

DAY 2 (February 21, 2018)



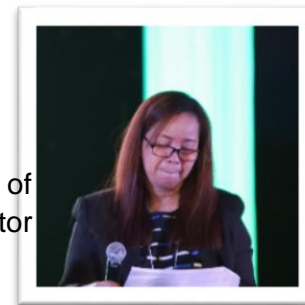
The second day opened with thoughtful multi-sectoral prayers led by **Philip Neri Estocada**, President of Rotary Club Mandaue East for the NGOs, **Johnie Lim**, Owner and CEO of Body and Sole for Business, and **Sr. Maria Luisa B. Javier, DC**, Chairperson of Association of Religious Women of Cebu for the Religious sector. They sought the blessing of the Grand Creator for the noble undertaking of preserving and conserving the environment.



The Opening prayer was followed by a lively folk dance by the **University of San Carlos Performing Arts**.



Recap of Day 1 was delivered by the emcees, **Voltaire Alferez**, Executive Director of Community Crafts Association of the Philippines and **Jessica M. Avenido**, Coordinator of Journal Publication of University of San Jose Recoletos.





Fr. Franklin Pilario touched the audience's hearts with his discussion on the Heart of Laudato Si. He linked human's personal relationship to nature with God and with our spiritual responsibility. The history of our friendship with God is always linked to particular places in nature that takes on an intensely personal meaning. It evokes feelings of joy and awe. He then links this to spirituality and our sense of responsibility in keeping the dynamic tension between "tilling and keeping" (Gen. 2:15), between developing a place and keeping it wild. To illustrate, he lifted a line from Laudato Si, "St. Francis asked that part of the friary garden always be left untouched, so that wild flowers and herbs could grow there, and those who saw them could raise their minds to God, the Creator of such beauty."

He summed up Laudato Si under four key themes: (1) Our Common Home and what we have done to it; (2) We are not "God," our excuse for plundering Nature's wealth. He stressed the need to imbibe the value of respect for the living environment, recognize its inalienable legal rights to live and flourish, independent of its utilitarian instrumental benefits for human use; (3) Everything is Interconnected. He illustrated how "a good part of our genetic code is shared by many living things" (LS 138) and the concept of intergenerational solidarity; and (4) The Conversion to the Beautiful - the need to have common lines of structural action: one common action, care for the global commons and differentiated responsibilities; "The countries which have benefited from a high degree of industrialization, at the cost of enormous emissions of greenhouse gases, have a greater responsibility for providing a solution to the problems they have caused" (LS, 170). Fr. Pilario ended his talk with a sense of hope. Through ecological conversion, using the heart of Mother Earth, things can change.

POWERPOINT PRESENTATION

Daniel Franklin Pilario, CM
St. Vincent School of Theology
Adamson University

THE HEART OF LAUDATO SI'

1 Introduction

"The history of our friendship with God is always linked to particular places which take on an intensely personal meaning; we all remember places, and revisiting those memories does us much good.

"Anyone who has grown up in the hills or used to sit by the spring to drink, or played outdoors in the neighborhood square; going back to these places is a chance to recover something of their true selves." (LS, 84)



Remember a concrete place in nature during your earlier years (backyard, garden, farm, beach, stream, etc.) that evokes great feelings of joy and awe.



1. "Oikos" – home, something familiar, close to one's heart, something personal, spiritual.
1. Spirituality is in a place, located in space.
1. Keeping the dynamic tension between "tilling and keeping" (Gen. 2: 15), between developing a place and keeping it wild



"St. Francis asked that part of the friary garden always be left untouched, so that wild flowers and herbs could grow there, and those who saw them could raise their minds to God, the Creator of such beauty" (LS, 10)



FOUR KEYWORDS



1. OUR COMMON HOME

1. Our "Common Home"

"What is happening to our common home?"



- "The earth, our home, is beginning to look more and more like an immense pile of filth." (LS, 21)



□ Naomi Klein – author of *No Logo* (1999); *The Shock Doctrine: The Rise of Disaster Capitalism* (2007); *This Changes Everything: Capitalism vs. the Climate* (2014)

- "Pope Francis is the Naomi Klein with a cassock..."
- "as a secular Jewish feminist, *Laudato si* certainly spoke to me..." (N. Klein)



□ 2. Acton Institute: "Integrating Judaeo-Christian truths with free market principles"

- "Well-intentioned but economically flawed" (Samuel Gregg)
- "Pope Francis seems to blame markets, over-consumption and especially finance, rather than human sin, for all our environmental problems." (Kishore Jhalalayan)



□ Climate Activists (Hans Joachim Schellnhuber)

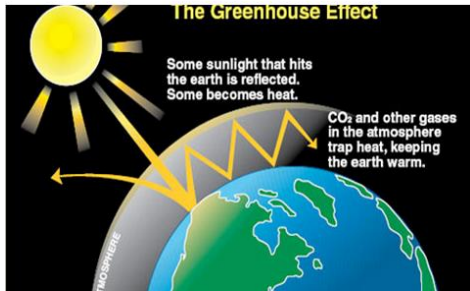
- Postdam Institute for Climate Change Impact Research; adviser to EU and UN on climate change
- "The urgency to act on these pressing issues that is expressed in the Encyclical mirrors the scientific findings which have accumulated into an overwhelming body of evidence." ("scientific consensus")



□ Conservative Political Right

- Francis' "global consensus" are unproven 'scientific' claims turning themselves into political assertions *a la* Al Gore's *Inconvenient Truth* (William Oddie)
- "Mixing up the sciences of heaven and earth" *a la* Galileo's case (George Rutler)
- The pope risks getting close to other key supporters of the theory who support population control and abortion.

Global Warming & Climate Change



Drowning Minions



2. WE ARE NOT GODS

We are not gods.

The Historical Roots of Our Ecological Crisis
Lynn White Jr.

According to many historians, the mandate in Genesis 1:28 for man to subdue the earth opened the "winding process" of exploitation of natural resources. In this essay, Lynn White Jr. challenges that logic by re-examining the historical roots of "dominion" in nature, but he also proposes what he terms an "Salvific Christian ethic."

- "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea..." (Gen. 1:28)
- "Christianity not only established a dualism of man and nature, but also insisted that it is God's will that man exploit nature for his proper end." (Lynn White Jr., 1967)

ANTHROPHOMORPHISM

We are not gods

- "We are not God. The earth was here before us." (LS, 67)
- "Our insistence that each human being is an image of God should not make us overlook the fact that each creature has its own purpose." (LS, 84)

3. EVERYTHING IS INTERCONNECTED

"A good part of our genetic code is shared by many living beings" (LS, 138).



"We do not inherit the world from our ancestors. We borrow it from our children."



4. CONVERSION TO THE BEAUTIFUL

- one common action
- care for the global commons
- differentiated responsibilities



"The countries which have benefited from a high degree of industrialization, at the cost of enormous emissions of greenhouse gases, have a greater responsibility for providing a solution to the problems they have caused" (LS, 170).



- Change of Lifestyle
- Practice of Ecological Virtues
- Conversion to the Beautiful

"If someone has not learned to stop and admire something beautiful, we should not be surprised if he or she treats everything as an object to be used and abused without scruple." (LS, 215)



A SENSE OF HOPE



"Before we knew where the gods were. They were in the trees. Now there are no more trees."
- Raji people





“Like the first Christmas, there are no angels who come down from heaven singing Alleluia.

But I guess Jesus is born in San Antonio today.”



Asec. Cora Davis highlighted the plans and achievements of DENR in relation to Chapter 20 of the Philippine Development Plan 2017-22. PDP 2017-22 is based on the 17 Sustainable Development Goals and is consistent with Ambisyon Natin 2014, the long-term vision of our country – Filipinos enjoying rooted, comfortable and secure lives (*Matatag, Maginhawa at Panatag na Buhay*). In answer to the universal call to action to end poverty, protect the planet and ensure that peace and prosperity is enjoyed by all, DENR’s identified priorities are: (1) take urgent action to combat Climate Change and its impacts; (2) conserve and sustainably use the oceans, seas and marine resources for sustainable development; and (3) protect, restore and promote sustainable use of terrestrial ecosystem, sustainably manage forest, combat desertification and halt and reverse land degradation, and halt biodiversity loss.

Chapter 20: Ensure Ecological Integrity, Clean and Healthy Environment falls on the mandate of DENR. DENR came up with a program to restore, rehabilitate and develop our environment and natural resources encompassing elements on good and effective governance in environmental protection, restoration of forests and protected areas, adoption to climate change and sustainable use of natural resources, conservation of coastal and marine resources and social justice in land titling. Asec. Davis continued to report on DENR’s achievements in these areas:

- On clean water
 - 473 esteros have been adopted by private sectors for clean up;
 - Target to increase percentage of priority bodies to within quality guidelines by 2022.

