

Industry Initiatives for GHG Reduction and AQM: A Model for an Emerging Economy **PHILIPPINES**

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GREENHOUSE GAS STRATEGIES IN A CHANGING CLIMATE

16-17 NOVEMBER 2011

HYATT HOTEL, FISHERMAN'S WHARF, SFO, CA



OUTLINE

I. INTRODUCTION: PHILIPPINE SETTING

- PHL GHG AND RELATED BASELINES

II. DRIVERS FOR MITIGATION

III. MITIGATION INITIATIVES

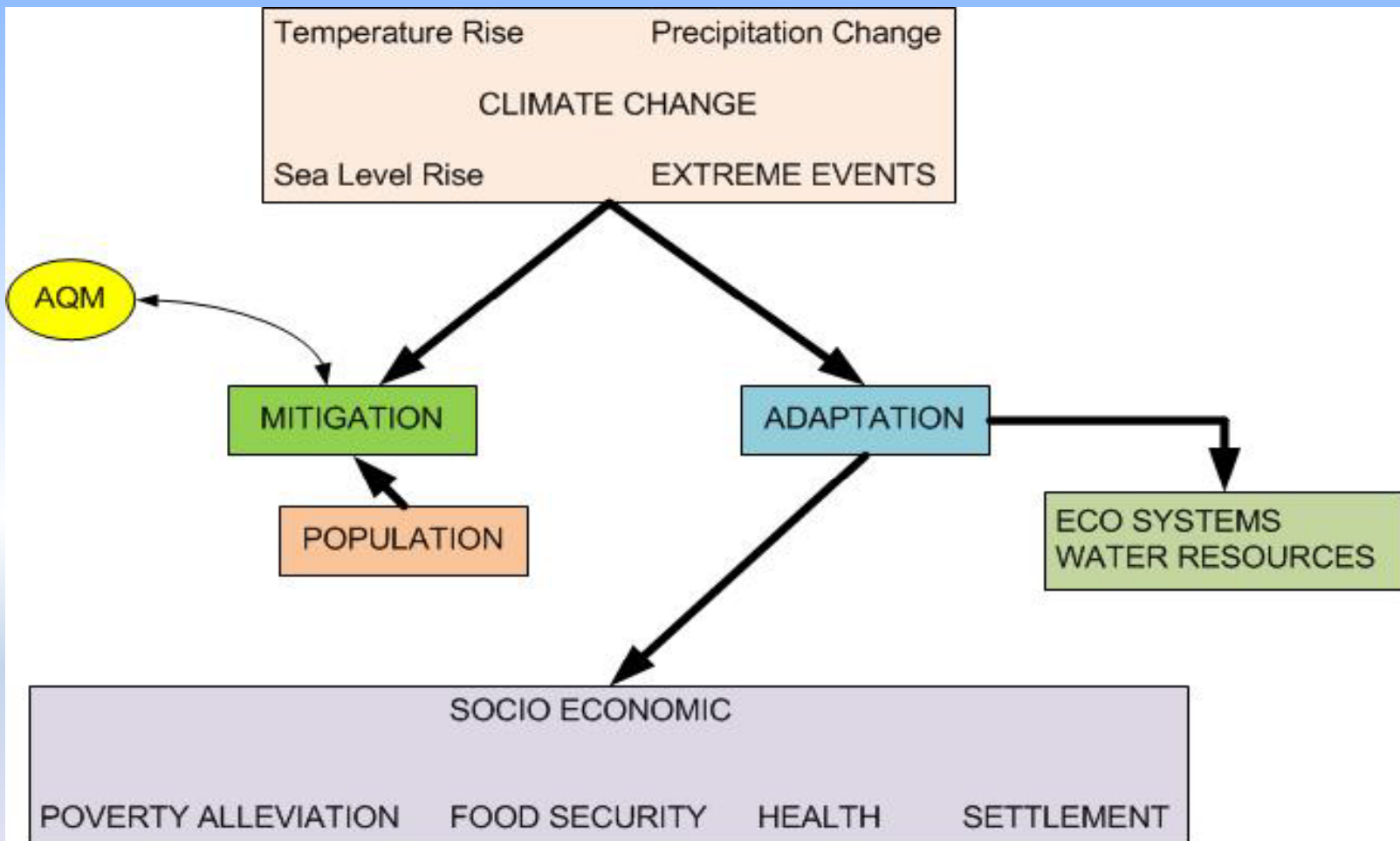
IV. CHALLENGES

V. SUMMARY: THE WAY FORWARD



SETTING PRIORITIES: MITIGATION OR ADAPTATION IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

