THE PHILIPPINES' ENVIRONMENTALLY SUSTAINABLE TRANSPORT (EST) FUTURE: **CHALLENGES AND OPPORTUNITIES IN STRENGTHENING LOCAL EST INITIATIVES**

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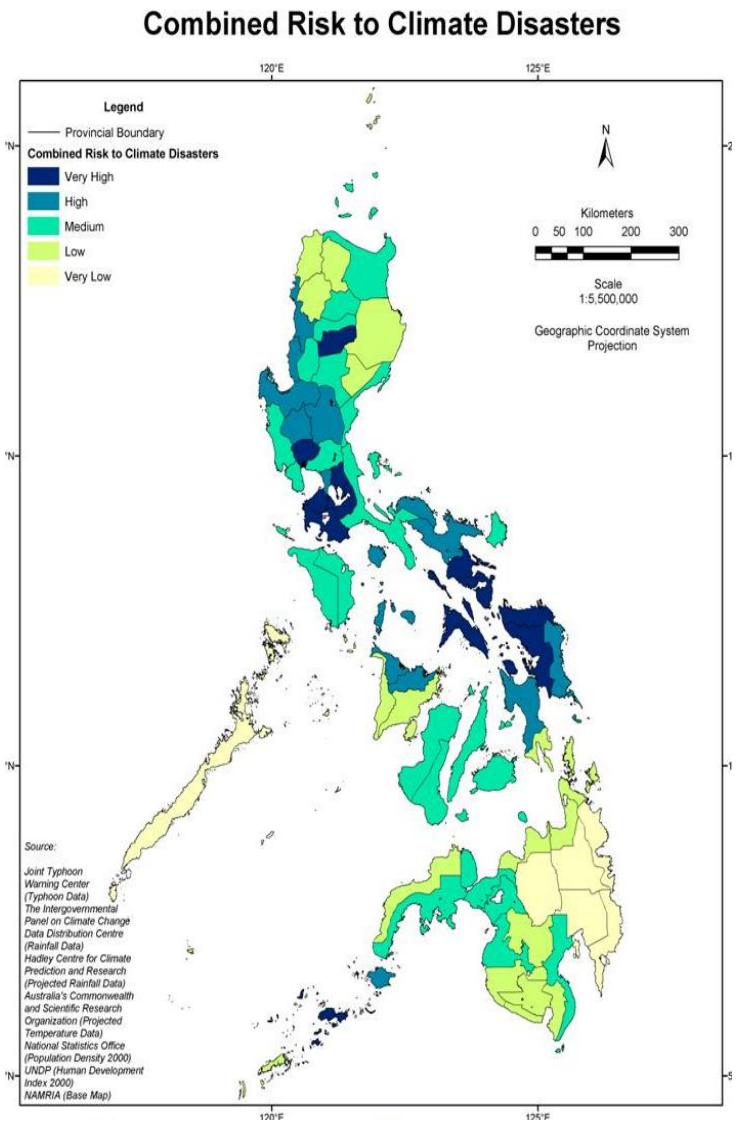
PHILIPPINES CC COUNTRY PROFILE

