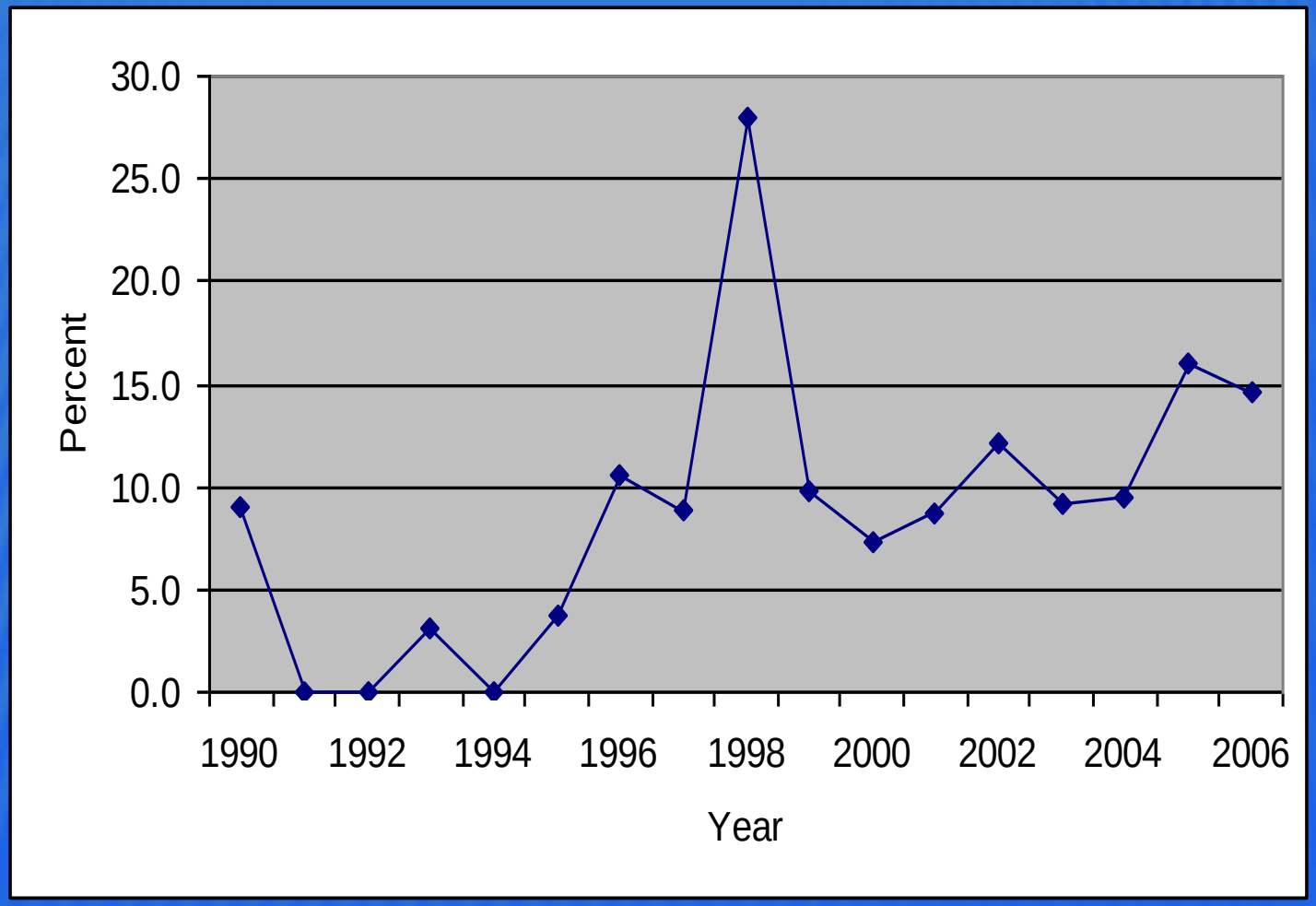
By 2020 , we need 21 M tons of palay to feed 123 M Filipinos

PHILIPPINE RICE YIELD (METRIC TON/HA), 1994 TO 2006



(Angeles, 2009)

Percent of Rice Import to Total Supply, 1990-2006



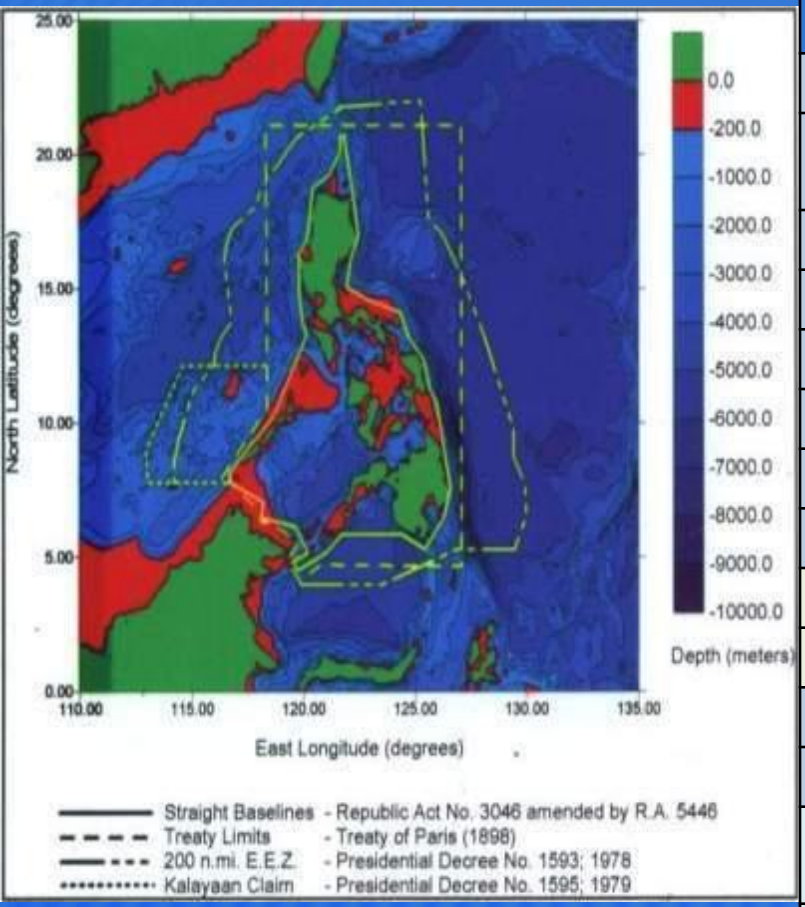
Angeles 2009

STRATEGIES FOR IMPROVED AGRICULTURE/RICE PRODUCTION

- Support R & D and extension for Agriculture
- Address pest and disease problems, and climate change affecting agricultural productivity
- Expand area for rice production, and review and put on hold land conversion (43,000 has. approved for conversion as of 2005)
- Promote product diversification
- Approve and implement the Sustainable Agriculture Act