Schematic Framework



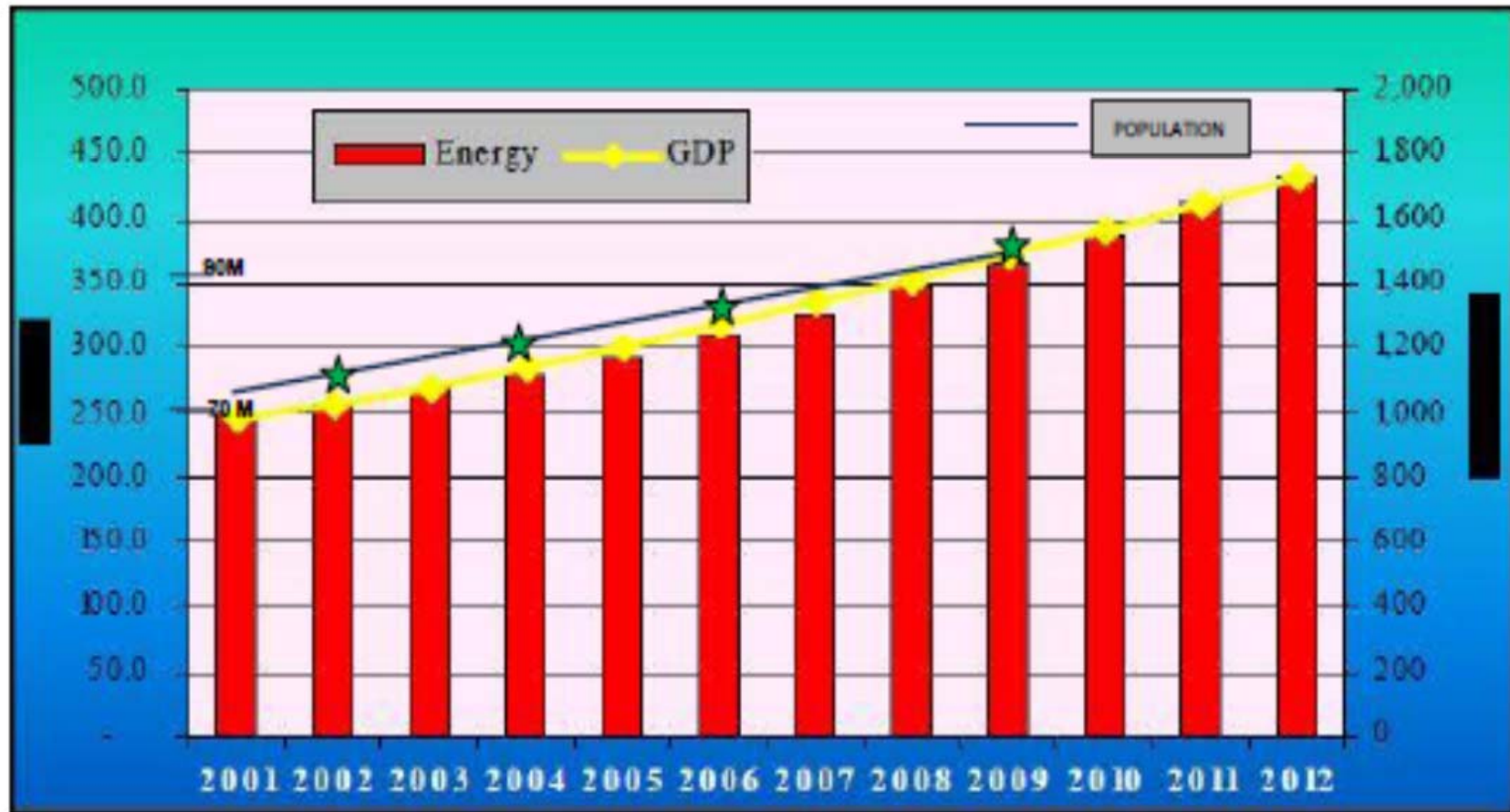
BASELINES

INDICATIVE COMPARISONS OF GHGs AND LULUCFs OF SELECTED COUNTRIES

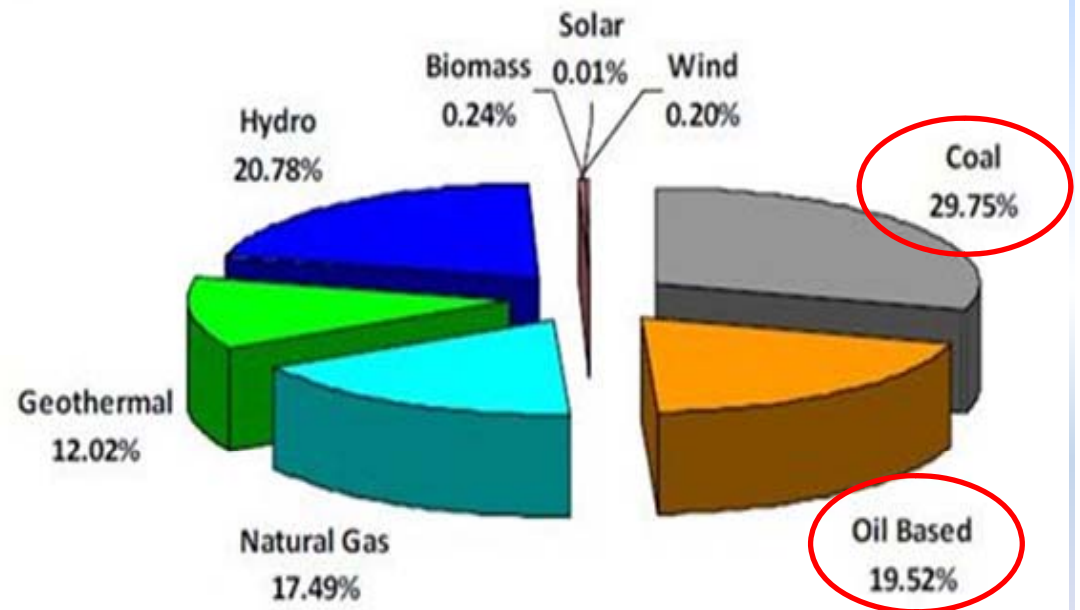
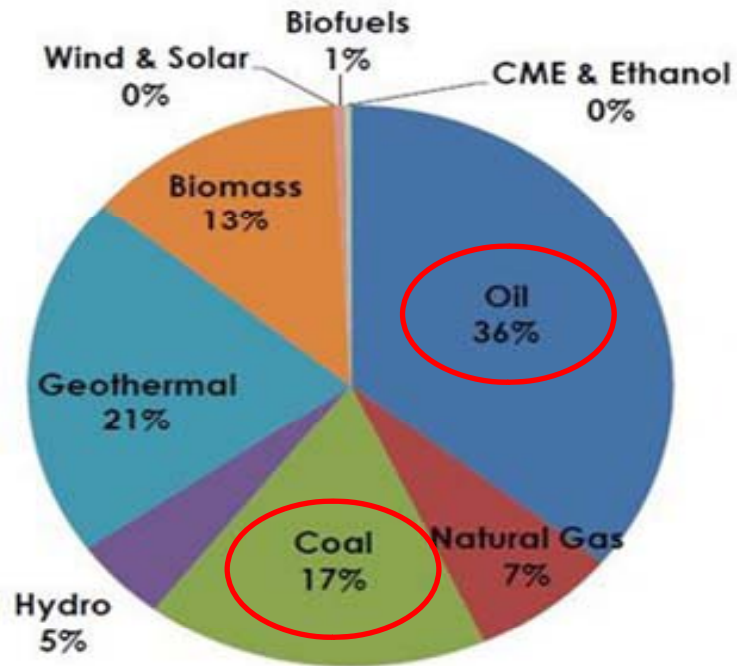
| Country | Without LULUCF (GROSS) | With LULUCF | LULUCF % of GROSS |
|-----------------|------------------------|---------------|-------------------|
| U.S.A. 2008 | 6,924,556 | 6,016,408 | 13.11 % |
| Australia 2009 | 564,500 | 545,800 | 3.31 % |
| China 1994 | 3,073,000 | 2,665,521 | 13.25 % |
| Brazil 2005 | 883,300 | 2,022,700 | -129 % |
| Phi 2000 | 126,879 | 21,767 | 82.84% |