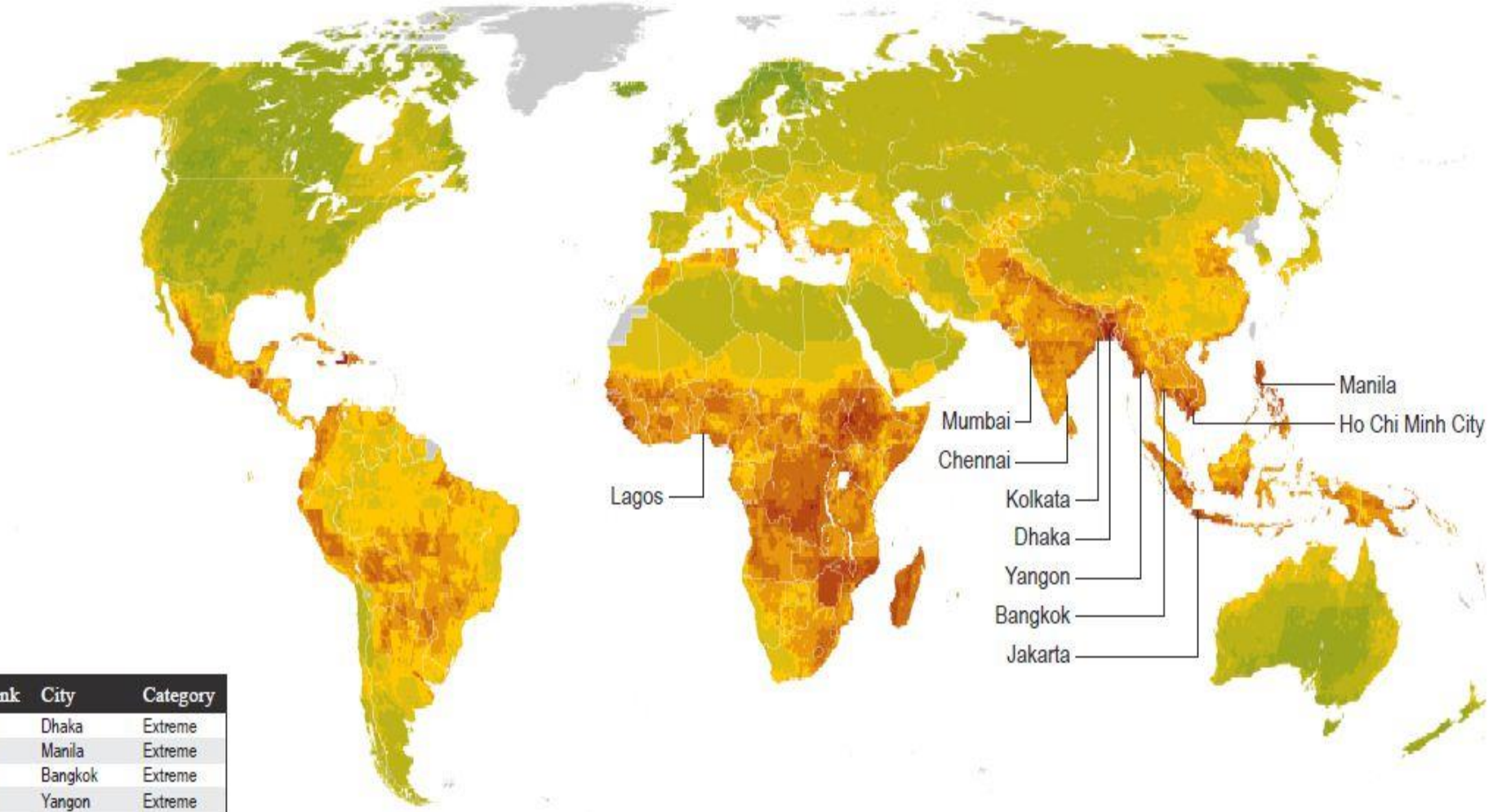


Map Source: The Manila Observatory

- Population : 92.33 million (2010 census)
- Archipelagic Country with 64 of its 79 provinces are coastal; roughly 2/3 population living along coastal and floodplains
- Average of 19-20 typhoons annually
- GHG Emissions :
  - Year 2000 GHG Emissions: 21,767.41 GgCO2e
  - Emission per capita (2011) : 1ton CO2
- Energy use per capita : 542 kg oil equivalent
- Forest Area : 24 % of Land area
  - High annual rate of deforestation 2.2 %
- Already prone to natural disasters – 3rd most vulnerable to disaster risks and natural hazards; 10h most vulnerable to climate-related disasters (1991-2010)

Climate Change Vulnerability Index 2013 – Most at risk cities

maplecroft
risk responsibility reputation



Rank	City	Category
1	Dhaka	Extreme
2	Manila	Extreme
3	Bangkok	Extreme
4	Yangon	Extreme
5	Djakarta	Extreme
6	Ho Chi Minh	Extreme
7	Kolkata	Extreme
8	Mumbai	High
9	Chennai	High
10	Lagos	High

Legend

Low Risk — Extreme Risk

NATIONAL FRAMEWORK STRATEGY ON CLIMATE CHANGE

Adaptation Pillar

Long – term objective:

To build the adaptive capacity of communities and increasing the resilience of national ecosystem to climate change.

Key Result Areas (Objectives and strategic priorities per KRA are outlined in the NFSCC)

- Enhanced Vulnerability and Adaptation Assessment
- Integrated Ecosystem-based Management
- Water Governance and Management
- Climate-responsive Agriculture
- Climate-responsive Health Sector
- Climate-Proofing Infrastructure
- Disaster Risk Reduction