(Angeles, 2009)

AQUATIC RESOURCE PROFILE OF THE PHILIPPINES



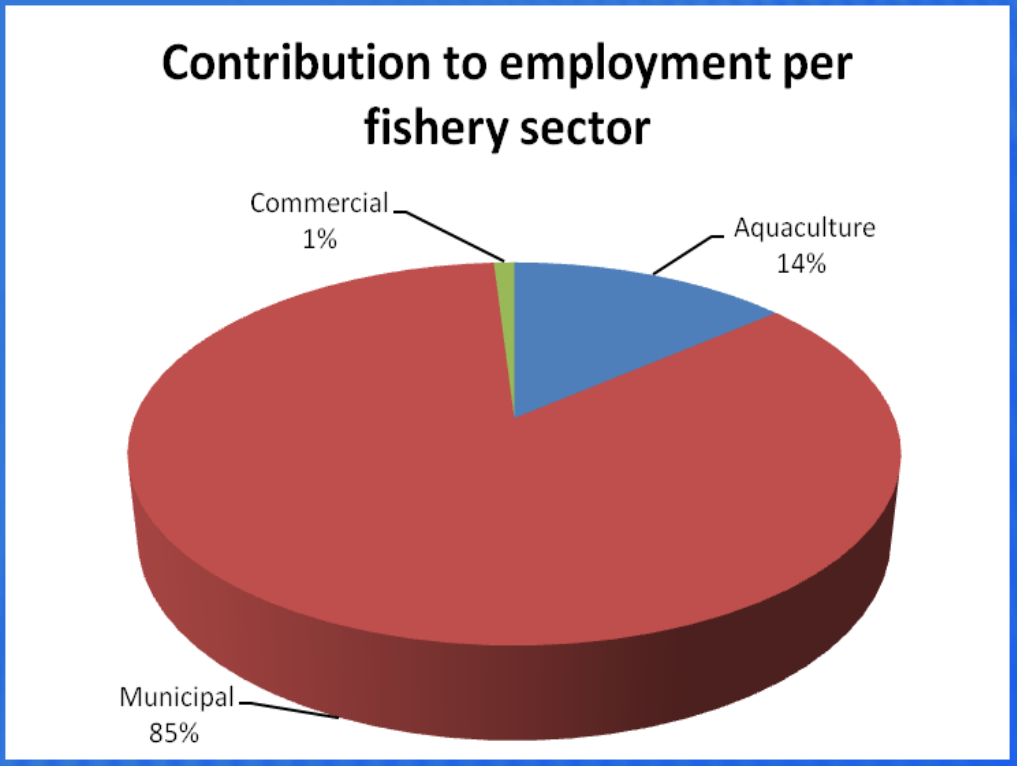
Philippine Environment Monitor 2005,
http://www.bfar.da.gov.ph/styles/Publications3/f_resources(07).htm

In (Juinio-Meñez, 2010)

Resource Category	Quantity
Total Land Area	300,000 km^2
Number of islands	7,107 Islands
Length of Coastline	17,460 km
Territorial Sea (up to 12 nautical miles)	679,800 km^2
Territorial waters incl. EEZ	2.2 million km^2
Coastal waters	266,000 km^2
Oceanic waters	1.394 million km^2
Shelf area (depth 200m)	184,600 km^2
Coastal provinces	66 or 82% (out of 81)
Coastal municipalities	822 (out of 1,502)
Total Population	94.01 million (2010)
Total coastal population	55 million (2007)
Coral Reefs	27,000 km^2
Sea Grass Beds	978 km^2
Swamplands (brackish and freshwater)	2,460.63 km^2
Existing Fishpond (brackishwater)	2,393.23 km^2
Lakes and Reservoirs	2,190 km^2
Rivers	310 km^2
Flora & Fauna in Wetlands	1,616 (flora); 3,308 (fauna)
Diversity in Marine Ecosystem	17,281 species (flora and fauna)

Fisheries

- major source of food security and livelihood



**Based on the preliminary results, 2002 Census of Fisheries*

- Fish provides 67% of the protein requirements for Filipinos
- Fishing is the livelihood basis for 5-6 million Filipinos

(Barut et al. 2003)

