

# Climate Change and National Development



Cielito F. Habito, Ph.D.

Director, Ateneo Center for Economic Research & Development  
Ateneo de Manila University

## Outline

- What are the effects of climate change?
- Who are responsible for it?
- How is RP contributing to it?
- How is RP being affected by it?
- What can we do about it?



## General Effects

- **Agriculture:** food crops, economic trees, livestock and plantation crops
- **Coastal zones:** sea-level rise impacts on socio-economic infrastructure and activities

## General Effects

- **Water resources:** extremes such as drought and flooding, saltwater intrusion
- **Fisheries:** tuna fishery in Pacific Ocean, cold-water fish in Yellow Sea

*Source: G. Sen, UNFCCC*

## General Effects

- **Human health:** increase in vector and water-borne diseases, e.g. malaria, dengue, cholera, typhoid; intestinal problems, mortality and morbidity

*Source: G. Sen, UNFCCC*

## General Effects

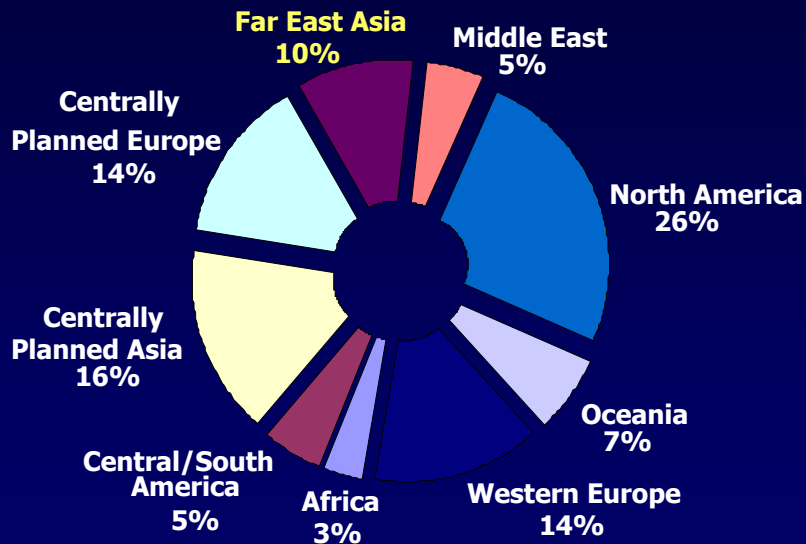
- **Terrestrial ecosystems and forests:** forest fires, low productivity, degradation of important ecosystems, and decline in forest cover

*Source: G. Sen, UNFCCC*

Who are responsible?



## Which regions are most responsible?



## How is the Philippines contributing to it?

- CO<sub>2</sub> emissions from agriculture (33% of total)
- Methane (CH<sub>4</sub>) emissions from flooded rice fields
- Methane emissions from domestic livestock management
- Methane and nitrous oxide (NO<sub>2</sub>) from waste (60% from solid waste)

## How is the Philippines contributing to it?

---

- Land use change and forestry (LUCF):
  - Biomass growth sequesters CO<sub>2</sub> from atmosphere
  - Deforestation and land use change release CO<sub>2</sub>
  - 126 kilotons CO<sub>2</sub> sequestered in 1994

## How is the Philippines contributing to it?

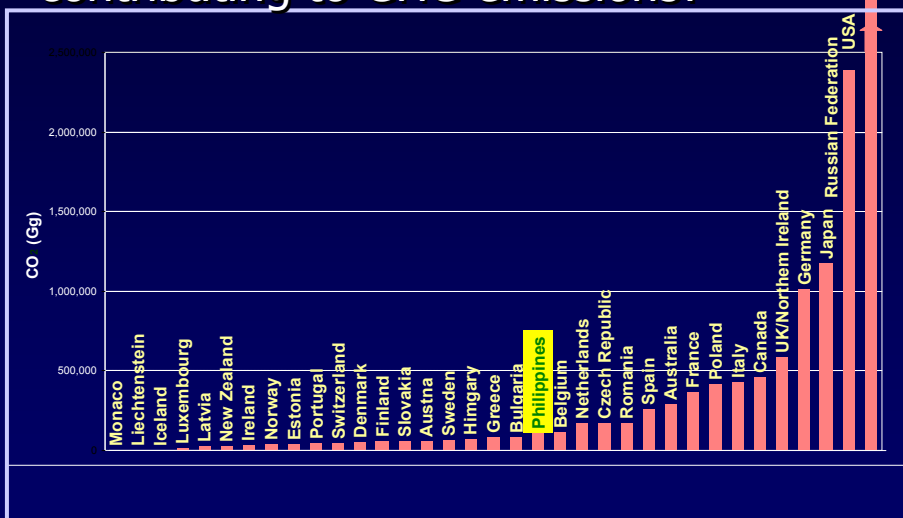
---

- Residential & commercial fuel consumption emit CO<sub>2</sub>
- Electricity consumption leads to CO emissions from powerplants
- Motor vehicle transport releases CO<sub>2</sub> into atmosphere