- On water resources management:
 - completed groundwater management plan in Angeles City;
 - completed comprehensive water resource assessment in Agno River Basin;
 - established 4 ground water monitoring stations in Cagayan de Oro and issued 1,020 conditional water permits.

- On Solid Waste Management
 - Established 9,914 materials recovery facilities servicing 13,186 barangays;
 - 125 operational sanitary landfills in various categories;
 - closed 624 dumpsites since 2010;
 - issued 50 LGUs with non-compliance to RA 9003 from the Ombudsman

- On National Greening Program:
 - 1.53 million seedlings planted in 1.86 million hectares,
 - generated 4.3 million jobs.

- On Intensified Forest Protection:
 - reduced illegal logging hotspots from 197 to 17 ;
 - confiscated around 37 million board feet of illegally-cut logs and
 - filed 2,335 cases against illegal loggers

- On Protected Wildlife:
 - Increased population of endangered species such as the Philippine Eagle, Tamaraw and Philippine Cockatoo;
 - filed 85 cases with 8 convictions for violation of the Wildlife Act

- On improving land administration and management:
 - issued over 2 million agricultural patents, 384,467 residential patents and completed the Cadastral Survey of 1,634 municipalities/cities nationwide

- On Geohazards Assessment and mapping:
 - completed detailed geohazard maps nationwide;
 - conducted IEC in 32,969 barangays;
 - completed post-disaster geohazard assessment of 171 cities affected by Typhoon Yolanda;

- identified sinkhole occurrences;
- conducted vulnerability and risk assessment in 340 areas

POWERPOINT PRESENTATION

AMBISYON NATIN 2040

- Collective long-term vision and aspirations of the Filipino people for themselves and for the country for the next 25 years
- It describes the kind of life the people want to live, as well as how the country will look like by 2040.
- Anchor for development planning across at least four administrations.



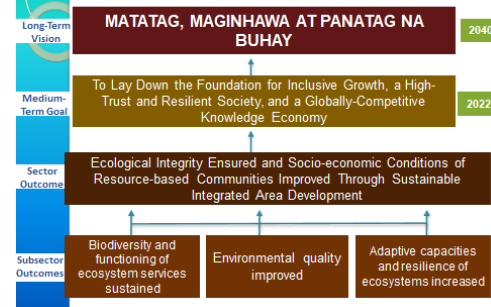
Philippine Development Plan 2017-2022

Chapter 20: Ensuring Ecological Integrity, Clean and Healthy Environment

- Provides foundation for sustainable development
- Articulates the direction, priorities, targets and strategies on ensuring ecological integrity, clean and healthy environment



ENR CHAPTER STRATEGIC FRAMEWORK OF PDP 2017-2022



UN SDGs and PDP vis-à-vis DENR MAJOR PROGRAMS

(Consistent with the Program for ENR for Restoration, Rehabilitation and Development)



Intensified Environmental Protection: *Clean Air*

- To improve air quality nationwide within standards

Status

- Implementation of EURO 4/IV Emission Limits Standards
- Online Application and Issuance of Certificate of Conformity (COC) for New Vehicles
- Reduced PM₁₀ level by 44% from the 2011 level

PDP Target

- Percentage of highly urbanized and other major urban centers within ambient quality guidelines value increased by 2022 from a baseline of 47% in 2015



Intensified Environmental Protection: *Clean Water*

- To improve water quality nationwide within standards

Status

- Adopted 473 esteros/waterbodies nationwide
- Designated 31 Water Quality Management Areas (WQMAs) *CY 2010 - May 2017*

PDP Target

- Percentage of priority water bodies within water quality guidelines increased/improved by 2022 from a 2016 baseline of 0% for public water supply, 70% for food production and 80% for recreational areas.

CY 2010 - May 2017



Intensified Environmental Protection: *Solid Waste*

- Implementation of Republic Act 9003 or the Ecological Solid Waste Management Act of 2000

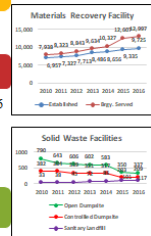
Status

- 9,914 Materials Recovery Facilities servicing 13,186 Barangays
- 125 Operational Sanitary landfills
- Closed 624 dumpsites since 2010
- Issued 50 LGUs with Non-Compliance to RA 9003 from the Ombudsman

PDP Target

- Solid waste diversion increased by 80% in 2022 from a 2015 baseline of 48% in Metro Manila and 46% outside Metro Manila

CY 2010 - June 2016



Enhanced National Greening

- Executive Order No. 193, November 12, 2015, Expanded NGP will rehabilitate 7.1 million hectares from 2016 to 2028 or the remaining unproductive, denuded and degraded forestlands

Status

- National Target: Plant 1.5 Billion trees covering 1.5 Million hectares in six (6) years from 2011 to 2016 and 1.2 Million hectares as target under the 2017-2022 Philippine Development Plan..
- Planted 1.53 million seedlings in 1.86 million hectares
- Generated 4.3 million jobs (Dec 2017)

PDP Target

- Forest cover increased from the baseline of 6.8 M hectares by year 2022

CY 2011 - December 2017



SUSTAINABLE DEVELOPMENT GOALS

Intensified Forest Protection

CY 2011-December 2017



- EO 23 dated 1 February 2011 "Declaring a Moratorium on the cutting and harvesting of Timber in the Natural and Residual Forests and Creating the anti-illegal Logging Task Force."

Status

- Reduced illegal logging hotspots (197 to 17 or **91% reduction**)
- Confiscated 37 million board feet of illegally-cut logs
- Filed 2,335 cases against illegal loggers
- Produced 113,425 armchairs, 11,093 desks and 24,390 other school furniture

PDP Target

- Increased area of forestland under effective management: 8.8 M hectares by 2022 from a baseline of 7.6 M hectares

SUSTAINABLE DEVELOPMENT GOALS

Protected Areas And Biodiversity Conservation

Status

- Increased population of endangered species
- Philippine Eagle sightings (from 39 in 2013 to 47 in 2015 to 19 in 2016)
- Tamaraw count (from 413 in 2016 to 405 in June 2017)
- Philippine Cockatoo count (from 427 in 2014 to 535 in 2015)
- Filed 85 cases with 8 convictions for violation of Wildlife Act

PDP Target

- Increased area of terrestrial protected areas with high biodiversity values effectively managed (in ha.)
- Poor: 1,363,926
- Fair: 68,706.59
- Satisfactory: 844,238.97
- Good: 972,162.35
- Excellent: 42,136.76





SUSTAINABLE DEVELOPMENT GOALS




Protected Areas and Biodiversity Conservation

Status

- Effective management system of national coastal and marine biodiversity
- Sustainable Coral Reef Ecosystems Management Program (2013-2016) and Coastal and Marine Ecosystems Management Program
- 276,304 hectares coral reef protected and rehabilitated (CY 2013-1Dec 2017)
- 12,126 hectares coral reef protected and rehabilitated (CY 2013-2016) and 42 maintenance and protection activities conducted (2017)
- 341 sustainable livelihood enterprises established (CY 2013-2016) and 133 biodiversity-friendly enterprises supported (2017)
- 453 People's Organization organized and mobilized (CY 2013-2016)

PDP Target

- Quality of coastal and marine habitats improved by 2022 (in ha.)
- 2016 baseline:
- Poor: 1,235,489
- Fair: 171,762
- Good: 1,717,642
- Excellent: 12,958

Location: Island of Iapraya, Brgy. Adcor, Kapitan District, Island Garden City of Samal.