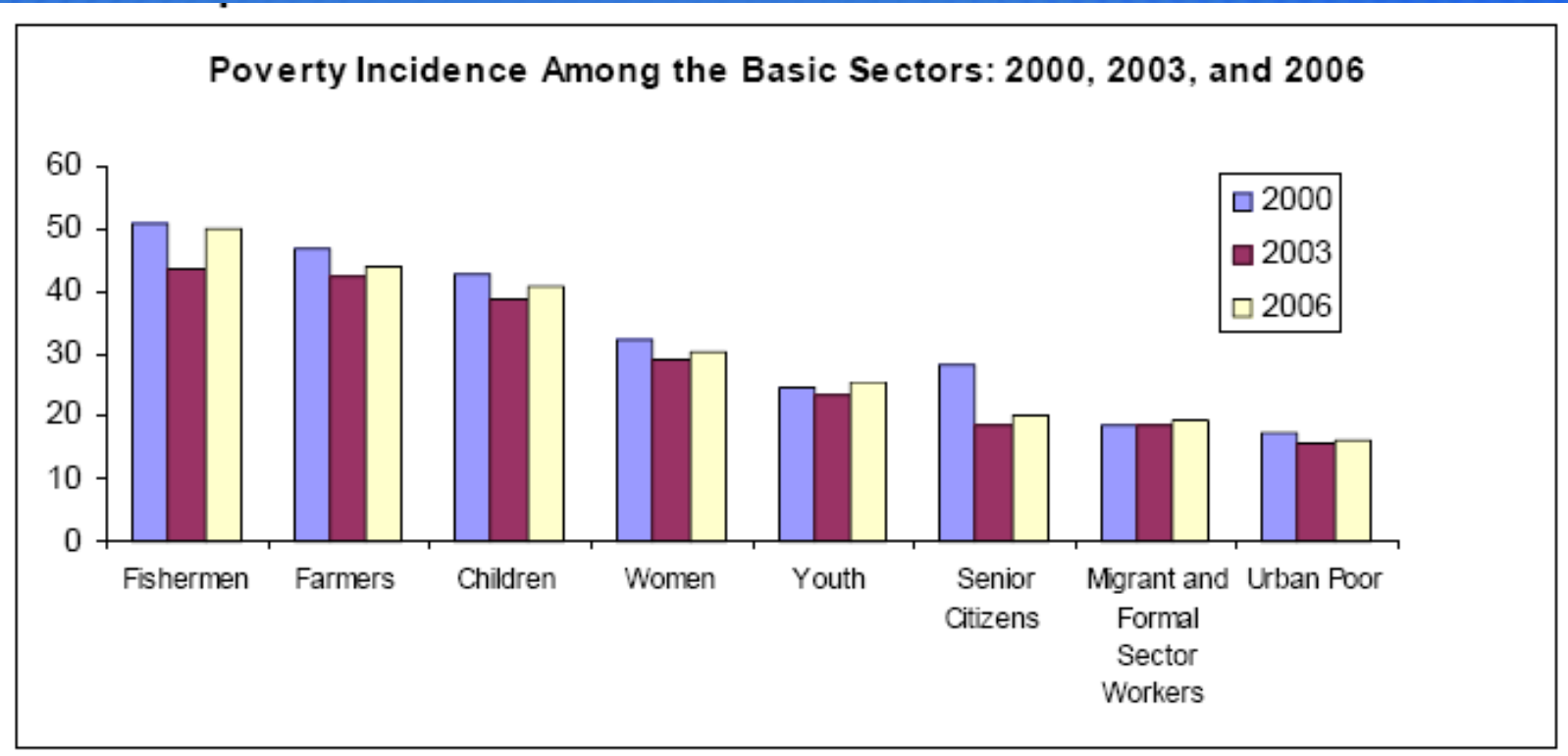
- provides employment to 5% of the national labor force; ~85% involved in municipal fisheries

In (Juinio-Meñez, 2010)

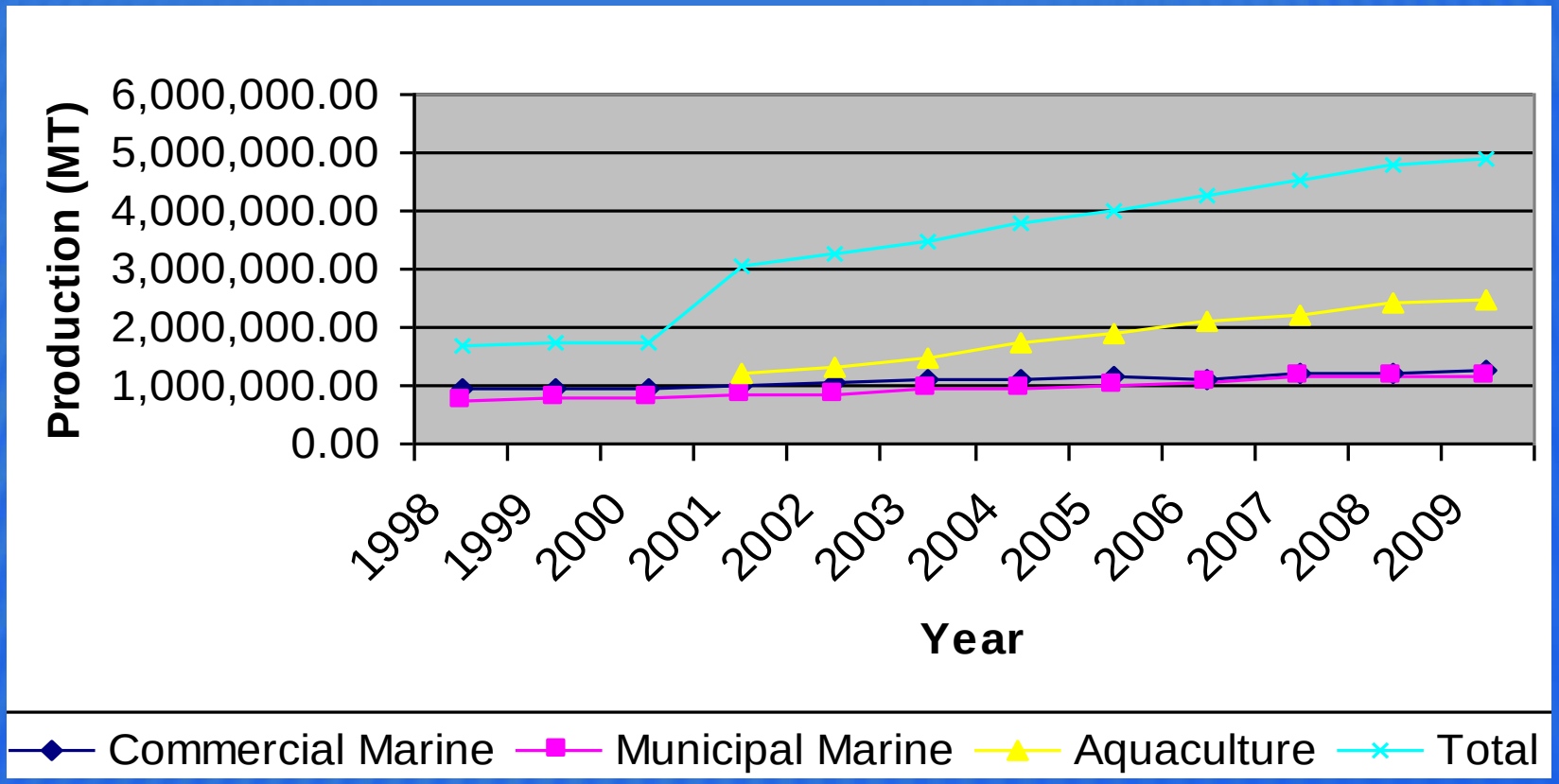
THE 2006 OFFICIAL POVERTY STATISTICS FOR THE BASIC SECTORS