# How is the Philippines contributing to it?

- Industry manufacturing processes release CO<sub>2</sub>
  - bulk comes from cement and metal manufactures (86%)
  - industry accounts for 11% of total CO<sub>2</sub> emissions in the country

# How much is the Philippines contributing to GHG emissions?



## How is the Philippines being affected?

---

- Extreme weather events (El Niño/La Niña)
  - adversely affect agriculture production (esp rice)
  - strains annual infrastructure budget
  - affects public health; raises public health expenditures

## How is the Philippines being affected by it?

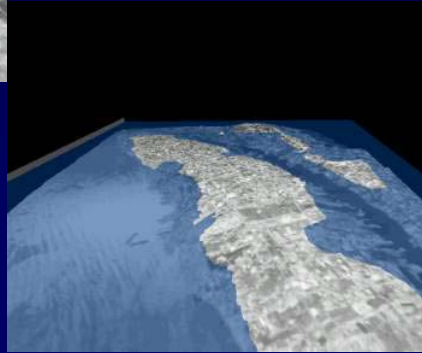
---

- Sea level has risen by 10cm per decade in coastal Philippine cities
- Coral bleaching episodes have been reported



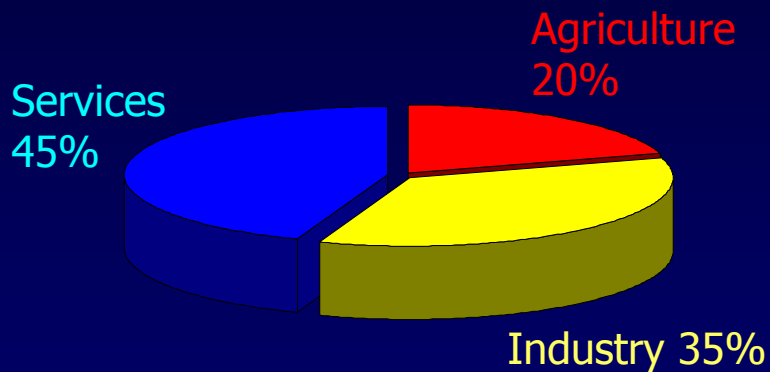
Aerial Photo of Navotas at 0 m sea level rise

Navotas at 1.0 m sea level rise



Aerial Photographs 1996 courtesy of NAMRIA, 3D Images generated by GeoView3D

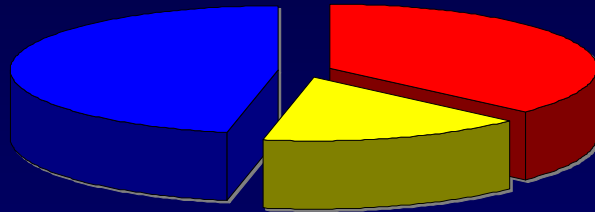
## Sectoral Composition of Philippine Economic Output



