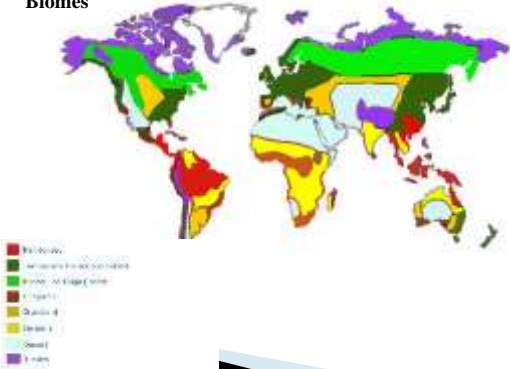


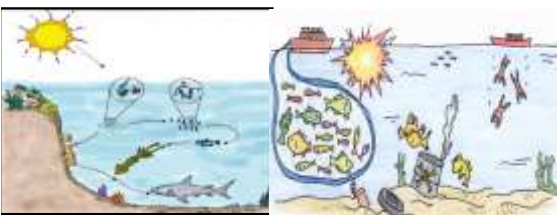
Biomes



Ecosphere

- ▶ All living organisms of the earth interacting with the physical environment
- ▶ Gaia hypothesis -all organisms have evolved from the physical environment to produce an intricate, self regulatory control system that keeps conditions favorable for life on earth (Lovelock)





☺ **food chain**

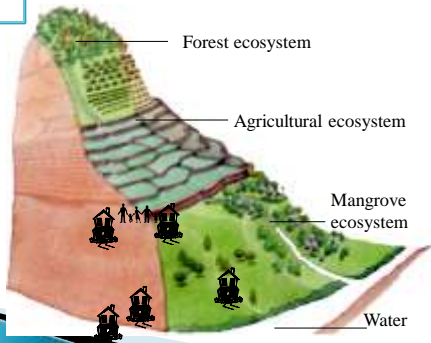


Symbiotic relationships

- Mutualism
- Parasitism
- Predation
- Competition
- Commensalism



"From Ridge to Reef"





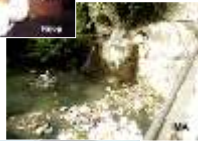
● Coral reef destruction from natural hazards



Impact: Decrease in fishes

Destruction of ecosystems due to human activities







Interrelatedness in outreach programs:

- ▶ River Basin – Kaliwa- Kanan River Basin
- ▶ Sierra Madre Biodiversity Corridor
- ▶ Sustainable development approach (socio-political, economic, ecological)

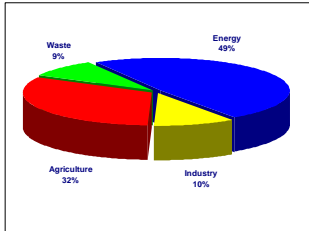


Principle 4: Everything changes
Lahat ay nagbabago.



Philippine GHG Inventory

SECTOR	CO ₂ Emissions (Gg)
Energy	50,038
Industry	10,711
Agriculture	33,137
Waste	9,198
TOTAL	103,085



Human Sources of GHGs

Carbon Dioxide (CO₂) – Most prevalent GHG
 Methane (CH₄) – Second most common, 21x the potency of CO₂
 Nitrous Oxide (N₂O) – 310x the potency of CO₂
 Other Gases – HFCs, PFCs, and SF₆ = range 600 – 23900x potency of CO₂

Energy Generation
Industrial Processes

Transportation

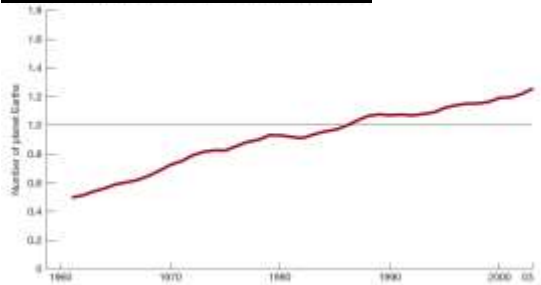
Land Use:
Agriculture & Forest

KLIMA

What does the IPCC say?