SUSTAINABLE DEVELOPMENT GOALS

Improved Land Administration and Management

- Accelerate the public land titling process

Status

- Completed the commitment under RA 6657
- Issued 2,418,267 agricultural patents over 2,539,770 hectares (CY 2011-May 2017)
- Issued 384,467 residential patents covering an area of 12,919 hectares (CY 2011-December 2017)
- Completed Cadastral Survey of 1,634 municipalities/cities nationwide

PDP Target

- No. of residential free patents issued: 360,000 by 2022




SUSTAINABLE DEVELOPMENT GOALS

Geohazards Assessment and Mapping

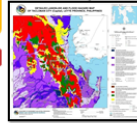
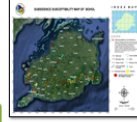
CY 2010-May 2017

Status

- Completed detailed Geo-hazards Maps nationwide (1:10,000 scale)
- Conducted IEC in 32,969 barangays
- Completed post-disaster geo-hazards assessment of 171 cities/municipalities affected by Typhoon Yolanda
- Identified sinkhole occurrences resulting from the Bohol 7.2 magnitude earthquake
- Conducted vulnerability and risk assessment in 340 cities/municipalities
- Undertook detailed sub-surface assessment in 35 cities/municipalities (CY 2010-May 2017)

PDP Target

- Increased resilience index and no. of reviewed CC/DRRM enhanced plans; all LGUs compliant by 2022

SUSTAINABLE DEVELOPMENT GOALS

Responsible Mining

CY 2011-December 2015

- Compliance audit by third party of all mining operations
- Compliance with ISO 14001 (Environmental Management System)
- Identification of Misahang Barangays

Status

- Identified the Go and No-Go Zones in the entire country
- Participated in the Extractive Industries Transparency Initiative (EITI) Standard to ensure greater transparency and accountability
- Banned the use of mercury and hydraulic mining in small-scale mining
- Mandated mining contractors to secure ISO 14001 Certification

PDP Target

- Interim rehabilitation measures monitored and implemented in four (4) abandoned mines; with 100% interim rehabilitation completed by 2022




SUSTAINABLE DEVELOPMENT GOALS

Water Resources Assessment and Management


CY 2015-June 2016

Status

- Completed Groundwater Management Plan in Angeles City and nearby areas
- Completed Comprehensive WR Assessment in Agno River Basin
- Established 4 Groundwater Monitoring Stations (GWM) in Agno River Basin
- Issued 1,000 conditional water permits

PDP Target

- No. of groundwater critical areas with management plan and monitoring wells established in 12 areas by 2022
- No. of major river basins with comprehensive water assessment: 6 river basins by 2022



Thank You





The third plenary speaker was **Deputy Ombudsman for Visayas Paul Elmer Clemente**, who discussed Challenges in the Enforcement of Environmental Laws: An Independent Perspective. He gave a comprehensive talk on the anatomy of corruption and how it fuels environmental degradation. To illustrate, he used the formula $C = (M+D) - (A+I+T)$, where **m**onopoly of power and sole **d**iscretion, without **a**ccountability, **i**ntegrity and **t**ransparency brings about **c**orruption. State environmental agents are exposed to and have to contend with bribery, kickbacks, nepotism, fraud, disguise, concealment and falsification. PhP 250 B every year is lost due to corruption. To combat corruption, the office of the Ombudsman performs investigation, disciplinary/adjudication, graft prevention and public assistance. It uses preventive and punitive approaches. Preventive approaches include persuasion, promotion and education. Punitive approaches include fact-finding, preliminary investigation, and administration of adjudication and prosecution functions. These are based on salient provisions included in various environmental laws: PD 705 or the Revised Forestry Code, PD 979 on Marine Pollution, RA 7076 or the Toxic Substances and Hazardous Waste Act, RA 7942 or the National Integrated Protected Area System (NIPAS) Act, RA 7942 or the Philippine Mining Act and RA 8371 or the Indigenous People's Right Act. The watchdog office has apprehended among others, environmental cases on unlawful quarrying, illegal mining and non-compliance to the Ecological Solid Waste Management Law.



The 4th Plenary speaker was from the Development Bank of the Philippines (DBP) **First Vice President Paul Lazaro**, who discussed Financing Environmental Investments. FVP Lazaro introduced DBP's Environment policy that was adopted in 1997 vowing commitment to Environment and Sustainable Development. In their Environmental Policy Statement, environmental consideration is integrated into all aspects of its operations and services, asset management and business decisions. Among its priority development thrusts is to advance ecological integrity, clean and healthy environment. To ensure inclusive development, they supported programs that include economic, social and environmental objectives, provide funding for LGU projects, adopted credit policies to address environmental, social, climate change and risk reduction considerations, among others.

He discussed further the various financing programs that are aligned to the Sustainable Development Goals and are servicing LGUs and private sectors. These are: the Water for Every Resident (WATER) Program, Financing Utilities for Sustainable Energy Development or FUSED Program, the Tree Plantation Program and the Green Financing Program.

The Green Financing Program is mainly in support of the various Environmental Laws of the Philippines. Solid Waste Management, Healthcare / Hazardous Waste Management Programs are in support of RA 9003 Ecological Solid Waste Management Act of 2001 and RA6969 Toxic Substances and Hazardous and Nuclear Waste Act of 1990. Resource Conservation, Resource Efficiency and Cleaner Production support RA 9513 Renewable Energy Act of 2008. Air pollution Prevention and Control Program that finance green transport and alternative fuels support RA 8749 Clean Air Act of 1999 and RA 9637 Biofuels Act of 2006. Water Pollution Prevention and Control and Sanitation programs finance septage facilities and sewerage systems in support of RA 9275 Clean Water Act of 2004. Climate Change Adaptation, Mitigation and Disaster Risk Reduction Programs support RA 9729 Climate Change Act of 2009. The Green Financing Program is to hasten the implementation of Philippine Development Plan 2017-2022.

POWERPOINT PRESENTATION

DBP is the 1st Philippine bank to be ISO 14001 Certified



United Nations Environment Program Finance Initiative Member since 1997

GENERAL PROGRAMS OF THE BANK

- ▶ Lending
- ▶ Branch Banking
- ▶ E-Banking Solutions
- ▶ Financial Advisory
- ▶ Corporate Social Responsibility
- ▶ Corporate Governance
- ▶ Partnership with Multi/Bilateral Institutions

DBP Priority Development Thrusts

- Finances the country's infrastructure projects
- Provides financial assistance to the SME Sector
- Advances ecological integrity, clean and healthy environment
- Contributes to the well-being of Filipinos across the nation

DBP Policies Toward Inclusive Development

- Beyond financial returns: economic, social, environmental objectives
- Poverty reduction for inclusive growth
- Funding for LGU projects
- Branch banking in unbanked areas
- Credit policies address environmental, social, climate change and risk reduction considerations
- Industry benchmarks and best practices

- Pioneered among Banks the funding of environmental investments since 1996
- Requires submission of ECC and corresponding Environmental Impact Assessment Study as pre-condition for loan approval and release
- Conducts environmental performance monitoring of funded projects to ensure compliance with ECC conditionalities and standards set by various Environmental Laws
- Implements environmental and social safeguards policy
- DBP head office and branches have EMB-accredited Pollution Control Officers

DBP is guided by the 17 Sustainable Development Goals



THE LOCAL GOVERNMENT UNITS (LGUs)

- political and territorial subdivisions of the state which are divided into three (3) levels – Provinces & Independent Cities; Component Cities & Municipalities; and Barangays
- Responsibilities:** To provide the following:
 1. Facilities and research services for agriculture and fishery activities
 2. Health services
 3. Social welfare services
 4. Information services
 5. Solid waste disposal system or environmental management system
 6. Municipal/ City/ Provincial buildings
 7. Infrastructure facilities
 8. Public markets, slaughterhouses and other local enterprises
 9. Public cemetery
 10. Tourism facilities and other tourist attractions
 11. Sites for police and fire stations

DBP PROGRAM LENDING FOR LGUs/Private Sector

- INFRASTRUCTURE AND LOGISTICS**
 - Connecting Rural Urban Intermodal Systems Efficiently (CRUISE)
 - Financing Utilities for Sustainable Energy Development (FUSED)
 - Water for Every Resident (WATER)
- ENVIRONMENT**
 - Green Financing Program (GFP)
- SOCIAL SERVICES**
 - Sustainable Health Care Investment Program (SHCIP)
 - Residential Real Estate Financing Program (RRFP)
 - DBP Educational Fund Program
- MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs)**
 - Sustainable Enterprises for Economic Development (SEED)
 - Sustainable Agribusiness Financing Program (SAFP)
 - Tree Plantation Financing Program (TPFP)

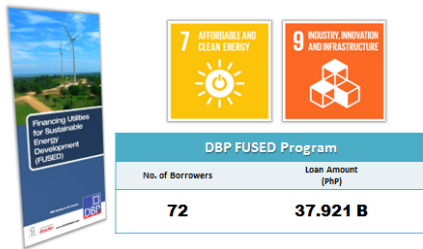
DBP Development Financing Programs and Sustainable Development Goals

6 CLEAN WATER AND SANITATION

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

DBP WATER Program

No. of Borrowers	Loan Amount (PHP)
96	18.750 B



DBP Green Financing Program



DBP SUPPORTS THE IMPLEMENTATION OF RA 9003: ECOLOGICAL SOLID WASTE MANAGEMENT ACT



Sanitary Landfill Compactor Truck with Hydraulic Lifter

- Sanitary Landfills
- Waste Disposal Equipment
- Closure and Rehabilitation of Existing Dumpsites