- **<u>Fishermen</u>, farmers and children comprised the poorest three sectors in 2006 with poverty incidence**

- All sectors posted increases in poverty incidence between the period 2003 and 2006

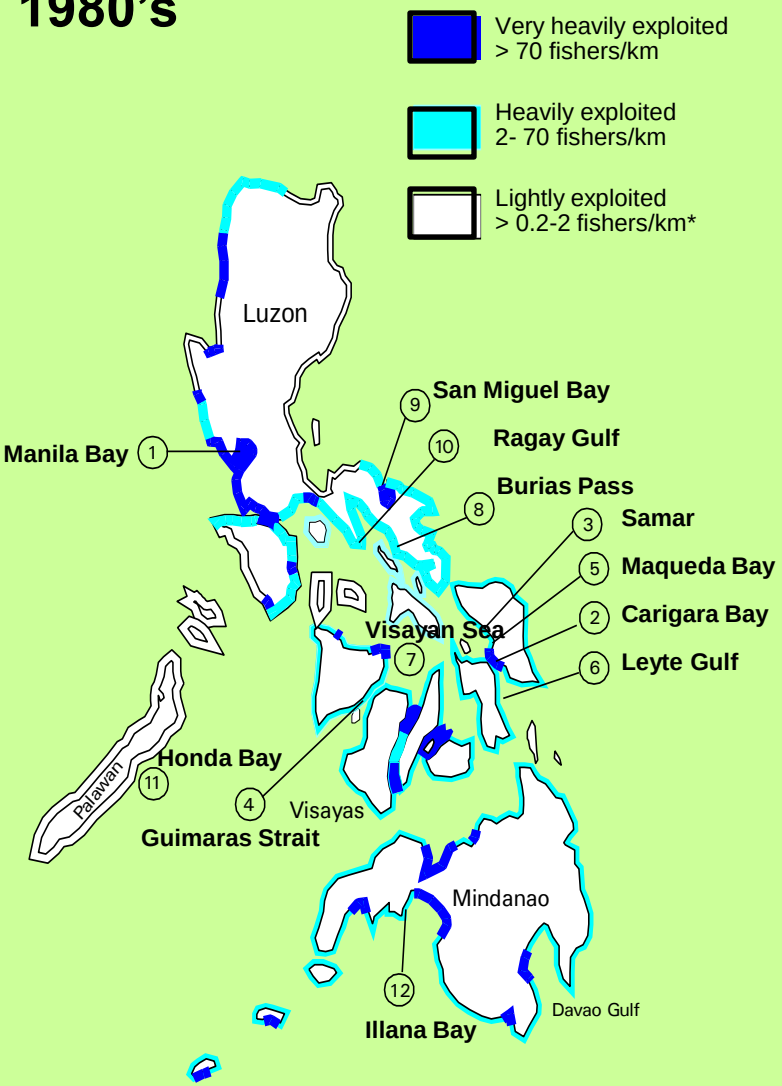


PHILIPPINE FISHERIES PRODUCTION, BY TYPE



Source: Bureau of Agricultural Statistics

1980's



Nearshore waters are heavily exploited

Source: Edralin et al. 1987 *In (Juinio-Meñez, 2010)*

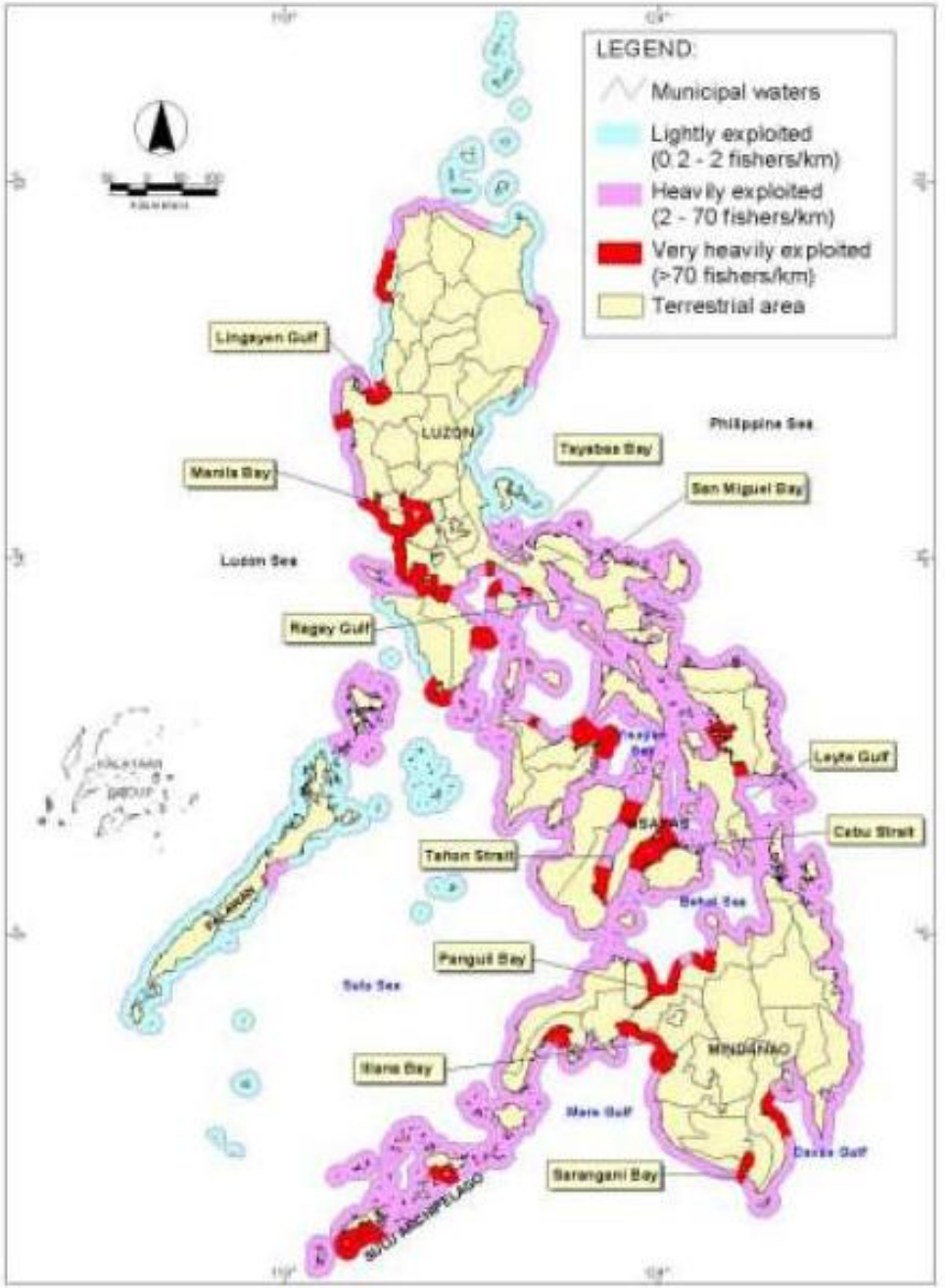