Mitigation Pillar

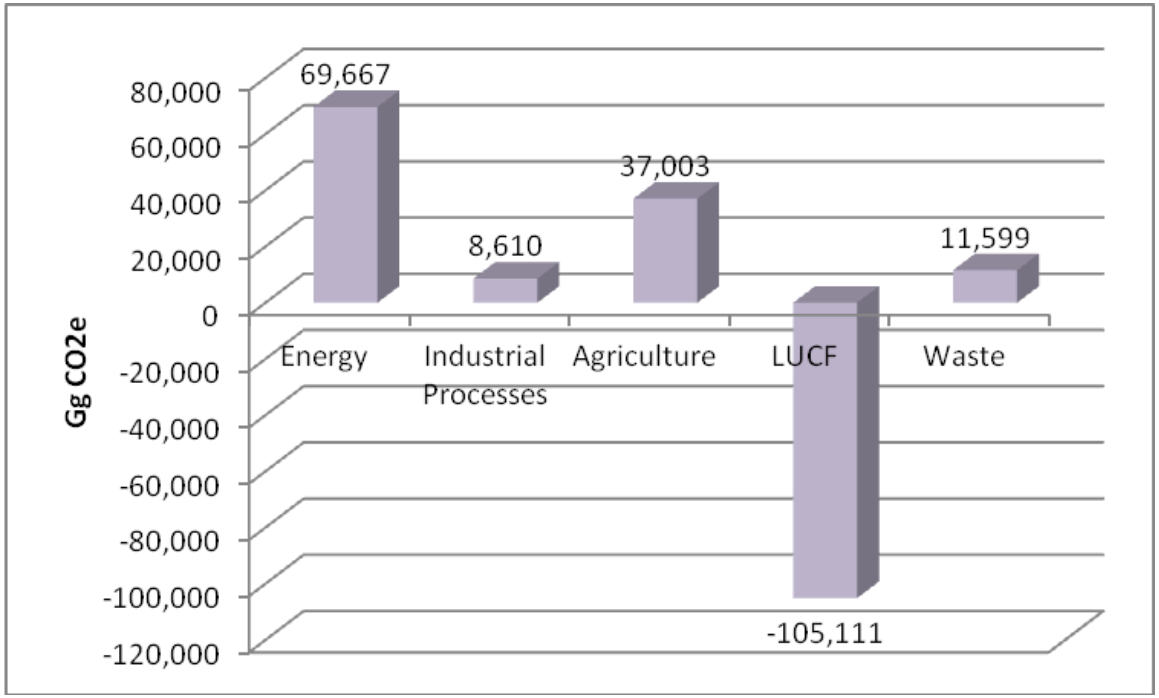
Long – term objective:

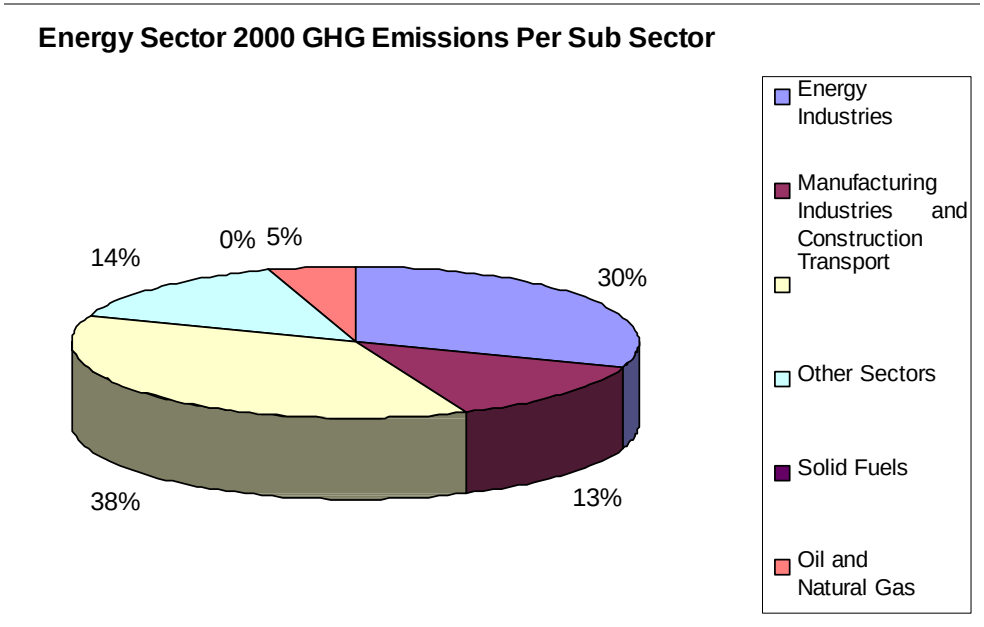
Facilitate the transition towards low greenhouse gas emissions for sustainable development.