Global atmospheric concentrations of CO₂, methane (CH₄) and nitrous oxide (N₂O) have **increased** markedly as a result of **human activities** since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years.

Humanity's Ecological Footprint # of planet Earths, 1961-2003



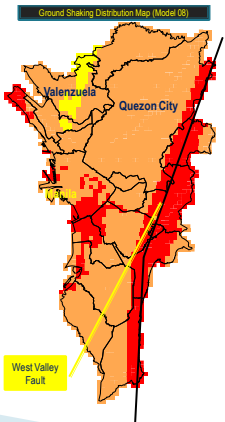
Strong Ground Shaking



2013 Bohol Earthquake



1990 Luzon Earthquake



17

Tsunami




2004 Indian Ocean Earthquake



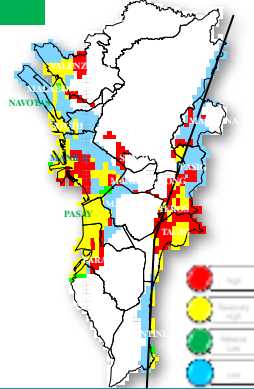
Source: <http://storm.centre.com/news>

Liquefaction



Subsidence

Bayang Rise of Buried Structures





Liquefaction Potential (Model 08)

Highlights of mmeirs study

Model and Magnitude	Seismic Intensity (PEIS)	Liquefaction	Tsunami
Model 08 (M=7.2)	Predominantly Metro Manila, VIII, IX along side of Marikina River and Manila Bay	High possibility at mouth of Pasig River, Taguig, Relatively high possibility alongside of Manila Bay	Will not occur
Model 13 (M=7.9)	VIII at West of Metro Manila, VII at other area	Relatively high possibility at Taguig, alongside of Manila Bay	Maximum of 4m, Average 2m alongside of Manila Bay

Source: Metro Manila Earthquake Impact Reduction Study (MMEIRS)
JICA/PHIVOLCS/MMDA

MMEIRS Scenario Earthquakes

Model	Magnitude	Characteristics
08 – West Valley Fault	7.2	Severe Damage
13 – Manila Trench	7.9	Tsunami



Learn "new" skills

No rice?

- › Eat camote, bananas, root crops!
- › Culinary arts: cassava cake

Basic skills:

- › Running
- › Swimming
- › Biking



Yin Yang



From disaster comes opportunity.



**SCHOOLS are
CRADLES OF VALUE FORMATION**



MIRIAM COLLEGE
a pioneer in
ENVIRONMENTAL EDUCATION

A Dark Green School by EENP
Eco-friendly School- NCR 2013

2nd National Search for Sustainable and Eco-friendly Schools



A whole school approach:

1. Policy
2. Curriculum
3. Campus
4. Research and outreach

Miriam College is a Dark Green School!
 2013 Winner of Regional Search for Sustainable
 and Ecofriendly Schools!

Policy and Administration

- › Vision/Mission/Values – *Kalikasan (Integrity of creation)*
- › MakiTIPS (Tipid, Impok, Punan, Sinop)
- › LED Lights
- › Limited Use of Aircon
- › No styrofoam
- › No smoking
- › No softdrinks
- › No balloons
- › No GMO-food

Public Education through the Media:
Radyo Kalikasan
(a weekly radio program on the environment)

- › 8-9am every Sunday
 DWBL 1242 AM Band
- › on its 20th year of
 radio broadcasting



Working with government and stakeholders

Teacher Training Project with local government:

- 7 Environmental Principles
- Curriculum Development
- Green Campus
- Outreach
- Action plans



II. Preparedness

- › Hazard map
- › Earthquake drills
- › Flood drills
- › Early warning device
- › Pruning of trees
- › Calling off classes - guidelines
- › Communications

Preparedness at various levels:

Institutional preparedness