Closed Dumpsite Sanitary Landfill Facility

- Materials Recovery Facility
- Composting Facility
- Recycling Facility
- Hazardous/Healthcare Waste Management



Materials Recovery Facility Rotating Drum Composting

Waste to Energy Project



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DBP SUPPORTS THE IMPLEMENTATION OF RA 9275: CLEAN WATER ACT

- Funded water source development, expansion and pipeline rehabilitation for the cities of Biñan, Sta. Rosa, and Cabuyao



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DBP SUPPORTS THE IMPLEMENTATION OF RA 9275: CLEAN WATER ACT

- Funded the sewerage system of Boracay to protect the waters of Boracay for sustainable tourism

Waste Water	Sewage Treatment Plant	✓ Completed STP Upgrade in March 2011
		✓ Doubled Plant Capacity from 2.5mld to 6.5mld
		✓ 99.95% Reliability of Facilities
		✓ Environment Compliant – 4 years ahead of target

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✓ Septage Management Projects

- Septage Treatment Facilities (STFs) including upgrading and rehabilitation works
- Purchase of Vacuum Trucks/Desludging Trucks
- Bio-solids Processing Facility including upgrading to Class A Fertilizers

✓ Communal/Public Sanitary Toilet Facilities



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✓ Domestic Wastewater Systems

- Sewerage Networks including expansion and rehabilitation
- Sewerage Treatment Plants (STPs) including upgrading and rehabilitation networks
- Water Recovery and Recycling Project from STPs
- Low-Cost Community Sewerage Projects and STPs



- Funded a major sanitary/sewerage project in Parañaque-Las Piñas as contribution to the clean-up of Manila Bay

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- Clean-up, Rehabilitation and Maintenance of water bodies (e.g. Manila Bay, rivers, esteros)

- Installation/upgrading of wastewater treatment systems/facilities for industrial wastewater



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DBP SUPPORTS THE IMPLEMENTATION OF RA 8749: CLEAN AIR ACT

- Funded a cement plant with modern air pollution control system that prevents emission of particulates to the air

Equipment/Device/Facilities Preventing and Reducing Air Pollution



- Banking assistance to the Vehicle Modernization Program

Green Transport/Green Mobility



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DBP SUPPORTS THE IMPLEMENTATION OF RA 9513: RENEWABLE ENERGY ACT AND RA 9729: CLIMATE CHANGE ACT

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Mini-Hydropower Plant



Solar Power Plant

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DBP SUPPORTS THE IMPLEMENTATION OF RA 9513: RENEWABLE ENERGY ACT AND RA 9729: CLIMATE CHANGE ACT



Wind Farm

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DBP SUPPORTS THE IMPLEMENTATION OF RA 9729: CLIMATE CHANGE ACT

- Has started funding riverbank stabilization projects



CCA: Riverbank Stabilization Project

- To access the Green Climate Fund

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- Has been implementing the DBP Forest, a grant project, since 2005.
- With 44 projects, covering 6,494 hectares of upland/watershed forests and 560.16 hectares mangrove forests as of October 31, 2017.

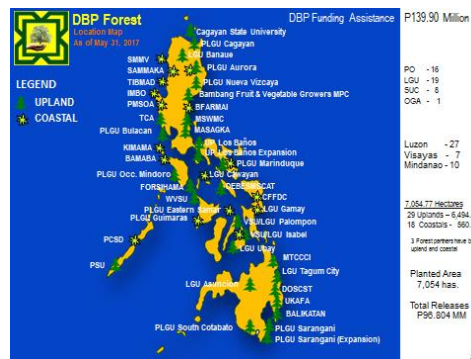


Mangrove Reforestation



Upland Reforestation

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DBP assisted the following industry sectors in preparing and implementing Environmental Management Plans:

- Cement manufacture
- Pulp and paper
- Sugar milling
- Tuna canning
- Ship repair
- Stonecraft industry
- Fruit and vegetable canning
- Cocoa/Chocolate
- Electrical Appliances and Housewares
- Fabricated Materials
- Plastics
- Spinning and Weaving
- Veneer and Plywood

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**Digital Banking –
e Products & Services**

	EMV Debit Visa Card Linked to a Savings or Checking Account Hybrid card: EMV Chip, Contactless/pay/Wave and Magstripe
	Prepaid Visa Card Cash Disbursement Solution For loans, honoraria, allowances, scholarships, benefits, etc.
	ATM ID Payroll Solution Customized Employee/Company ID and Payroll ATM in one Card
	Gift Card All-Occasion Gift Solution Non-reloadable prepaid card (Php 500, 1000, 2000 and 5000)

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A WINNING SOLUTION: BENEFITS TO PROJECT PROPONENTS

- ✓ Catalyzing the development of key economic & social sectors
- ✓ Address environmental and social concerns
- ✓ Ease of doing business / encourage entrepreneurship / income generating projects
- ✓ Higher disposable income for residents, create local job opportunities
- ✓ Provide local source of revenue to LGU/ less dependence on IRA

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A WINNING SOLUTION: BENEFITS TO LGUs

- ✓ Increase in LGU's capacity for infrastructure projects
- ✓ Wide experience in LGU project financing
- ✓ Array of electronic banking products and services

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For more information, please write or call:

FVP Paul D. Lazaro
Head, Lending Program Management Group
Phone: 8673233 / 818-9511 local 3310
Email: pdlazaro@dbp.ph

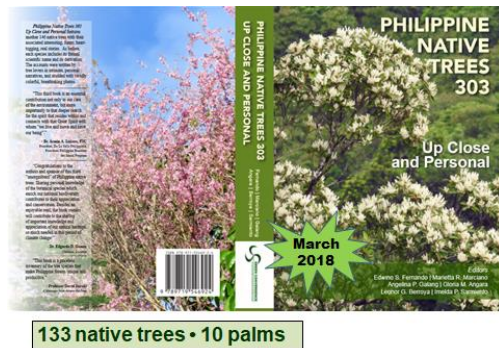
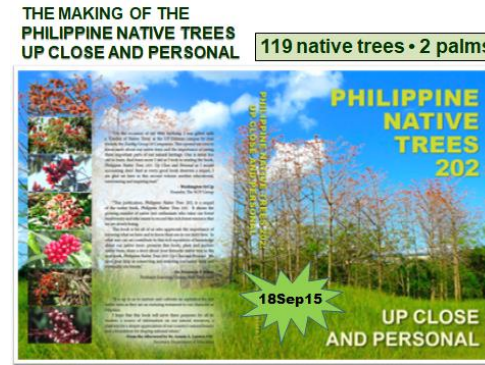
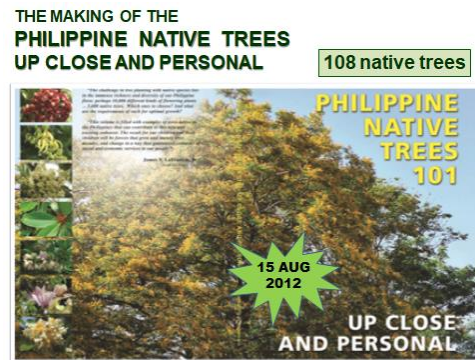
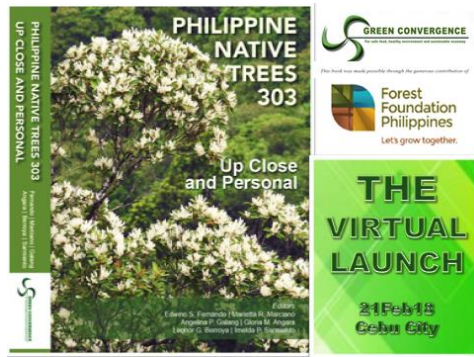
Or visit the DBP Office nearest you or the DBP website:

www.dbp.ph

DBP. Your Partner in Environmental Protection.

The morning session ended with the launching of Philippine Native Trees 303. **Project Leader Imelda Sarmiento** gave a short background on the first two publications, Philippine Native Trees 101 and 202. Both are sold out but were re-printed by the Biodiversity Management Bureau of DENR. Philippine Native Trees 202 was also awarded “Best Scientific Book for year 2015 ” by the Department of Science and Technology (DOST). The 3rd edition features 143 native trees and 10 palms.

POWERPOINT PRESENTATION



ANACARDIACEAE
 Anacardiaceae, the mango and cashew family, includes approximately 170 species in 16 genera. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the genus *Anacardium*, which is based on the tree that bears the heart-shaped cashew nut. The family is named in honor of the genus *Anacardium*. Cashew nuts in *Anacardium*, along with mango, guava, and papaya, are important tropical fruits. Members, such as the baobab tree, are also important.