Key Result Areas (Objectives and strategic priorities per KRA are outlined in the NFSCC)

- **Energy efficiency and Conservation**
- Renewable Energy
- **Environmentally Sustainable Transport**
- Sustainable Infrastructure
- National REDD + Strategy
- Waste management

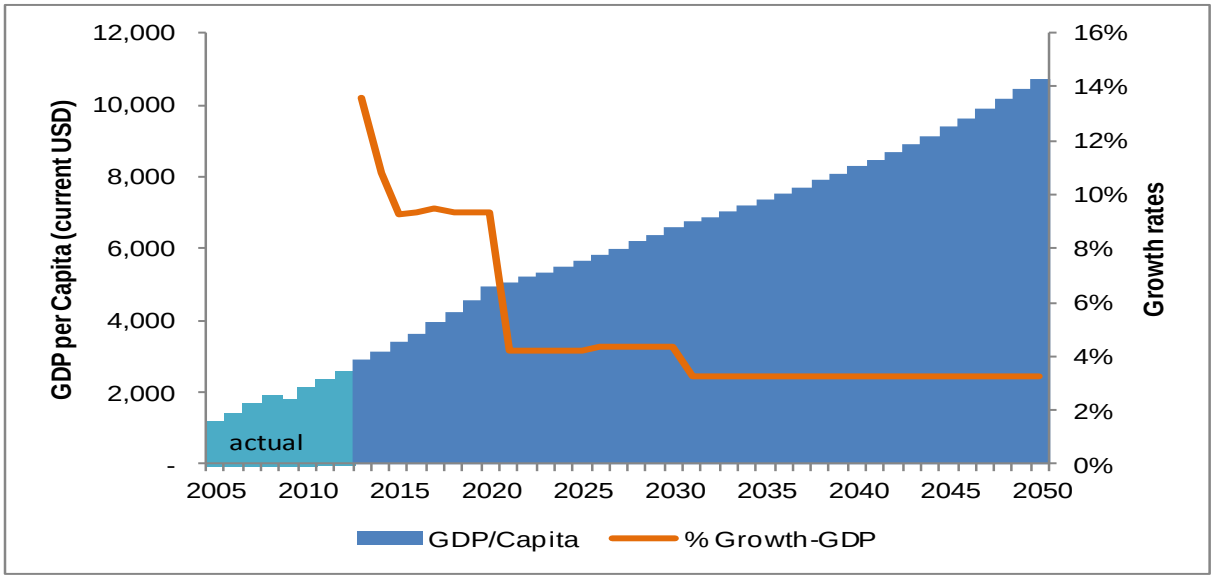
National GHG Inventory: Second National Communication of the Philippines



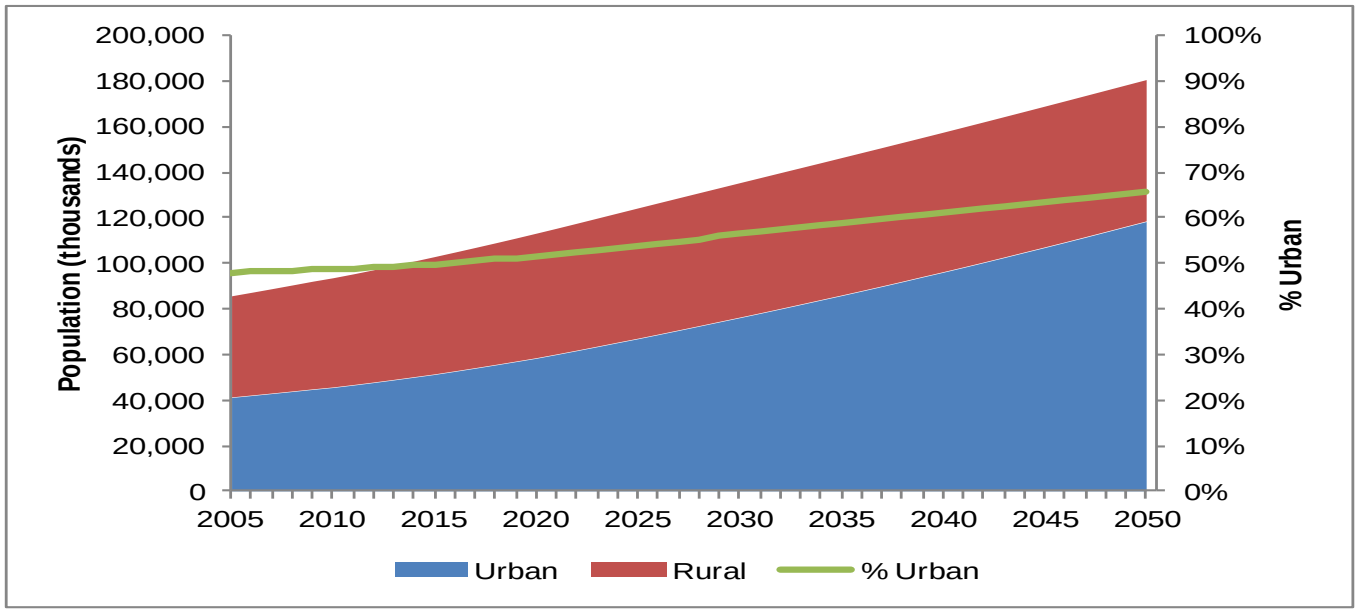


The Energy Sector accounts for the biggest source of emissions. Transport sector accounted for 38% of the energy sector GHG emissions