Figure 5. Map of heavily exploited areas in the Philippines.[75]

ISSUES IN THE COASTAL/MARINE ECOSYSTEM

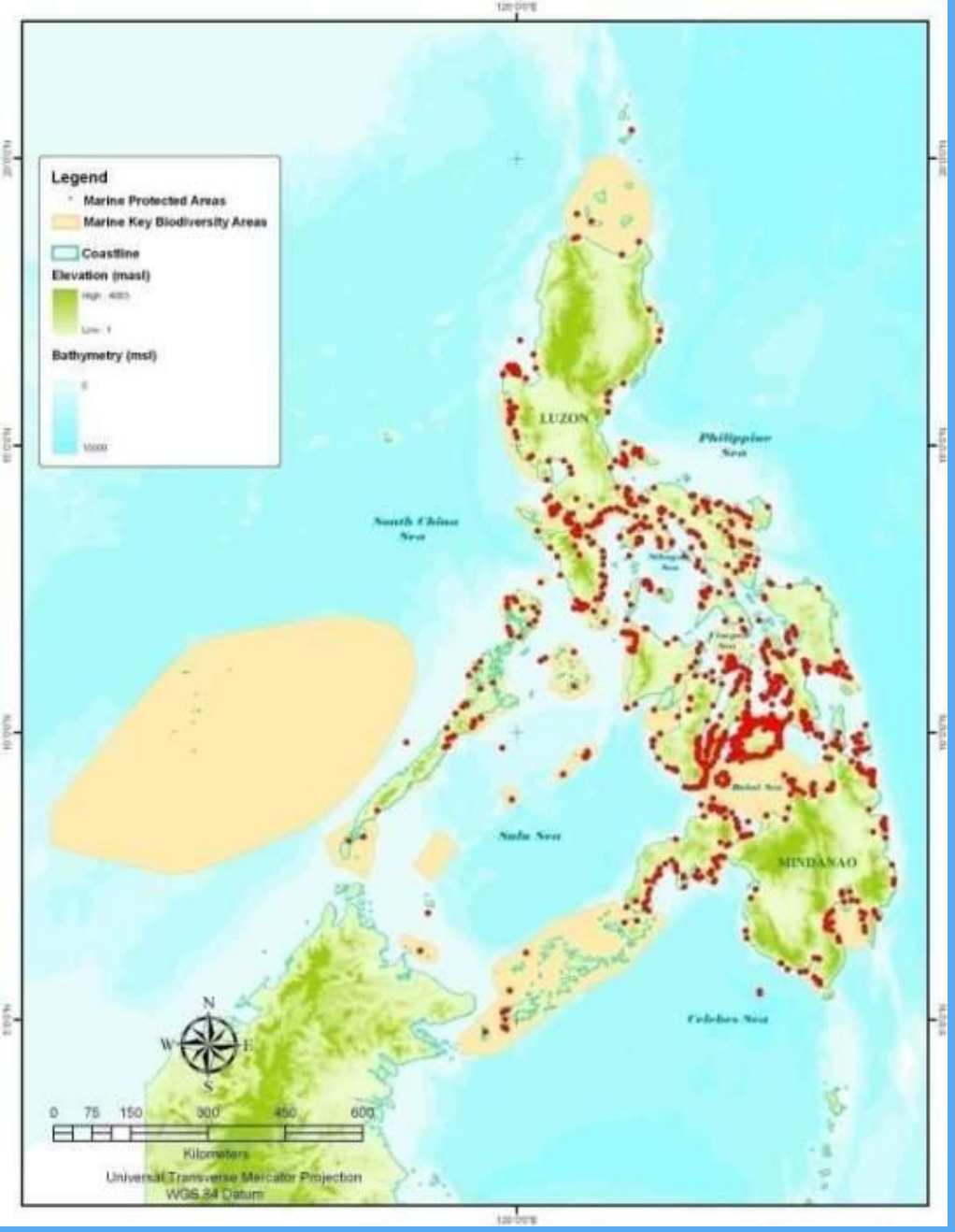
- Pollution and sedimentation from natural and anthropogenic causes etc.
- Increasing demand for fish and fishery products
- Coastal and habitat degradation
- Poorly managed aquaculture
- Biodiversity conservation

The original ***species richness*** before intense ***exploitation*** is ***unknown***.