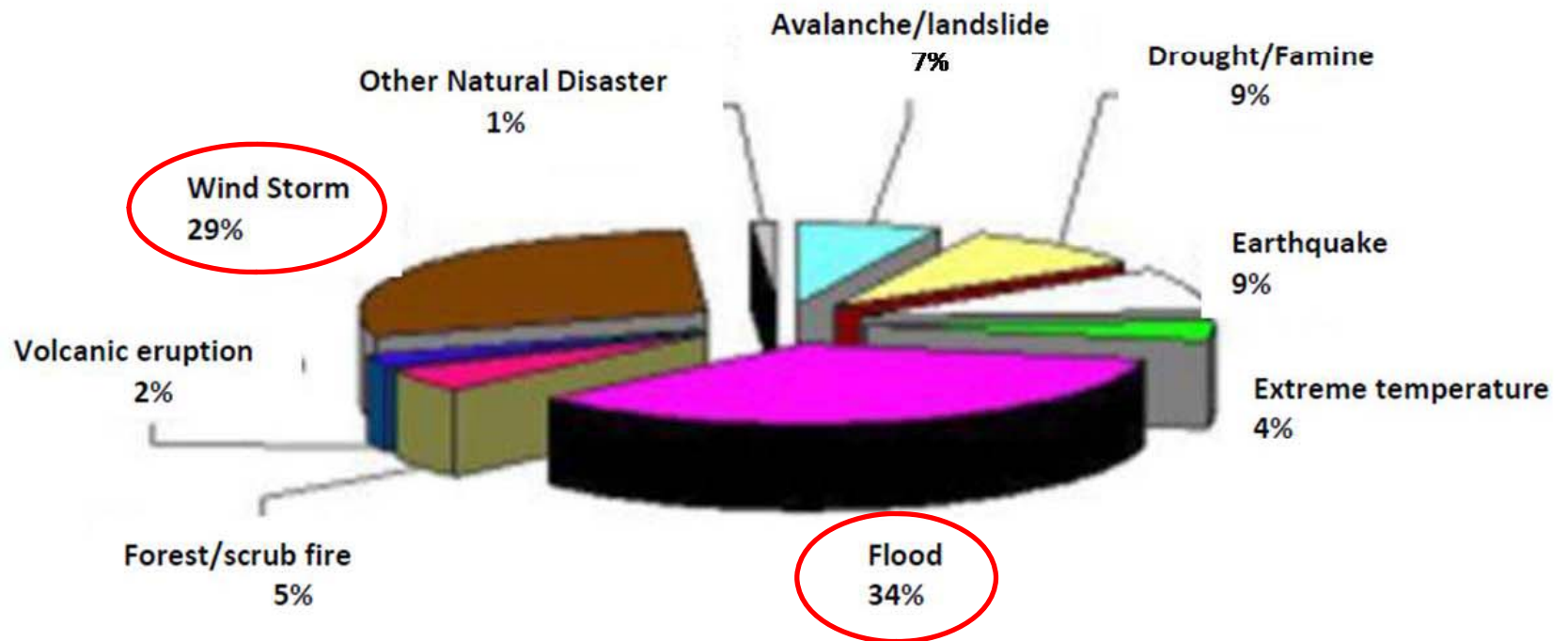
PHL ENERGY GDP AND POPULATION



PHL ENERGY MIX



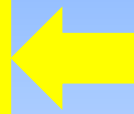
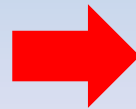
CLIMATE CHANGE IMPACTS - PHL



NATURAL DISASTERS



Typhoon Ondoy
September 30, 2009



Typhoon Pedring
September 27, 2011



CONTINUATION...