# Composition of Philippine Employment

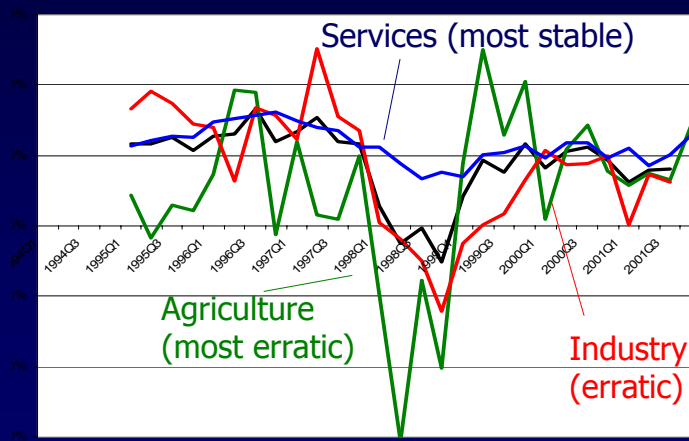
Services 47%

Agriculture 37%



Industry 16%

# Output Composition: Dynamic View



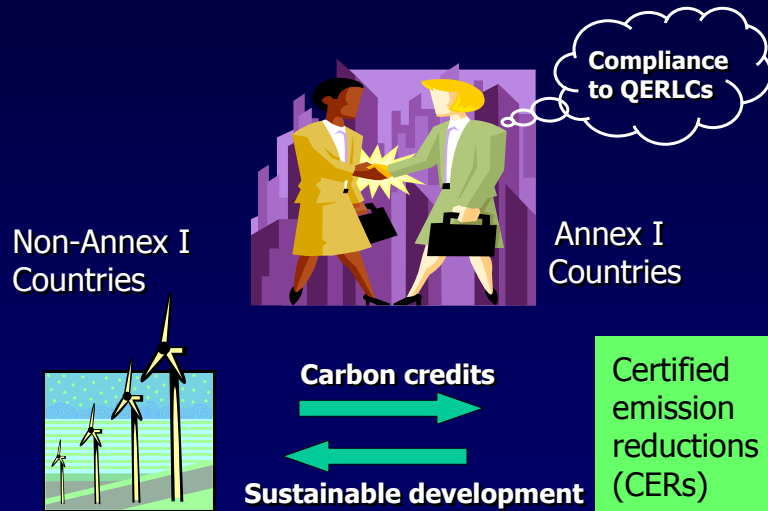
# Agriculture, Fishery & Forestry

Sector	2004				
	Q1	Q2	Q3	Q4	FY
<b>AGRI, FISH &amp; FOR</b>	8.0	4.2	7.3	1.2	4.9
Agri & Fishery	7.7	3.9	7.3	1.3	4.8
Forestry	96.5	62.3	7.4	-47.9	29.8
	2005				
<b>AGRI, FISH &amp; FOR</b>	-0.1	1.9	1.9	4.0	2.0
Agri & Fishery	0.0	2.0	2.4	4.0	2.2
Forestry	-31.8	-18.7	-53.8	-36.4	-36.5

## Sectoral Budget Allocation

Sector	2004	2005	2006
<b>Economic services</b>	<b>19.40</b>	<b>17.20</b>	<b>18.72</b>
Agriculture & Agrarian Reform	3.28	2.82	2.61
Natural Resources & Environment	0.72	0.74	0.72
Trade & Industry	0.40	0.33	0.29
Tourism	0.17	0.15	0.17
Power & Energy	0.21	0.16	0.21
Water Resource Devt & Flood Control	0.87	0.70	0.78
Communications & Transportation	7.70	5.86	6.82
Other Economic Services	0.36	0.65	1.59
Subsidy to Local Government Units	5.69	5.78	5.53
<b>Social Services</b>	<b>28.86</b>	<b>27.68</b>	<b>27.91</b>
Education, Culture, & Manpower Devt	14.85	14.74	13.90
Health	1.67	1.41	1.30
Social Security, Labor, & Employment	5.16	4.36	5.56
Housing & Community Devt	0.18	0.19	0.26
Land Distribution	0.85	0.48	0.42
Other Social Services	0.12	0.39	0.62
Subsidy to Local Government Units	6.02	6.11	5.85
<b>Defense</b>	<b>4.92</b>	<b>4.81</b>	<b>4.98</b>
<b>General Public Services</b>	<b>16.07</b>	<b>15.44</b>	<b>15.33</b>
General Administration	5.25	4.49	4.59
Public Order & Safety	6.14	5.92	5.74
Other General Public Services	0.12	0.41	0.57
Subsidy to LGUs	4.55	4.62	4.43
<b>Net Lending</b>	<b>0.65</b>	<b>0.75</b>	<b>0.78</b>
<b>Debt Service - Interest Payment</b>	<b>30.09</b>	<b>34.12</b>	<b>32.28</b>
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

# Clean Development Mechanism



Achieve Sustainable Development

**Transfer environmentally safe and sound technology and know-how**

## Clean Development Mechanism

**Emission reduction additional to any that would occur in the absence of certified project activity**

**Project funding not to result in the diversion of ODA and separate from financial obligations of Annex I countries**

## Steps We Need to Take

- Integrate climate change into the national, regional and local development planning process.
- Institutionalize the national GHG inventory process.
- Maintain a repository of existing, proposed and contemplated projects.

## Steps We Need to Take

- Develop criteria for prioritizing CDM projects.
- Build capacity for monitoring, reporting and baseline setting.

Climate change puts us on a collision course with disaster... unless we change course early enough, it could be too late!



***Maraming Salamat Po!***