POPULATION AND URBANIZATION



GDP PER CAPITA and ECONOMIC GROWTH



WHERE ARE WE?

http://upload.wikimedia.org/wikipedia/commons/7/71/Jeepney.jpg

http://upload.wikimedia.org/wikipedia/commons/d/d2/PNR_Sucat_train.jpg

http://img805.imageshack.us/img805/3138/motrocyclelane002.jpg

http://vulcanpost.com/wp-content/uploads/2013/12/mrt-lrt.jpg

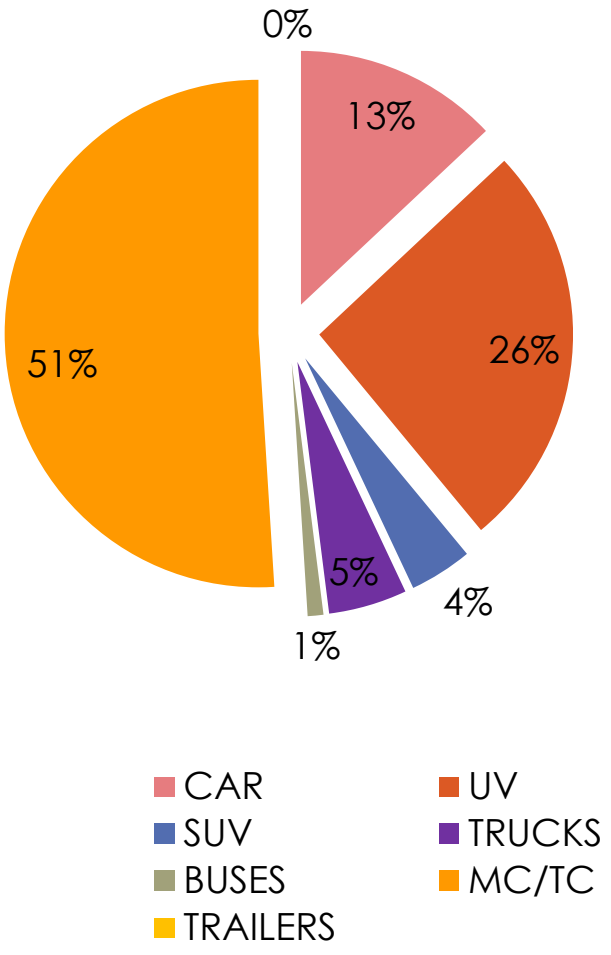
http://boholislandtravel.com/images/super_01.jpg