DRIVERS FOR MITIGATION

THE TWO CSRs

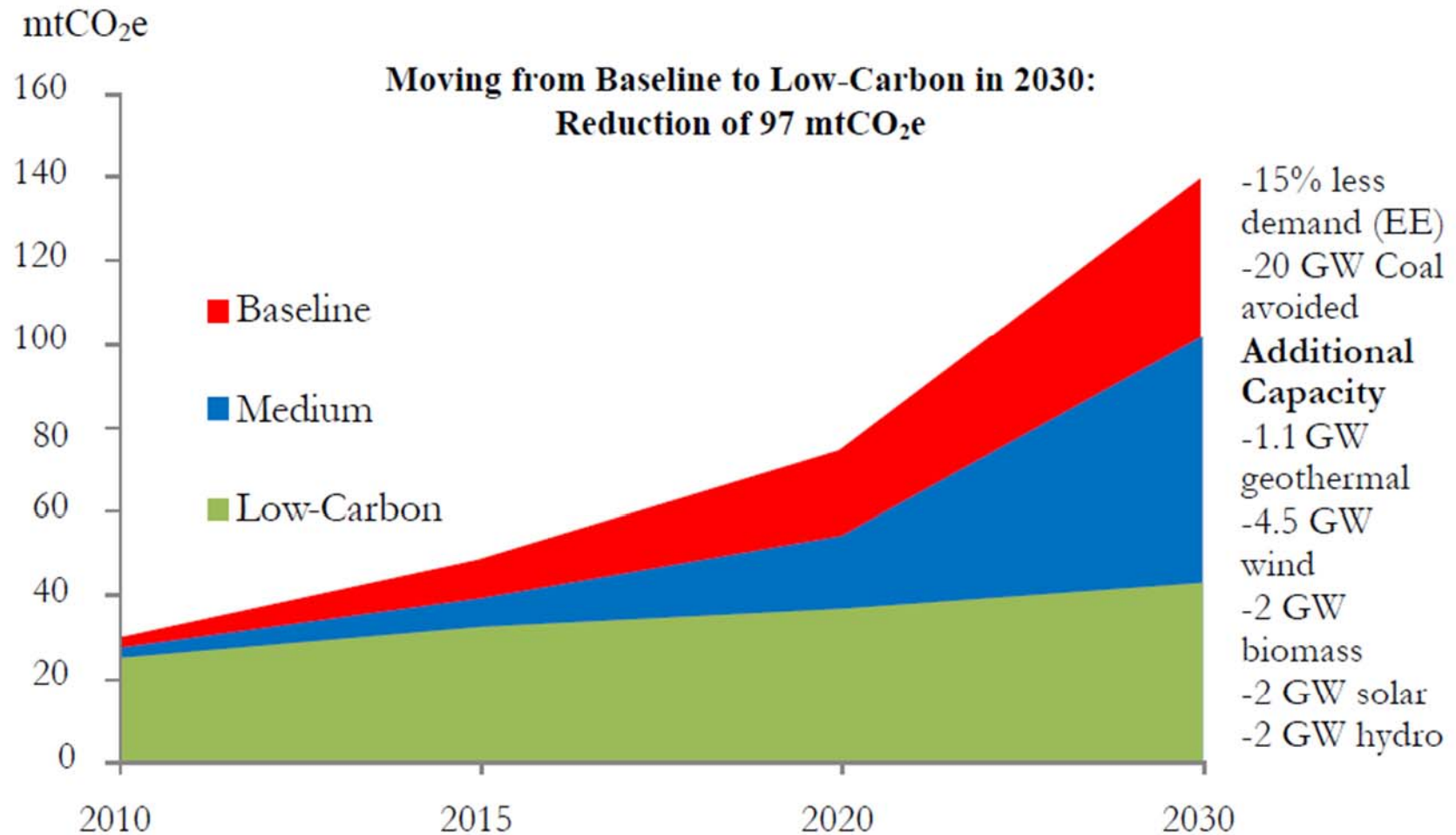
- **Country** Social Responsibility
 - A Responsible member of the family of nations
- **Corporate** Social Responsibility
 - Imbedded in Philippine business and industry

CO-BENEFITS (IPCC FAR 2007 7.10)

- reduced emissions, especially local air pollutants
- reduced emissions and waste (which in turn reduce environmental compliance and waste disposal costs)
- increased production and product quality
- improved maintenance and operating costs
- an improved working environment
- other benefits: decreased liability, improved public image and worker morale, and delaying or reducing capital expenditures



MAJOR GHG MITIGATION ACTIONS / OPPORTUNITIES MOVING TO LOW CARBON



**FROM FOSSILS TO RENEWABLE ENERGIES:
“LEAP FROM FRAGMENTED AND HALTING TO
FOCUSED INITIATIVES”**

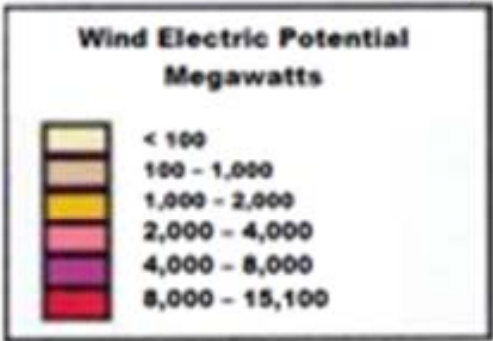
| Resource | No. of Projects | Installed Capacity (MW) |
|-----------------|------------------------|--------------------------------|
| Biomass | 16 | 166 |
| Geothermal | 21 | 2,579 |
| Solar | 2 | 31 |
| Hydro | 126 | 937 |
| Ocean | 3 | 11 |
| Wind | 45 | 921 |
| Total | 213 | 4,645 |