ANACARDIACEAE
 the Philippines family balitantan

EBENACEAE
 Ebenaceae, also known as the ebony family, is one of the largest families of flowering plants. It is named in honor of the genus *Ebenus*, which produces the dark wood used for ebony. The family is named in honor of the genus *Ebenus*. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the genus *Ebenus*.

On Anjo Sacks, Training Graduates, Jan-Jun to Evening: Meet the Men in Blue!
 The Men in Blue Family with Peter J. Makings, Jr.

The Men in Blue family is named in honor of the Men in Blue, the police officers who wear blue uniforms. The family is named in honor of the Men in Blue. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the Men in Blue.

ANNONACEAE
 Annonaceae, the custard apple family, is one of the largest families of flowering plants. It is named in honor of the genus *Annona*, which produces the fruit known as the custard apple. The family is named in honor of the genus *Annona*. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the genus *Annona*.

APOCYNACEAE
 Apocynaceae, the dogbane family, is one of the largest families of flowering plants. It is named in honor of the genus *Apocynum*, which produces the fruit known as the dogbane. The family is named in honor of the genus *Apocynum*. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the genus *Apocynum*.

ACTINIDIACEAE
 Actinidiaceae, the kiwifruit family, is one of the largest families of flowering plants. It is named in honor of the genus *Actinidia*, which produces the fruit known as the kiwifruit. The family is named in honor of the genus *Actinidia*. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the genus *Actinidia*.

WINTERACEAE
 Winteraceae, the wintergreen family, is one of the largest families of flowering plants. It is named in honor of the genus *Wintera*, which produces the fruit known as the wintergreen. The family is named in honor of the genus *Wintera*. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the genus *Wintera*.

ARALIACEAE
 Araliaceae, the ginseng family, is one of the largest families of flowering plants. It is named in honor of the genus *Aralia*, which produces the fruit known as the ginseng. The family is named in honor of the genus *Aralia*. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the genus *Aralia*.

ayum
Cosmosium philippinum (Blair) Philipson

FABACEAE
 Fabaceae, the legume family, is one of the largest families of flowering plants. It is named in honor of the genus *Faba*, which produces the fruit known as the legume. The family is named in honor of the genus *Faba*. Members of the family are scattered throughout the world but are chiefly tropical and subtropical. Members of the family include trees and shrubs, medicinal herbs and vines. The family is named in honor of the genus *Faba*.

tiagkot
Archibutea oligostachya (Blair) Nalson

55 FAMILIES

Forest Foundation Philippines
 Let's grow together.

Philippine Native Trees 500
 To Check And Personal

The book was made possible through the generous contribution of...

The Day 2 Breakout Sessions that followed proved once again to be very stimulating. **Session A** featured Enterprise Without Environmental Harm, chaired by **Alvin M. Duazo**, Marketing and Communications Manager of Consolacion Youth Organization and moderated by **Dann Diez**, Founder and Convenor of Let's Do It Philippines. There were two (2) speakers in the session.



1. Topic: **Developing Sustainable Enterprise thru Fair Trade Principles**

by Voltaire Alferez

Executive Director, Community Crafts Association of the Philippines (CCAP)



Mr. Alferez explained the concept of fair trade and how its 10 principles benefit community-based handicraft enterprises. Fair trade is a social movement aimed to help producers receive fair price for their products so as to reduce poverty, provide ethical treatment of workers and farmers and promote environmentally sustainable practices. Organizations that practice fair trade undergo an audit process to ensure that fair trade principles are upheld in their day-to-day work. The 10 Fair Trade guiding principles are:

- a. Opportunities for Disadvantaged Producers – supports marginalized small producers to enable them to move from income insecurity and poverty to economic self-sufficiency and ownership.
- b. Transparency and Accountability – practices transparency in its management and commercial relations. It is accountable to all its stakeholders and respects the sensitivity and confidentiality of commercial information supplied. It practices participatory decision-making practices. The communication channels are good and open at all levels of the supply chain.
- c. Fair Trading Practices – trades with concern for the social, economic and environmental well-being of marginalized small producers and does not maximize profit at their expense. It is responsible and professional in meeting its commitments in a timely manner. Suppliers respect contracts and deliver products on time and to the desired quality and specifications.

- d. Fair Payment – payment is mutually negotiated and agreed by all through on-going dialogue and participation which provides fair pay to the producers and can also be sustained by the market, taking into account the principle of equal pay for equal work by women and men.
- e. No Child Labor nor Forced Labor – ensures that no one was forced to work in its workforce. It adheres to laws on the Rights of the Child.
- f. Non Discrimination, Gender Equity and Freedom of Association – does not discriminate in hiring, remuneration, access to training, promotion, termination or retirement based on race, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation, or age.
- g. Good Working Conditions – provides safe and healthy working environment compliant at a minimum with national and local laws on health and safety.
- h. Capacity Building – develops the skills and capabilities of its own employees or members.
- i. Promotes Fair Trade - raises the awareness on the objectives and activities of Fair Trade. It provides customers with information about itself, the products it markets and the members that make the product.
- j. Respect for the Environment – products produced maximize the use of raw materials from sustainably managed sources, buying from local when possible. Production technologies seek to reduce energy consumption, minimize the impact of their waste stream on the environment, uses organic or low pesticide use production method wherever possible.

Mr. Alferez also shared CCAP's success story and how they developed from a mere advocacy in support of NACIDA to the foundation that it is today catering to export buyers and joining the International Fair Trade Association and World Fair Organization. Currently they have more than 20 partner-producers located in the Bicol Region, Pangasinan, Quezon, Rizal, Bulacan, Panay Island, Negros Occidental and Samar.

2. Topic: **Ecopreneurship – The Pinay Boracay**

By Ma. Nimfa Desiree Segovia

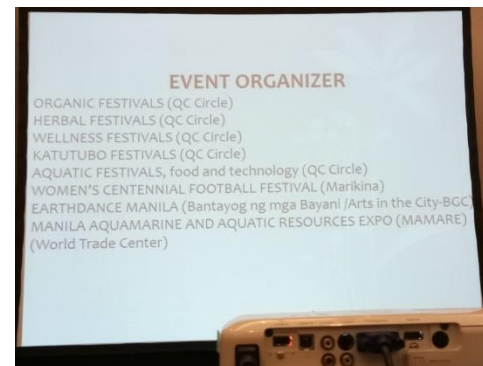
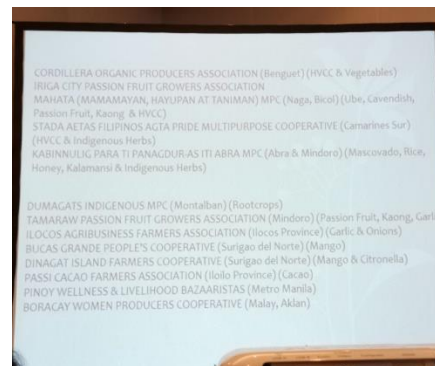
Chairperson, Boracay Women Producers Cooperative



Ms. Segovia discussed Boracay Women Producers Cooperative or Pinay Boracay, a cooperative run by women. The cooperative started in 2013 and had to struggle through poverty, personality differences and politics within the group. Through education, bonding activities, capacity building and self-improvement trainings they were able to hurdle through and provide livelihood activities to their members. They now run the Pinay HERitage, a mini-industrial hub that processes sought after products: GLOBALOCA chocolate Pinais food souvenir, Hibiscus GWAPAMELA soap and shampoo bar made from gumamela, and HUDYA Therapeutic Oils.

HERitage is open to tourists and guests who watch the production process and learn about the advocacy on reducing carbon footprint. At present, the cooperative is able to help more than 100 women in the island. Ms. Segovia owes their success to the cooperative’s developmental process. The initiative that started as a means to address a social concern created happy, healthy and connected communities thereby creating a change in its culture. As economic activities became stable, creating livelihood to the local people, they were able to address global concerns like ecology and environmental conservation. Ms. Segovia ended her talk with a quote from DENR, “Productivity with environmental protection is the best answer to poverty.”

POWERPOINT PRESENTATION



ORGANIC MARKETS
 AANI Market-QC Circle/Tandang Sora,
 Food Bowl Market-Centris Walk, QC
 Mercato, BGC,
 OCCP Market-QC Circle,
 Legaspi & Salcedo Markets

AGRIBUSINESS TRADING COMPANY
ORGANIC & HERBAL SHOP

BEGINNINGS: transformation
 Boracay Women Producers Cooperative
2013 VULNERABILITIES to ADVOCACIES
 Feb 8: Realizing the vulnerabilities of Boracay RESIDENTS to poverty and participatory governance, gathered about eight (8) women to assess their achievements, and encourage these women to group themselves to form a possible women's cooperative to campaign for ORGANIC BORACAY, BODILAKAS BORACAY, BEAUTIFY BORACAY.