http://www.littlenomads.com/wp-content/uploads/2010/02/Philippines-Airlines.jpg

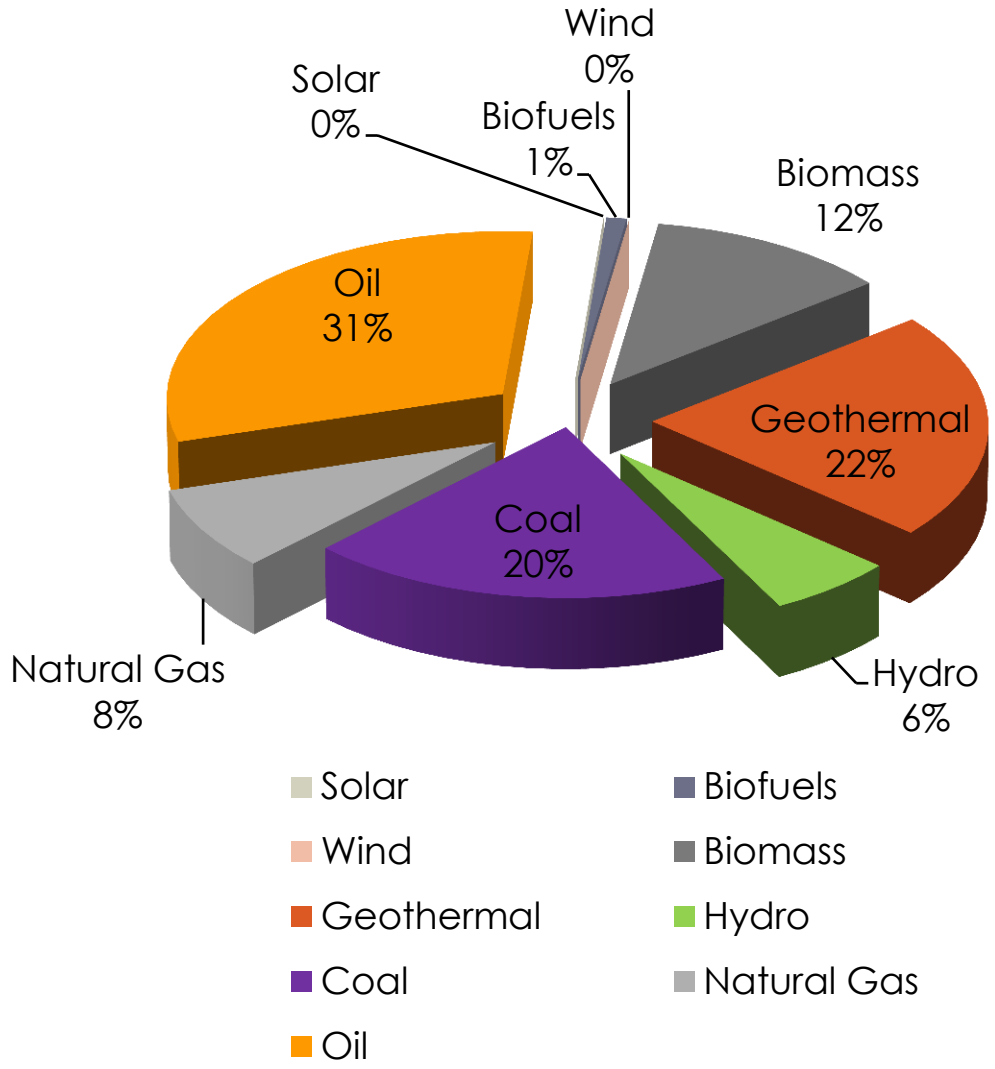
http://2.bp.blogspot.com/-bNxnBOSpRjw/T5dhZjWi8BI/AAAAAAAACNE/uq_Is2WUJdE/s1600/RSCN5459.JPG

http://www.destination360.com/asia/philippines/images/s/transportation.jpg

PRESENT TRAFFIC VOLUME



PHILIPPINE ENERGY MIX



THE MANILA TRAFFIC

http://newsinfo.inquirer.net/files/2012/06/traffic24.jpg

http://automotivepartsuppliers.com/wp-content/uploads/2011/12/Slow-Edsa-Traffic1.jpg

http://media.tumblr.com/tumblr_ld2q1lOlxk1qamg0s.jpg

3Billion (P137B)
per year from lost productivity

doesn't include fuel and other vehicle costs and other externalities like health cost, etc.

NATIONAL TRANSPORT POLICY

- Public mass transportation in urban areas shall be given priority over private sector.
- High capacity public transportation system shall be the preferred mode in high passenger density corridors.
- Interconnectivity among public transport modes shall be considered in the development of the urban public transport system.
- Traffic engineering, enforcement and demand management measures… will be prioritize.
- Environment friendly transport systems shall be supported

(EO/approval expected by mid-2014

SUSTAINABLE TRANSPORT GOALS FOR 2010 - 2020

Name of Policy or Strategy	SHIFT				IMPROVE				CROSS-CUTTING STRATEGIES					
	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8	Goal 9	Goal 10	Goal 11	Goal 13	Goal 14	Goal 15	Goal 16	Goal 18	Goal 19
National EST Strategy	x	x										x		x
- Promotion of BRT system for metro cities		x										x		
- Expansion of urban rail in Metro Manila		x												
- Replacement of 2-stroke tricycles		x											x	
- Bike on Bike off - LRT	x													
Alternative Fuels														
- Biofuels as transport fuels					x									
- Natural gas for public transport					x							x		
- Autogas (LPG) program					x									
- Jeepney engine replacement to LPG					x								x	
Fuel Efficiency														
- Road Transport Patrol									x					
Nautical Highway System (RRTS)				x										
Tricycle Management														
Bikeways and Walkways Program in Metro Manila	x													
Pedestrialization of Urban Center	x													
Road User's Tax Law – Special fund for air pollution control													x	
Public transport strategic plan for Metro Cebu		x												

SUSTAINABLE TRANSPORT GOALS FOR 2010 - 2020

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	Goal 4	Goal 5	Goal 6	Goal 7	Goal 8	Goal 9	Goal 10	Goal 11	Goal 13	Goal 14	Goal 15	Goal 16	Goal 18	Goal 19
Mega Manila Public Transport Plan		x												
Motor vehicle inspection system program: Phase1 and 2							x							
Adoption of Euro regulations						x					x			
Development of an integrated road accident data base system									x					
Toll Roads			x											
Integrated Terminal System				x										
North-South Commuter Rail Project				x										
MRT 3 Capex				x										
Inland Water Transport				x										
Traffic navigator														
High Standard Highway Development Plan				x										
Automated Fare Collection System								X						
Davao Sustainable Urban Transport		x												
National Communications on Climate Change												X		