WIND ELECTRIC POTENTIAL
Moderate-to-Excellent Wind Resource (Utility Scale Classification)



The Philippine Total – 173,650MW



CO-BENEFITS AND OTHER ACTIONS

- R.E. → ENERGY SECURITY
- **TRAFFIC MANAGEMENT** → AQM
- **TREE GROWING** → ENVIRONMENTAL
- **WASTE-TO-ENERGY** → ECONOMICS
- **DEMAND SIDE MANAGEMENT** → ECONOMIC GAINS



CHALLENGES ASSOCIATED WITH OTHER OPTIONS



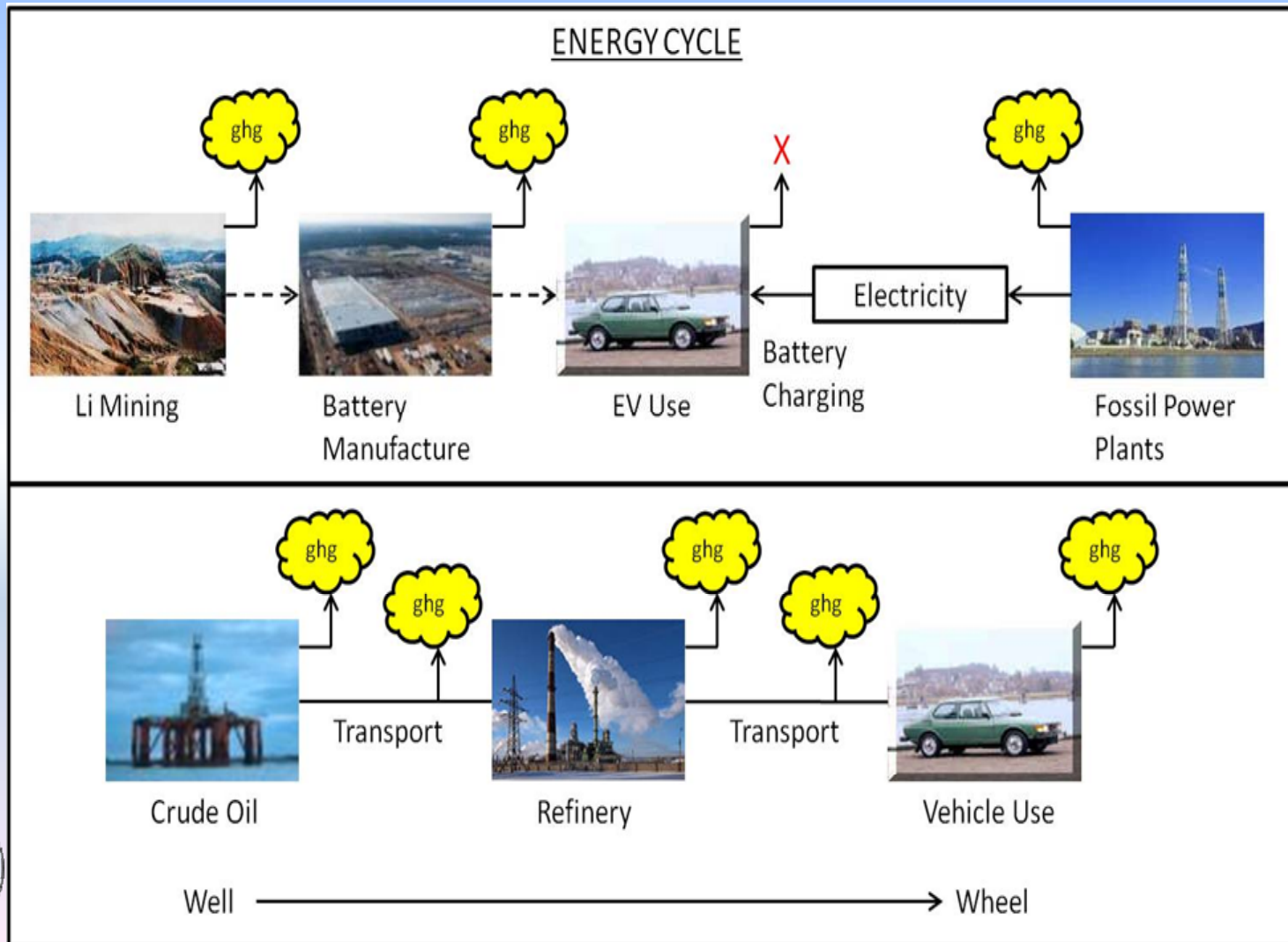
ELECTRIC VEHICLES (EVs)

- FOREIGN ASSISTED PILOT PROGRAMMES



ELECTRIC VEHICLES (EVs)

- GHG REDUCTION AS PRIMARY DRIVER
 - EVs NOT ZERO EMISSION ← LCA



CHALLENGES TO EVs

- ❑ NET GHG COMPARATIVE EMISSIONS
- ❑ INITIAL PHL ACADEME STUDY
 - FOSSILS - WELL TO WHEEL
 - EVs – MINE TO WHEEL
- ❑ ENERGY EFFICIENCY – KEY
- ❑ ENERGY SECURITY ISSUE – Lithium Ion (Li)