BEGINNINGS: transformation
 Boracay Women Producers Cooperative
2014 - 2015 ADVOCACIES to CAPACITIES
 Education, Bonding Activities, Skills & Self Improvement Trainings

Boracay Women Producers Cooperative

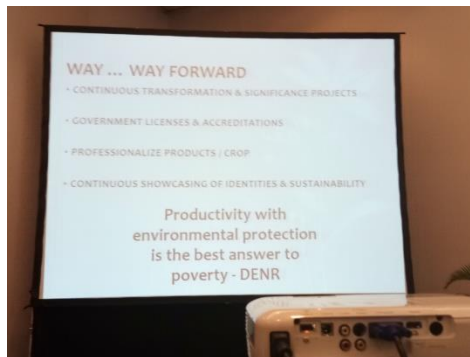
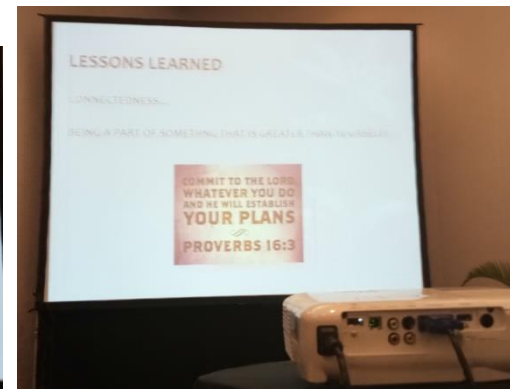
"HUYA SA TAMBILAN"

BEGINNINGS: transformation
 Boracay Women Producers Cooperative
2016-17 CAPACITIES to IDENTITIES

Boracay Women Producers Cooperative

2018: IDENTITIES to SUSTAINABILITY of ENTERPRISE BUILDING & DEVELOPMENT
 Boracay Women Producers Cooperative





Sr. Angie

Session B was on Green Church. It was chaired by **Sr. Angie Villanueva, RC**, Project Leader of Green Convergence's Green Church program and moderated by **Joanna de Catalina, Ph. D.**, head of INFECOP of University of San Jose Recoletos. The session had three (3) speakers:



Dr. Joanna de Catalina

1. Topic: **Malate Church Environmental Programs**

by *Atty. Margierose Condes*

Coordinator, Education Ministry of Our Lady of Remedies Parish



Atty. Condes discussed Malate Church’s 20-year old Environment Program that is based on the framework of Spirituality (undergoing ecological conversion), Lifestyle (leading by example) and Advocacy (reaching out to society). This was initiated and guided by the Columbans under the leadership of Fr. John Leydon, MSSC. The parish has successfully integrated ecology concepts and practices in its liturgy. It has institutionalized the annual Feast of St. Francis - Patron Saint of Ecology, Cosmic Living Rosary and Ecological Way of the Cross. It models best practices in herbal and organic vegetable gardens, Eco camps for children, and parishioners’ formation programs through the New Story of Creation, Creation-Cosmology Faith and Laudato Si.

POWERPOINT PRESENTATION

MALATE CHURCH AND ITS ECOLOGICAL COMMITMENT

PREPARED FOR THE PHILIPPINE ENVIRONMENT SUMMIT
February 20-22, 2018 Waterfront Hotel, Cebu City

**MALATE CHURCH
OUR LADY OF REMEDIES PARISH**

PARISH COMMUNITY
• 11 BARANGAYS
• RESIDENTIAL AND COMMERCIAL/BUSINESS AREAS

MISSIONARY SOCIETY OF ST. COLUMBAN (1929)

• LOCATION –
• FACING THE FAMOUS SUNSET OF MANILA BAY

Ecological Programs & Activities Of Our Lady Of Remedies Parish

Framework

SPIRITUAL DIMENSION
Undergo Ecological Conversion

LIFESTYLE DIMENSION
Lead by Example

MOBILIZATION & ADVOCACY DIMENSION
Demand Bold Policies

Internal Transformation External Transformation

20 YEARS OF ECOLOGICAL COMMITMENT

“A commitment to protect our world is a lofty commitment which cannot be sustained by doctrine alone without a spirituality capable of inspiring us – without an interior impulse which encourages, motivates, nourishes and gives meaning to our individual and communal activity.” (LS 216)

COSMIC BEGINNINGS....

Creation Spirituality



THE FEAST OF
ST. FRANCIS OF ASSISI
& ECOLOGY DAY

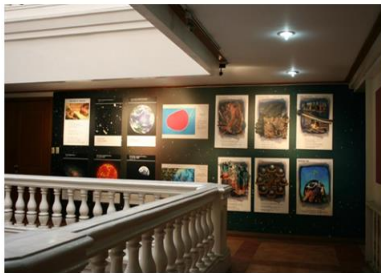
FEAST OF ST. FRANCIS OF ASSISI

- blessings of plants and animals
- caring for our pets and plants
- connectedness with creatures and creation
- started in the mid-1990s



NEW STORY OF CREATION

BY FR. JOHN LEYDON



LITURGICAL CELEBRATIONS

LITURGICAL CELEBRATIONS

- **THE EASTER VIGIL MASS – THE NEW STORY** provides the background for the Liturgy of the Word



CREATION TIME

Creation Time is celebrated throughout the month of September until the Feast of St. Francis of Assisi. The parish through its Care for the Earth Ministry organizes and participates in this month-long event.



The Liturgy of the Masses throughout the Season of Creation, along with some of the prayers are focused more towards the protection and preservation of creation.



FOUR ELEMENTS OF CREATION

During the month of Creation, these Elements are incorporated in the Liturgy of the Mass on all the Sunday Masses of Creation Time with every Sunday of Creation featuring a particular element.

The importance of the elements are each featured in an exhibit held on the church parking grounds on all the Sundays of Creation Time.



MOMENTS OF CREATION

SEPTEMBER 1 – WORLD DAY OF PRAYER FOR THE CARE OF CREATION

Declared by Pope Francis in 2016

TRADITIONAL DEVOTIONS



COSMIC ROSARY

The Cosmic Living Rosary is an annual event in the parish held on the eve of the Feast of St. Francis of Assisi (4th Sunday of October).

Spearheaded by the Legion of Mary, this is held inside the church. Members from the different Ministries, Areas, and Organizations join in this activity. Reflections on the ecological state of our planet are done in every mystery of the Rosary



ECOLOGICAL WAY OF THE CROSS

LENTEEN SEASON

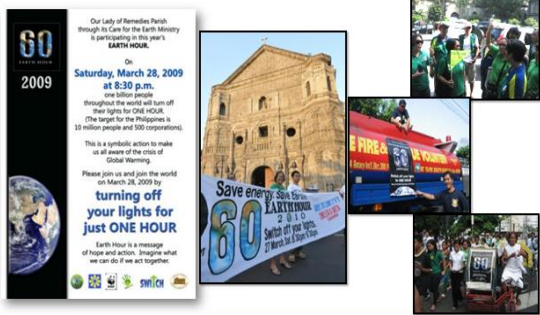
CARE FOR THE EARTH MINISTRY

AT THE FOREFRONT OF THE PARISH'S ECOLOGICAL PROGRAMS


The growing concern for the ecological crises facing our planet prompted the parish to set up the Care for the Earth Ministry (CEM) in the late 1990s.



EARTH HOUR



CHILDREN'S ECO-CAMP

HERBAL GARDEN AND CELL

A few years ago, CEM members and other volunteers had the opportunity to cultivate a herbal garden on the Remedios side of the Church before the Restoration began.



EARTH DAY




EDUCATION AND FORMATION PROGRAMS


CARRIED OUT BY THE PARISH EDUCATION MINISTRY,
CARE FOR THE EARTH MINISTRY, PUBLIC AFFAIRS
MINISTRY

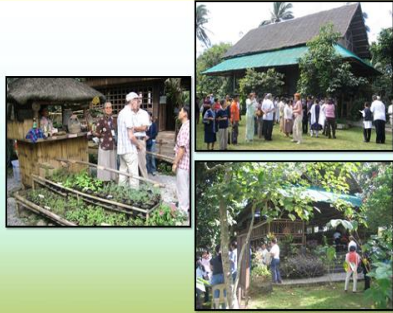
ADULT FAITH, YOUTH, PARENTS FORMATION

- THE NEW STORY OF CREATION
- CREATION, COSMOLOGY, AND FAITH
- AWAKENING THE DREAMER
- FACILITATORS' TRAINING WORKSHOP
- LAUDATO SI MODULE

LIFESTYLE DIMENSION

Eco-Spirituality Center, Silang, Cavite
Since 1998



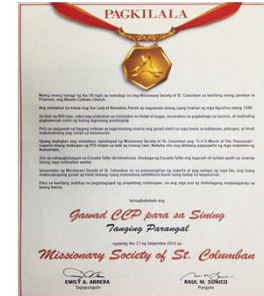


555 March of the
Thousands
Campaign

RESTORATION
OF MALATE
CHURCH



Gawad CCP
Tanging
Parangal



SOLAR ENERGY FOR THE CHURCH

The parish of Our Lady of Remedies has installed 64 solar panels on the church roof. This supplies a portion of the electricity for the Church and for the adjacent building—the Remedios Jubilee Mission Center or RJMC.