ACTION PLAN

SHIFT	
Non-Motorized Transport (NMT)	Challenges faced in implementation: - Sustainability of the program
	Pilot projects and/or policies developed under development ➢ Bike on Bike off – LRT ➢ Bikeways and walkways program in Metro Manila - Construction of bicycle trails and designated lanes connecting strategic areas in the city to major transport terminals (LRT/MRT, jeepney and bus) and urban facilities such as schools, market, church, malls, offices and recreation centers. ➢ Pedestrialization of Urban centers

ACTION PLAN

SHIFT	
Improvement of public transport services	Challenges faced in the implementation of BRT: • Lack of capacity of existing regulatory system) for the integration of BRT into the system. • Institutional/Legal barriers prevent the establishment of a sufficiently authorized entity to own and operate the Cebu BRT. • Inability to terminate or adjust the PUJ routes in the BRT corridor. • Strong resistance from the PUJ sector leads to compromises which impact on system design and effectiveness. Pilot projects and/or policies developed under development ➢ **Cebu BRT Project** ➢ **Expansion of Urban Rail in Metro Manila** ▪ **LRT 1 Cavite Extension** - Extension of the LRT Line 1 by approximately 11.7 km from its existing tail (end) tracks thru PPP. Projected to increase LRT Line 1 ridership from 566,715 passengers/day to 820,389 passengers /day by 2015 ▪ **LRT 2 East Extension** - Construction of the 4.19 km eastern extension of LRT 2. Projected to increase ridership from 218,593 passengers/day in 2012 to 335,625 passengers /day by 2015 ▪ **MRT 7** ▪ **MRT / LRT Common Station**

ACTION PLAN

SHIFT	
	▪ **Integrated Terminal System** ▪ **North-South Commuter Rail Project** ▪ **MRT 3 Capex** ➢ **Replacement of 2-stroke tricycles** ➢ **Davao Sustainable Urban Transport** - Formulation and implementation of a public transport strategy and an associated reform and modernization program for Davao City. ➢ **Nautical Highway System (RRTS)** - Development of an integrated transport system combining RORO ferry network and services with matching road system that will provide interisland vehicular connection or linkage that will facilitate the seamless movement of vehicles. ➢ **Integrated Luzon Railway** - **Development of Airport Express Link**. A new high-speed rail project linking the Ninoy Aquino International Airport (NAIA) and the Diosdado Macapagal International Airport (DMIA) - **Redevelopment of PNR Lines in Luzon** ➢ **Inland Water Transport** - Putting up ferry services along the Manila Bay coast and Laguna Lake, and assess the impact of interconnecting these with the existing Pasig River Ferry System.

ACTION PLAN

SHIFT	
Reduction of urban transport mode share of private motorized vehicles through **Transportation Demand Management (TDM) measures**, including pricing measures that integrate congestion, safety, and pollution costs,	Challenges faced in the implementation: - Social acceptability of TDM measures
	Pilot projects and/or policies developed under development ➢ **Toll Roads Project (321.3km)** ▪ Cavitex ▪ Metro Manila Sky Way (MMSW) ▪ NAIA Expressway ▪ South Luzon Expressway (SLEX) ▪ North Luzon Expressway (NLEX ▪ Southern Tagalog Arterial Road (STAR) ▪ Subic-Clark-Tarlac Expressway (SCTEX) ▪ Subic-Tipo Expressway (NLEX Segment 7)

ACTION PLAN

IMPROVE	
Diversification towards more sustainable **transport fuels and technologies.**	Challenges faced in the implementation: • The current CNG Market is small com[pared to objectives of programme. Currently there are only 55 PUBs able to operate on CNG and the capacity of the existing DS is limited to 70 vehicles per day. • Existing PUB operators are not being sufficiently attracted to the conversion programme despite preferential rates and other incentives. Pilot projects and/or policies developed under development ➢ **Biofuels Program** ➢ **Natural Gas for Public Transport** - Promotion of the utilization of Compressed Natural Gas in the transport sector in consonance with the goal of ensuring fuel supply diversification and supply security. ➢ **Autogas (LPG) program** - Conversion of gasoline and diesel engines of taxis to LPG powered engines in Metro Manila to Mitigate air pollution caused by emission from mobile source through the use of cleaner or alternative fuel for public transport. ➢ **Jeepney engine replacement to LPG** - Conversion of gasoline and diesel engines of PUJs to LPG powered engines to mitigate air pollution caused by emission from mobile source through the use of cleaner or alternative fuel for public transport and assist PUJs drivers/operators to cope with the rising prices of conventional fuel.