ALTERNATIVE TRANSPORT FUELS - CHALLENGES



BIOETHANOL

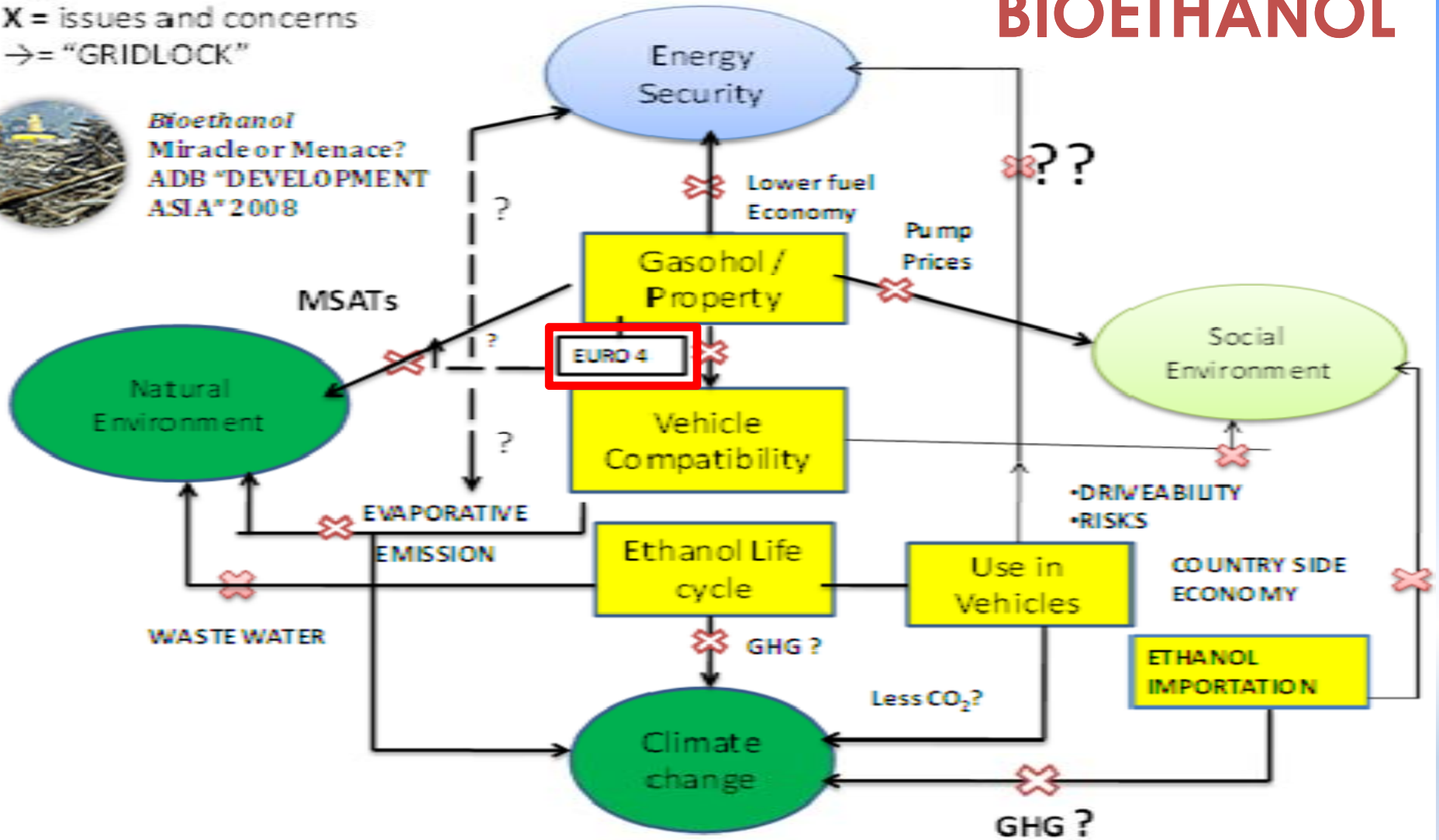
Legend:

X = issues and concerns

→ = "GRIDLOCK"



*Bioethanol
Miracle or Menace?
ADB "DEVELOPMENT
ASIA" 2008*



- ❑ CONFLICT WITH EURO 4 SPECIFICATIONS and PHILIPPINE CLEAN AIR ACT
- ❑ CLIMATE CHANGE - FRIENDLY GASOLINE RON BOOSTERS AVAILABLE