PARISH PRACTICES

- SIMPLE LIFESTYLE
 - Vestment of our Patroness
 - Daily life of priests
- Non-use of toxic materials
- Non-use of styropore

CLEANEST AREA CAMPAIGN

BEC and Barangay
cooperation



LENTEN SEASON

DETOX PROGRAM



The Detox Program was introduced to the Parish several years ago and is held throughout the season of Lent for those who are interested to join.

It teaches us how to care for our bodies by detoxing and reintroducing healthier food choices.



CHRISTMAS

ECO-FRIENDLY CHRISTMAS



Especially during the Advent Season, the Care for the Earth Ministry encourages the parish through reminders, information dissemination and helping out in the preparation to celebrate Christmas in an eco-friendly way.



The parish, with the Eco-Waste Coalition, annually campaign for eco-friendly ways to greet Christmas and to welcome the New Year. It discourages the use of Firecrackers and other toxic materials that pollute the air and that are hazardous to humans, plants, and animals.



MOBILIZATION AND ADVOCACY

MOBILIZATION AND ADVOCACY

- TRANSFER OF OIL DEPOT IN PANDACAN
- ANTI-RECLAMATION OF MANILA BAY
- SAVE SIERRA MADRE MOVEMENT
- CAMPAIGN AGAINST USE OF TOXIC MATERIALS FOR AGRICULTURE

LAUDATO SI – JUNE 16 2015

VALIDATED THE ECOLOGICAL PROGRAMS
OF MALATE CHURCH

DIALOGUE FOR THE CARE OF OUR COMMON HOME

Interfaith Forum on Climate Change & Laudato Si (2016)



Malate Common Home Environmental Initiative (MACHEI)

Church
Business
Barangay
Schools



Mobilization and Advocacy Dimension

- o "A change in lifestyle could bring healthy pressure to bear on those who wield political, economic and social power." (LS 206)

Strongly supported

- GLOBAL CATHOLIC CLIMATE MOVEMENT
- DIVESTMENT from fossil fuel companies by MSSC

GLOBAL CATHOLIC CLIMATE MOVEMENT (GCCM) - PILIPINAS



Manila Joins People's Climate March

29 April 2017, Malate Catholic Church



Walk For Creation

World Day of Prayer for the Care of Creation

Main presider for the Mass,
His Eminence Luis Antonio G. Cardinal Tagle, DD

September 2, 2017, 6:00-8:00 AM • Durban Green, Luneta Park



Thousands Join Walk for Creation

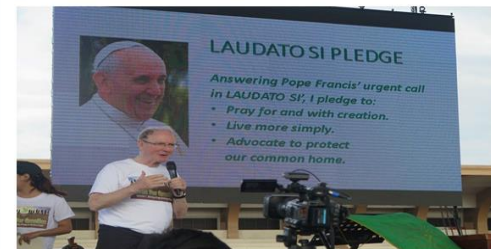
Luneta Park, 1 September 2017



Malate Church supports Walk for Creation



LIVING THE LAUDATO SI PLEDGE



Laudato Si' Pledge



SIGN THE PLEDGE



LiveLaudatoSi.org

Rationale: To keep the Laudato Si message alive and engage the Catholic family

Audiences: Individuals, families, parishes, and organizations

Channels: Online and offline. Signatories of the pledge will receive email suggestions on how to bring the encyclical into action.

Goal: 12 million Catholics (including families) and 10% of parishes (22,000 parishes)

KEY PLAYERS

- MISSIONARY SOCIETY OF ST. COLUMBAN
- CARE FOR THE EARTH MINISTRY
- Supported by the Parish Pastoral Council - MAOs
- PRIESTS TEAM OF MALATE CHURCH
- FR. JOHN LEYDON

MISSIONARY SOCIETY OF ST. COLUMBAN

We are priests, sisters and lay missionaries who consider walking with the poor and taking care of all of God's creation as essential elements of our missionary commitment to preach the gospel of Jesus Christ.



Fr. John Leydon – convener GCCM Pilipinas



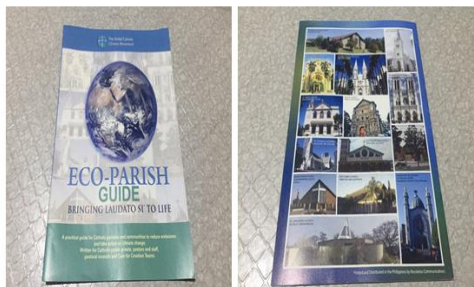
ECOLOGICAL COMMITMENT IS A DAILY COMMITMENT



Global Catholic Climate Movement (GCCM) is proud to announce the release of the **Eco-Parish Guide for Catholic Parishes**. This free guide will be a great resource for your parish to bring Laudato Si' to life. Developed in cooperation with GCCM's partners around the globe, the guide is directed at Catholic parishes globally to reduce their greenhouse gas emissions (GHGs) by addressing actions in relation to parish operations, the congregation, and the broader community. Inspired by Catholic Social Teaching, the Eco-Parish guide offers an active response to Pope Francis' call for climate change action in his encyclical, Laudato Si'.

This free comprehensive guide explains how parishes can make a difference by:

- forming green teams
- reducing parish emissions
- engaging parishioners on low carbon lifestyle choices
- advocating for climate justice
- caring for those harmed by climate change



Malate church

Photo of malate church

• "Before we were in the peripheries, now we are mainstream."

• Fr. John Leydon, MSSC

THANK YOU!

SEE YOU IN MALATE CHURCH!

2. Topic: Parish-Based Pocket Forests of Archdiocese of Cebu
by Fr. Murphy Sarsonas
Chair, Cebu Archdiocesan Commission on Environmental Concerns



Fr. Sarsonas spoke on how the atonement for cutting down 260 trees has successfully grown into a province wide wholistic program developing Pocket Forest Ecological Parks aimed at growing five hundred thousand trees with supporters (diocesan clergy and youth) undergoing formation on ecological spirituality guided by the Laudato Si and technical training on tree planting and care. It also has a provision for ecologically based livelihood program. This Archdiocesan program is made possible in partnership with the government, civil society and the private sector.

POWERPOINT PRESENTATION

Cebu Archdiocesan Tree Growing Initiative
A Briefer

About CACEC

- ▶ The Cebu Archdiocesan Commission on Environmental Concern (CACEC) was an off-shoot of the 51st International Eucharistic Congress – Committee on Environmental Concern (IEC-CCEC) organized in June 2016 in response to Pope Francis' 2nd encyclical, *Laudato Si*, to "care for our common home"
- ▶ Officially inaugurated as a Commission last **June 20, 2017**
- ▶ Composed of **11** clergy and lay core members

Vision
A "changed humanity" (LS9), with "full respect for the human person" (LS5) and "concern for nature" (LS10), with deep awareness on integral ecology

Mission
CACEC aims to ingrain in the consciousness of every Filipino citizen, Catholics and non-Catholics, the interconnectedness of human beings to other creatures and the environment and that the misuse and abuse of God's creation is a reflection of the loss of "justice (especially to the poor and weak), commitment to society, and interior peace" (LS10).