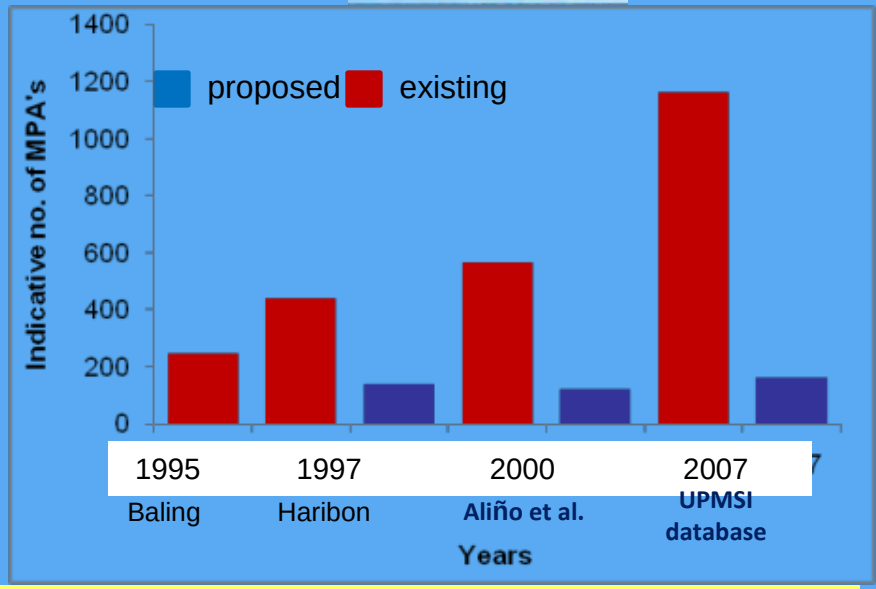
MPAs are useful to show ***patterns*** of ***recovery*** on ***coral reefs*** -- slow, decades

Photo by J Maypa

A.C. Alcala (2006)



Point localities of MPAs
(Arceo *et al.* 2008)



Total number of the MPAs increased through the years 1995, 1997, 2000 & 2007

Management effectiveness of MPA has increased to around 20 – 30% in 2007 from 10-15% in 2000

In the Visayas, only 33.7% of 564 MPAs have found to be functional. *(Alcala et al., 2008*) (Area 164 sq km)

In (Juinio-Meñez, 2010)

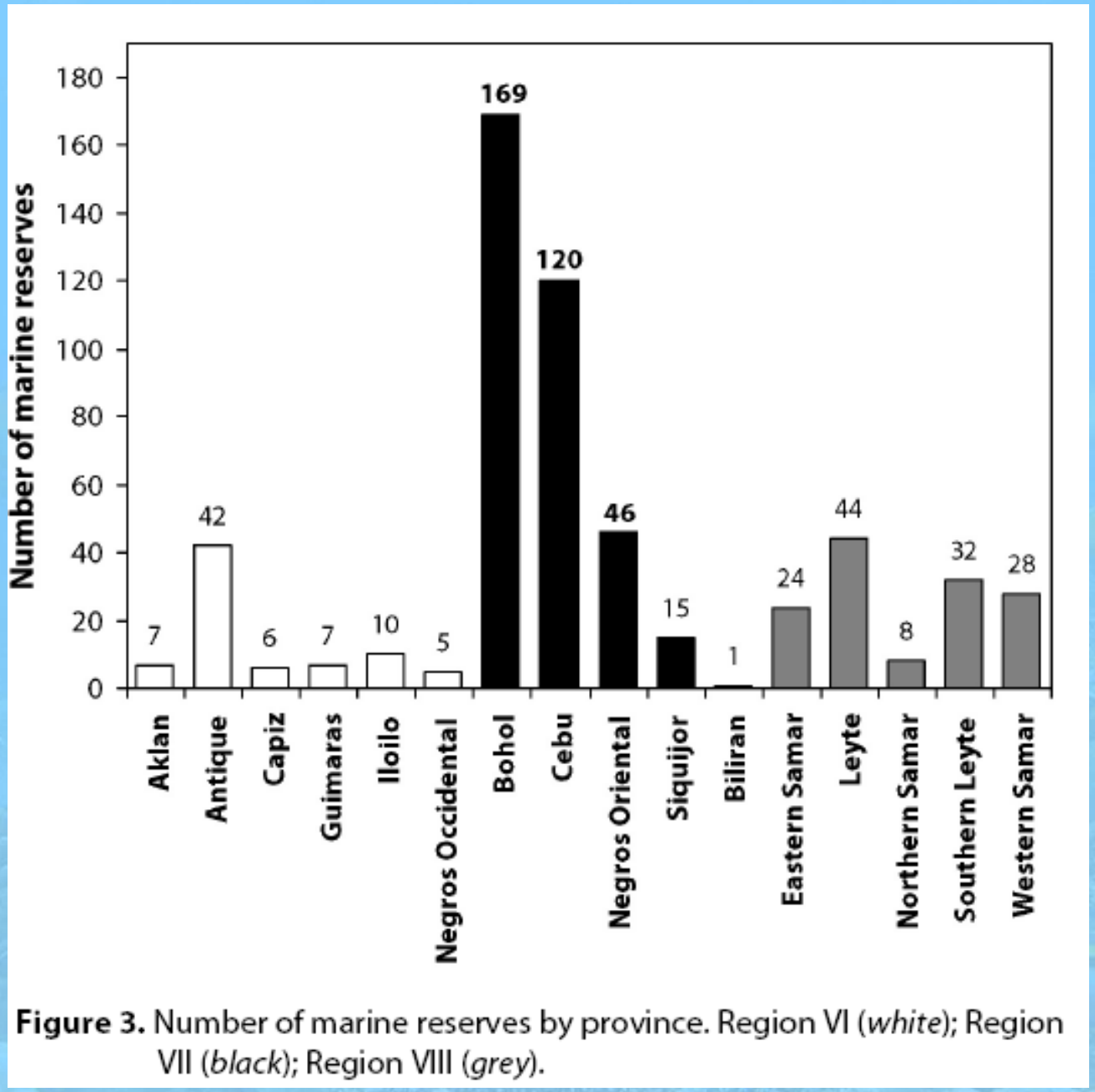
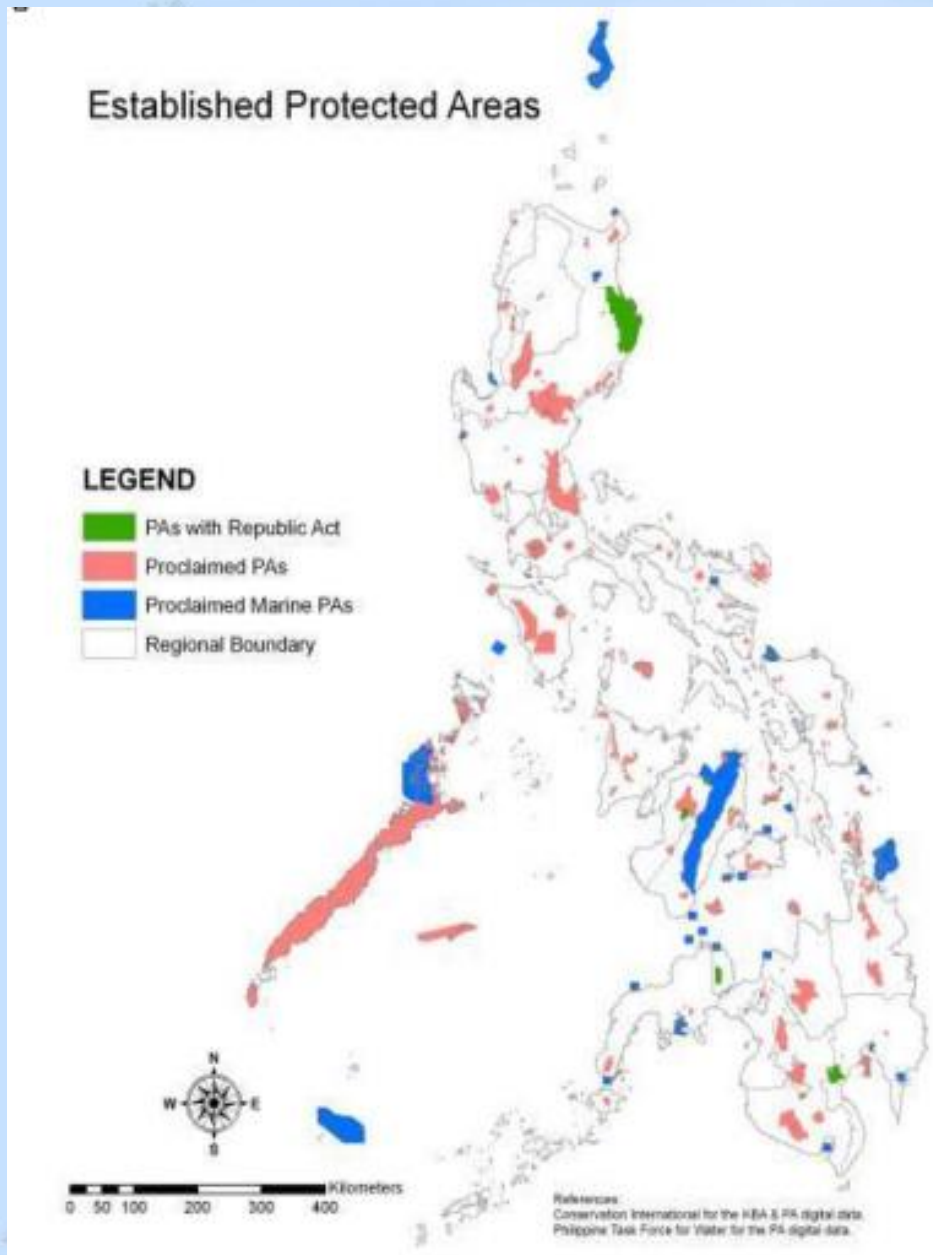