CHALLENGES TO MITIGATION ON A GLOBAL SCALE

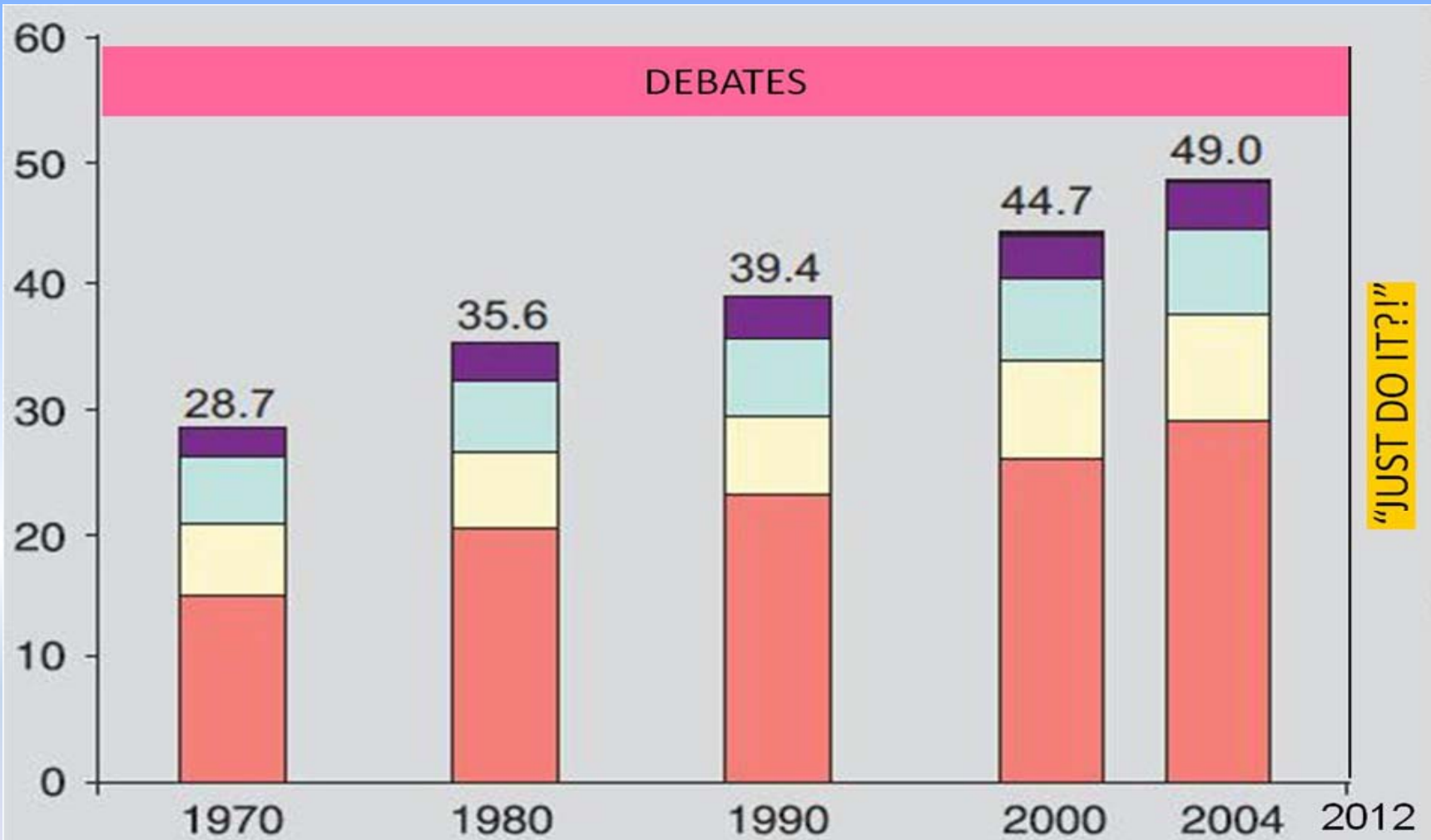
- TIME NOT ON OUR SIDE

WHILE DEBATES CONTINUE, PLANET'S
RESPONSE TO GHG REDUCTION =

S - L - O - W



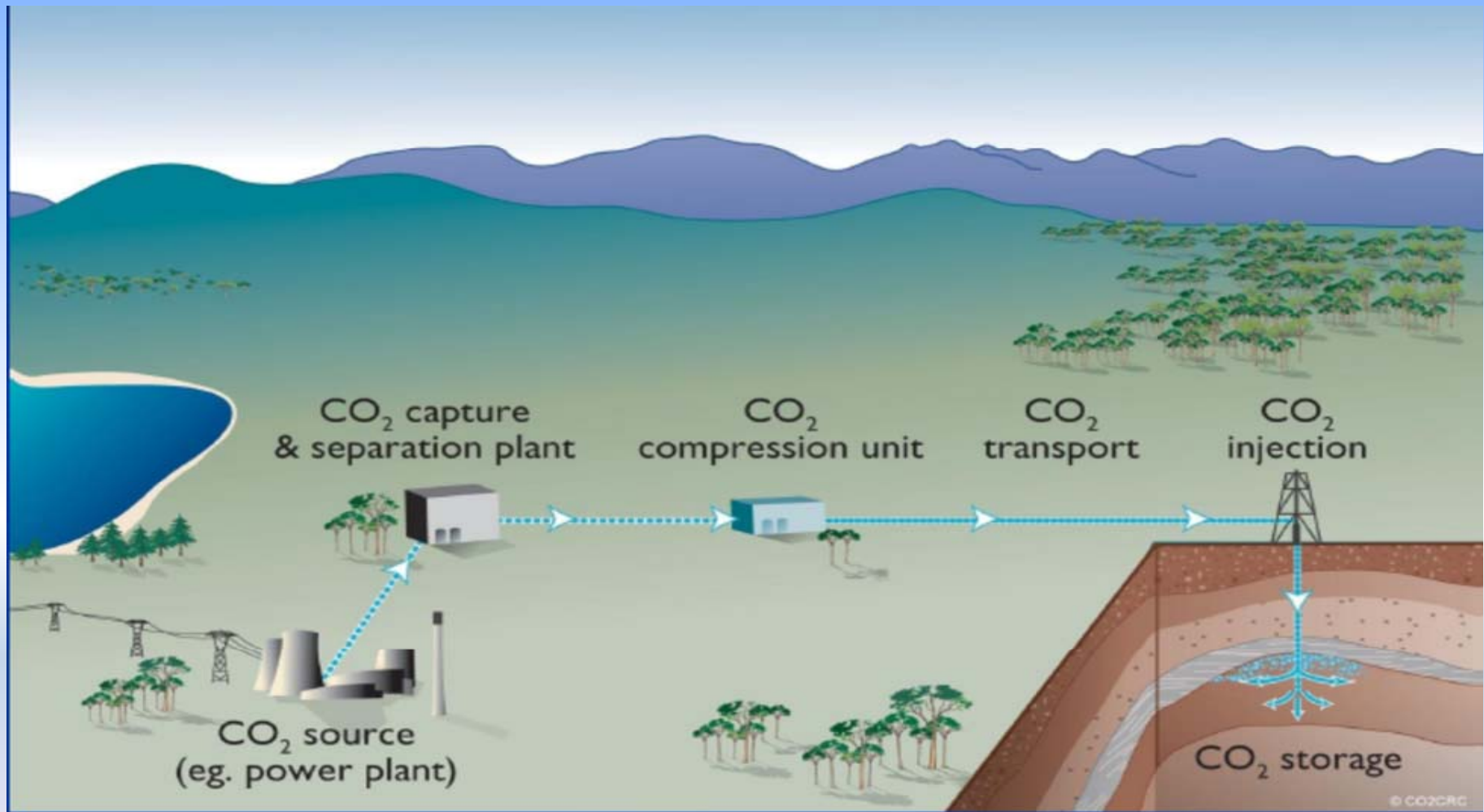
HUMANS ACT, PLANET REACTS



- *IT WILL SIT WELL WITH EMERGING ECONOMIES THAT DEVELOPED COUNTRIES DEMONSTRATE DEFINITIVE IMMEDIATE POSITIVE ACTIONS.*
- *“CORRECT MISTAKES” VERSUS “WRONG MISTAKES” (No Regret Principle)*
- *INCENTIVES OFFERED EMERGING ECONOMIES SHOULD BE WELL UNDERSTOOD BY KEY SECTORS IN AN ECONOMY.*
- **IMPACTS ON ECONOMY/POVERTY OF ACTIONS THAT HAVE NO CO-BENEFITS SHOULD BE WELL STUDIED.**



Global Solutions For Local Conditions CCS BY GEOSEQUESTRATION-FEASIBLE?



COMMON **BUT** DIFFERENTIATED RESPONSIBILITIES AMONG NATIONS

- EQUATE TO SHARE IN WORLD GHG'S
- GHG'S ARE INDIVIDUAL COUNTRY'S

BUT DISASTERS RESPECT NO BOUNDARIES



SOCIO-CULTURAL ASPECTS

ROLE OF THE CITIZENS

PHILIPPINES

POPULATION

- SENSITIVE BUT REAL ISSUE



Phl is 12th most populous country

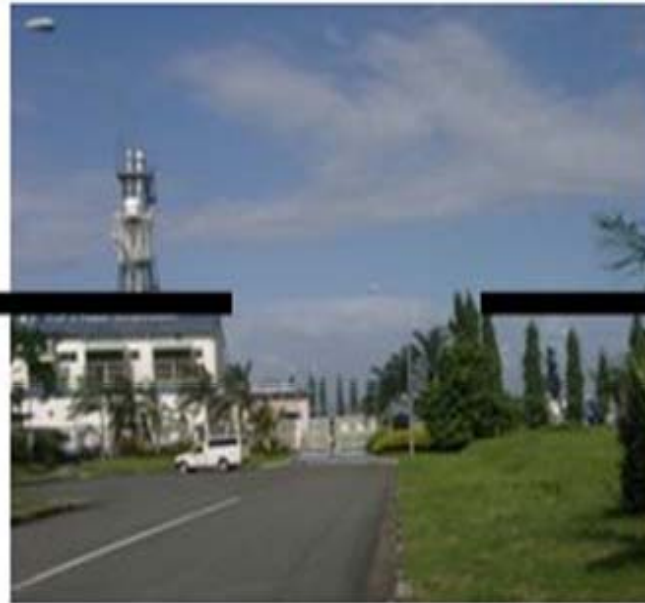


CULTURE AND LIFESTYLE/BEHAVIOR: THE SHOPPING MALL COMPLEX

75.000 MT/Year CO₂



A SHOPPING MALL



A 20 MW POWER PLANT