ACTION PLAN

IMPROVE	
Vehicle inspection and maintenance (I/M)	Pilot projects and/or policies developed under development ➢ **Motor Vehicle Inspection System Program:** - The project involves the establishment of infrastructure and implementation of a systematic and comprehensive minimum of 3-lane vehicle testing system (MVIS Center) for vehicle road safety and emissions in NCR, Region 1, 2, 3, 4-A, 6, 7, 10, 11 & 12 with a total of 35 lanes. - The program aims to expand of all MVIS, at least 3-lane Motor Vehicle Inspection Center (1 Heavy Motor Vehicle Lane, 1 Light Motor Vehicle Lane, and 1 Motorcycle Lane) to all regions and key cities of the country.
Intelligent Transportation Systems (ITS),	Pilot projects and/or policies developed under development ➢ **Automated Fare Collection System** Development and implementation of a contactless and integrated automatic fare collection system in LRT Lines 1 and 2 and MRT 3 to replace the existing magnetic stripe collection technology for both single journey and stored value tickets ➢ **Traffic Navigator**

ACTION PLAN

CROSS-CUTTING	
Transport Safety	Pilot projects and/or policies developed under development ➢ **Road Patrol Transport** - LTO's designated Anti-Smoke Belching Units to establish a roadside inspection system and ensure that vehicles comply with the in-use emission standards set forth by the Department of Trade and Industry (DTI) together with the Department of Transportation and Communications (DOTC). ➢ **Development of an Integrated Road Accident Database System** - Establishment of an integrated road accident database and analysis system for the Philippines. - It will deal with issues on accurate data collection, individual agency data needs, processing, analysis, storage, and data management.
Financing mechanisms for sustainable transport infrastructure	Challenges faced in the implementation: - Regulatory barriers on the utilization of SVPCF Funds to finance engine replacement program
	Pilot projects and/or policies developed under development ➢ **Road User's Tax Law- Special fund for air pollution control** - An Act imposing a Motor Vehicle User's Charge on Owners of All types of motor vehicles and for other purposes. Seven and one half percent (7.5%) of the revenue shall be allotted to and placed in the Special Vehicle Pollution Control Fund. ➢ **Replacement of 2-stroke tricycles** ➢ **Jeepney Engine Replacement to LPG**

ACTION PLAN

CROSS-CUTTING	
information and awareness on sustainable transport to all levels of government and to the public through outreach, promotional campaigns, timely reporting of monitored indicators, and participatory process	Pilot projects and/or policies developed under development ➢ **Formulation of National EST Strategy** Website : **http://www.ncts.upd.edu.ph/est**
Car-less day, and Carpooling Program	

Draft National Implementation Plan

Objectives:

- Establish measures and plan of actions to realize low carbon and low pollution transportation system in ASEAN

Expected outcomes:

- PM10 reduction by 30% in 2011 in Metro Manila.
- Reduction by PM10 by around 12 to 16 tones per day due to MVIS and operation of 4 stroke tricycles
- Reduction of PM10 by around 11 tons per day due to Urban Rail Expansion
- 10% reduction of VKT of CO2 by public transport route rationalization (by 2015)
- 30% reduction in VKT of CO2 through Demand Management Measure and improve public transportation (by 2015)
- 20% reduction in VKT of CO2 through better freight and logistics management (by 2015)

"We cannot improve something without measuring"

LECB Project

- Establish an NGHG Inventory Systems
- Formulate NAMAs roadmaps
- Design an MRV System

FUTURE OF EST IN THE PHILIPPINES

National EST Strategy for the Philippines
formed in 2011

- Reduce annual growth rate of:
  - Energy Consumption
  - Greenhouse Gas
  - Air Pollutant Emissions
- Enhance Mobility through low emission transport

FUTURE OF EST IN THE PHILIPPINES

Transport systems that are:

INTEGRATED

EFFECIENT

EFFECTIVE

ENVIRONMENTALY SUSTAINABLE

RESPONSIBLE TO THE CHANGING TIMES

NEXT STEPS

http://newsroom.scania.com/en-group/files/2009/11/buses-transporting.png

http://resources0.news.com.au/images/2013/11/08/1226756/190860-light-rail.jpg

http://assets.inhabitat.com/wp-content/blogs.dir/1/files/2013/09/suwon-ecomobility-festival-537x357.jpg

http://www.narendramodi.in/wp-content/uploads/2012/07/brts-inner1.jpg

EST will create opportunities that includes the following:

- improved public health
- reduced traffic noise
- road safety
- livable and sustainable environment

THANK YOU!
ARIGATOU GOZAIMASU