Figure 3. Number of marine reserves by province. Region VI (*white*); Region VII (*black*); Region VIII (*grey*).

Source: Alcala et al., 2008



Number of Proclaimed PAs and PAs with Congressional Enactment in the Philippines (as of January 2010)

Protected Areas with Congressional Enactment- 10

- Terrestrial- 8 (0.79 M ha)
- Terrestrial/Marine- 2 (0.24 M ha)

Proclaimed Protected Areas under the NIPAS- 109

- Terrestrial - 80 (2.13 M ha)
- Marine - 29 (1.37 M ha)

Grand Total

- Terrestrial - 2.92 Mha out of 30 Mha of land (9.7%)
- Marine - 1.61 Mha

As of 2008, MPAs have been established in 415 coastal municipalities (from 276 in 2000) in 62 provinces (4th CBD Report 2009)

SPECIFIC CONCERNS

- Address biodiversity data gaps on many coastal and marine ecosystems
- Increase the percentage of functional MPAs to at least 67% of existing MPAs, increase in the size of MPAs
- Enhance LGU capacity to implement and monitor ICRM plan
- Efficient and effective information dissemination
- Harmonization of efforts on sustained management intervention and stakeholders support

URBAN AREAS

- generally overpopulated with solid waste management problems
  - Rural areas – 0.3 kg of waste (ave. Filipino)
  - Urban areas – 0.5 kg of waste (ave. Filipino)
  - Total waste of Metro Manila - 5,250M tons/day

- air pollution (health of the people)
  - 2004 – ambient air quality is within standard of NO_2, CO, SO_2 and ozone
  - 2003 – total suspended particles – air is not within standard quality
  - Increasing trend of air pollution by 2010

CONCERNS AND ISSUES

- Full implementation of National strategy and action plan for water supply and sanitation
- Monitoring and sustained implementation of Ecological Solid Waste Management Act
- Streamlining of EIS for the development eco-friendly industries
- Efficient and effective implementation “Polluters/ Users Pay” policies and guidelines
- Water supply insufficient during dry season; Flooding during wet season

PRESENT MDG #7 TARGETS AND INDICATORS

UNDP Target 7a. "Integrate the principles of sustainable development into country policies and programs, reverse loss of environmental resources"

UNDP Target 7b. "Reduce biodiversity loss achieving by 2010 a significant reduction to the rate of loss"

- MDGs' targets 7a and 7b have been tightly integrated into the Medium Term Development Plan of the Philippines (MTDPP)