BASELINES => KEY TO MITIGATION

“Know the Problem Before You Solve It”
(The Authors)

“You Cannot Manage What You Don’t
Know” (PhI Presidential Adviser on
Environmental Protection)



BETTER UNDERSTANDING OF LULUCF: CO₂ TRANSPORT TO NATURAL SINKS including oceans?



- **CONCEPT OF HOMOGENEITY: CO₂ MOLECULES ALREADY LONG PERSISTENT VS. CO₂ MOLECULES JUST GENERATED**



OTHER BASELINES

- RESPONSIBILITY OF AVIATION INDUSTRY

GHG AVIATION \approx GHG ASEAN COUNTRIES

- OTHERS : HOW ABOUT **BLACK C?**



MOVING FORWARD

- ❑ SUSTAINABLE DEVELOPMENT IN AN EMERGING ECONOMY
 - **MITIGATION WITH CO-BENEFITS (AQM)**
- ❑ GLOBAL SOLUTIONS \neq LOCAL CONDITIONS
- ❑ COMMON BUT DIFFERENTIATED RESPONSIBILITIES OF NATIONS
- ❑ TIME NOT ON OUR SIDE: ANTHROPOGENIC EFFECTS REMAIN *FOR CENTURIES EVEN IF GHG WERE STABILIZED* DUE TO TIME SCALES WITH CLIMATE PROCESSES (Source: IPCC SYNTHESIS REPORT)



❑ “JUST DO IT” STRATEGY?

- “CORRECT MISTAKE” VERSUS “WRONG MISTAKE”

❑ REVISIT GHG BASELINE INVENTORIES

- *“KNOW THE PROBLEM BEFORE YOU SOLVE IT”*

❑ SOCIAL

- PEOPLE CAN CHANGE, THE PLANET WILL NOT.



SCIENCE

- IS THE FINAL ARBITER
OF ISSUES



MARAMING SALAMAT PO!

THANK YOU!