Goal # 9. Ensure Environmental Sustainability from Philippine Agenda 21 (MTDPP)				
		1990	2006	2010
Target 9	Principles of Sustainable Development Integrated into country policies and programs to revised the loss of environmental reservoirs			
Indicator 25	Proportion of land areas covered by forest	20.5	52.6?	-
Indicator 26	Ratio of protected to maintain biological diversity to surface area	8.5	12.7?	-
Indicator 27	Energy use (kg oil equivalent) per $	-	-	-
Indicator 28	Carbon dioxide emission (per capita) and consumption of ozone-depleting CFCs	-	-	-
Indicator 29	Proportion of population using solid fuels	66.2	42.1?	-
Target 10	Halve by 2015, the proportion of population without sustainable access to safe drinking water and improved sanitation			
Indicator 30	Proportion of the population with sustainable access to safe water source urban and rural	73.0	80.2?	-
Indicator 31	Proportion of household with sanitary toilet facility	67.6	86.2?	-
Target 11	By 2020 have achieved significant improvement in the living 100 million slum dwellers			
Indicator 32	Proportion of household with access to secure tenure	91.0	81.2?	-

Equivalent to targets 7a to 7d of UNDP Source: NSCB 2009

PRESENT ASSESSMENT BASED ON AVAILABLE DATA

UNDP Target 7a= Integrate principles of sustainable development into country policies and programs to reverse loss of environmental resources= integration in Philippine MTDP **UNDP Target 7b** Reduce biodiversity loss achieving by 2010 a significant reduction to the rate of loss	
Indicator 7.1 Proportion of land area covered by Forest (public and private)	7.168 M ha in 2003 from 5.392 M ha in 2001
Indicator 7.2. Carbon dioxide emissions, total per capita and per GDP$	no data
Indicator 7.3 Consumption of ozone depleting substances	no data
Indicator 7.4 Proportion of stocks within safe biological limits	Fish biomass 5-10% of ca 100-150 tons/sq km in the 1940s in coastal
Indicator 7.5 Proportion of total water resources used	no sufficient/accurate data
Indicator 7.6 Proportion of terrestrial and marine areas protected	Terrestrial-2.92 M Ha out of 30 M ha of land (9.7%) Marine-1.61 M ha , ca 3% of 25,000 km^2 of coral reef, area in MPAs (75,000 ha)
Indicator 7.7 Proportion of species threatened with extinction	Approximately 22% of each 1100 species of land vertebrates based on

SUMMARY OF CONSERVATION STATUS

Taxonomic Group	Species Richness	Endemic		Vulnerable to Critically Endangered as of 2006	
		Species	% of total	Species	% of total
Plants	10,524	6,286	59.73	696	16.6
Fish (cyprinids)	20, ca 4-6 still existing(?)	17	94.1	4-6	100
Amphibians	111	76(?)	ca 75	29(?)	ca 28-63
Reptiles	200	142	ca 70	42	ca 21
Birds	576	192	33	128	22
Marine Mammals	27	-	-	27	100
Land Mammals	179	111	ca 67.4	49	27

Note: Numbers for land vertebrates are approximate
Total of 1,054 land vertebrates in 30 million hectares of land, but new systematics reveals there will be more additions to total about 1,100.

2010 IUCN RED LIST FOR THE PHILIPPINES

Threatened Species By Taxon

Mammals	39
Birds	67
Reptiles	35
Amphibians	48
Fishes	**63**
Molluscs	**3**
Other Invertebrates	210
Plants	215
Total	680

Total Endemic & threatened Species

	Endemic	Threatened
Mammals	113	27
Birds	195	57
Amphibians	79	48
Sturgeons	0	0
Freshwater crabs	**42**	**4**
Reef-forming corals	**0**	**0**
Conifers	3	2
Cycads	5	1

Reptiles, fishes, molluscs, other invertebrates and plants: please note that for these groups, there are still many species that have not yet been assessed for the IUCN Red List and therefore their status is not known (i.e., these groups have not yet been completely assessed)

UNDP Target 7c "Reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation"

Indicator 7.9 Proportion of population using improved drinking water source

- NSO data suggests that 80% (high ?)

Indicator 7.10 Proportion of population using an improvised sanitation facility

- NSO data show 86% with sanitary toilets; 80% with electricity (high?)

UNDP Target 7d "Achieve significant improvement in the lives of at least 100m slum dwellers by 2020"

Indicator 7.11 Proportion of urban poor living in slums

- 2004 data 675,000 urban informal settlers from 2002 data 588,853

RECOMMENDATIONS FOR MDG #1 TO #6 RELATING TO MDG #7

MDG #1: The poor in the Philippines occupy areas which are subject to erosion, flood, and other forms of degradation. Poorest are the fishermen and farmers (IV-B: MIMAROPA and ARMM). Undernourished mothers and children are prevalent in coastal communities. Population stresses on ecosystems negatively impacts food production.

MDG #2: Primary education should include comprehensible concepts of environmental sustainability as poverty mitigating mechanism.

MDG #3. Women in coastal (and forest) environment have marginalized or lesser access to commercializable species and relegated to low quality/small size and quantity; proportion of stewardship of land and water be awarded

MDG #4, 5, 6: relationship between environment and Reduction in child mortality and improve maternal health.

- Number of underweight children in overfished coastal areas is high(IV-A, CALABARZON, IV-B MIMAROPA, IX: Zamboanga)
- breastfeeding mothers are at high risk in IV-B and ARMM

ADDITIONAL TARGETS/ INDICATORS FOR PHILIPPINE MDG #7

Target 1: Halt land conversion from forest or agricultural to residential or mixed-residential to attain food/rice security by 2020

Indicator 1: Proportion of land utilized for rice/food production

Indicator 2: Implementation of Passage and Forest Management Act

Indicator 3: Inclusion of Eco-governance in LGU good governance

Target 2: Implementation of localized science-based mitigation for natural and man-made disasters

Indicator 1: Percent of aquaculture and agriculture areas where carrying capacity estimates have been done/ completed/ implemented

Indicator 2: Percent Completion of National Geo-hazard

Indicator 3: Number of LGUs with disaster mitigation and adaptation action plans

Indicator 4: Number of LGUs with adequate trainings and equipment for disaster mitigation

SUMMARY AND CONCLUSION

Environmental Sustainability = bedrock of human survival and economic development

- *harmonious integration of sound and viable economy, responsible governance, social progress and ecosystem integrity to ensure that development is a life enhancing process*