Strategic Niche
Parish-based environmental action anchored on ecological spirituality

Rationale

- ▶ To address biodiversity loss and mitigate climate change
- ▶ An act of penance for the 260 trees cut during the construction of the IEC Pavilion
- ▶ Started out as the Parish Community-Based Pocket Forest Program with an initial target of planting at least **13,000 trees**

Our Strategies

- ▶ Provision of **ecological spirituality formation**
- ▶ Provision of **technical assistance and training** before planting
- ▶ **Convergence** with Catholic organizations and formation of the CACEC Youth
- ▶ Conduct of **environmental livelihood program** to support forest guards
- ▶ **Partnership** with government, civil society, and the private sector

Our Accomplishments

- ▶ Expanded our tree growing target from 13,000 to **500,000** by 2021, in line with the celebration of the 500 years of Christianity in the Philippines
- ▶ To date, planted at least **6,900 trees** through the parishes, and **10,605 trees** through the Catholic Convergence partners
- ▶ Obtained a commitment to plant at least **110,000 trees** from Catholic Convergence partners, and another **100,000 trees** to be mobilized by the CACEC Youth



SITE DEVELOPMENT PLAN
ST. AUGUSTINE PARISH PILGRIMAGE ECO PARK - PHASE 1
MAGSICO, SAN FERNANDO, CEBU



Parishioners mobilized for the Pocket Forest establishment



Very important is to plant with a happy heart



Protection and Maintenance done regularly



Planted by Archbishop Jose S. Palma

Cebu Archdiocesan Environmental Livelihood Program

- ▶ *Pilot Parish:* San Agustin de Hippo Parish, Magsico, San Fernando, Cebu
- ▶ Facilitated livelihood project identification workshop among parishioners
- ▶ 7 Flagship programs

▶ PAPER PRODUCT RECYCLING



▶ CANDLE MAKING (Recycled Used Cooking Oil)



▶ VERMI COMPOSTING & GARDENING



► RECYCLED PLASTIC into SLIPPER/MAT/ROPE and others

► ECO PILGRIMAGE / ECO TOURISM / TREKKING

► NURSERY PRODUCTION

► ESTABLISHMENT of WELLNESS & SOUVENIR SHOP

2018 Plans: Increase tree growing accomplishment

- Parish Action**
 - * Conduct ecological spirituality re-orientation and establish Committee on Environmental Concern (CEC) per parish
 - * Enjoin parishes to plant more trees
- Formation**
 - * Finish crafting the ecological spirituality formation module
 - * Run the module among the clergy
- Youth**
 - * Facilitate organizational development of the CACEC Youth
 - * Organize the Cebu Roman Catholic YOUTH Convergence for the Environment

Projected 167 Parish CECs

Major Partners

CARING OUR COMMON HOME CALLS A COMMON ACTION

3. Topic: **Kaunlaran Climate Change & Poverty Alleviation Program of Malolos Diocese in the Mission Parish of Sta. Cruz**

by *Fr. Leopoldo S. Evangelista III*

Director, Diocesan Ecological & Environmental Program and Parish Priest, Sta. Cruz Mission Parish, Paombong Bulacan

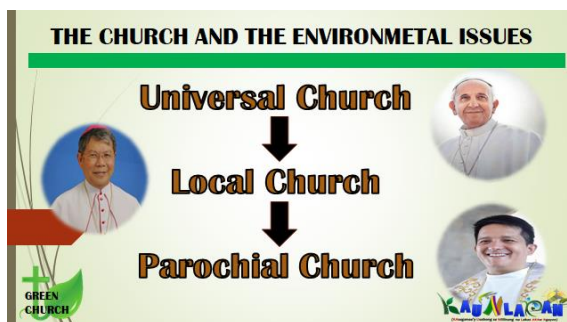


Fr. Evangelista inspired the Summit participants with efforts at helping his poverty stricken parishioners in his island parish severely affected by climate change. By eliminating middlemen in the supply chain (from fishing to sales to end-consumers), using alternative energy (solar panels powering the parish and water system), teaching the BEC women to process the harvested fish, and encouraging his and neighboring parishioners to purchase directly from them, his parishioners enjoy better pricing for their fish products thus significantly improving their income.

POWERPOINT PRESENTATION

THE CHURCH AND THE ENVIRONMENTAL ISSUES

Year	Encyclical
1 1891	Rerum Novarum
2 1931 – 40 years after Rerum Novarum	Quadragesimo Anno
3 1961	Mater et Magistra
4 1963	Pacem in Terris
5 1966	Gaudium et Spes
6 1967	Populorum Progressio
7 1979	Redemptor Hominis
8 1981 – 90 years after Rerum Novarum	Laborem Exercens
9 1987	Sollicitudo Rei Socialis
10 1987	Redemptoris Mater
11 1991 – 100 years after Rerum Novarum	Centesimus Annus
12 2004	Compendium of Social Doctrines
13 2005	Deus Caritas Est
14 2009	Caritas in Veritate
15 2013	Evangeliis Gaudium
16 2015	Laudato Si



THE CHURCH AND THE ENVIRONMENTAL ISSUES


STA. CRUZ MISSION PARISH

Is one of the three Coastal Parishes in the Diocese of Malolos, located in Paombong, Bulacan, 30-40 minute boat ride to get there from the Town of Paombong. **98%** of the livelihood is fishing through fish ponds and different ways of catching fish such as *baklad, panti, bukatot, pangangapa, bintol, etc.*




KAUWLAAN
 Kasaganaa'y Uusbong sa Nilililang Lakas ARAw Ngayon

:CLIMATE ACTION AND POVERTY ALLEVIATION PROGRAM OF THE DIOCESE OF MALOLOS IN THE MISSION PARISH OF STA. CRUZ




KAUWLAAN

IS A PARISH BASED PROGRAM OF THE COMMISSION ON SOCIAL ACTION OF THE DIOCESE OF MALOLOS. IT IS IN THE ISLAND PARISH STA. CRUZ WHERE POVERTY IS DEEP AND WIDESPREAD AND THE IMPACT OF CLIMATE CHANGE IS SEVEREST.



KAUWLAAN

TO OVERCOME THIS, LIVELIHOOD IS PUT UP USING CLEAN, RENEWABLE SOLAR ENERGY IN THE PRODUCTION OF HIGHER VALUE GOODS. RAW, FRESH WILD CAUGHT FISH AND INDIGENOUS CROPS ARE PROCESSED INTO SAFE, NUTRITIOUS FOOD PRODUCTS BY **BEC** WOMEN.




KAUWLAAN
CLIMATE ACTION




... the effects of the present imbalance can only be reduced by our decisive action, here and now. We need to reflect on our accountability before those who will have to endure the dire consequences.

Laudato Si



... an awareness of the gravity of today's cultural and ecological crisis must be translated into new habits

Laudato Si 209



CLIMATE ACTION: Renewable Energy



There is an urgent need to develop policies so that, in the next few years, the emission of carbon dioxide and other highly polluting gases can be drastically reduced, for example, substituting for fossil fuels and developing sources of renewable energy.



Laudato Si 26

We know that technology based on the use of highly polluting fossil fuels especially coal, but also oil and, to a lesser degree, gas needs to be progressively replaced without delay.



Laudato Si 165

RENEWABLE ENERGY

3000 kilowatt inverter for the **parish convent and hall** and another **2000 kilowatt** inverter for the **water pump**, about **70%** of Parish's electricity comes from solar sytem.



PUTTING UP SOLAR PANELS FOR RENEWABLE ENERGY

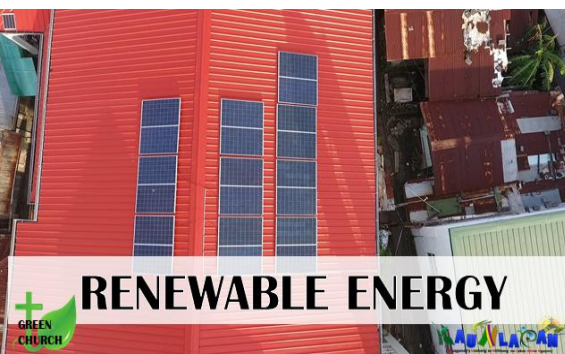


RENEWABLE ENERGY



SOLAR PANELS

4 panels for every **1000 kilowatts**



RENEWABLE ENERGY

CLIMATE ACTION: USING RENEWABLE ENERGY



GEL-TYPE BATTERIES



INVERTER

KAUNLARAN POVERTY ALLEVIATION

GREEN CHURCH

We are faced not with two separate crises, one environmental and the other social, but rather with one complex crisis which is both social and environmental. Strategies for a solution demand an integrated approach to **combating poverty**, restoring dignity to the excluded, and at the same time protecting



Laudato Si 139

The same mindset which stands in the way of making radical decisions to reverse the trend of global warming also stands in the way of achieving the goal of **eliminating poverty**. A more responsible overall approach is needed to deal with both problems: the reduction of pollution and the development of poorer countries and regions.



Laudato Si 175

POVERTY ALLEVIATION: LIVELIHOOD

ATCHARANG DAMPALIT (pickled sea purslane)

GREEN CHURCH



POVERTY ALLEVIATION DAMPALIT PICKING DAMPALIT IS ENDEMIC IN OUR PLACE

GREEN CHURCH

POVERTY ALLEVIATION PLUCKING DAMPALIT LEAVES FROM ITS STEM

GREEN CHURCH

PROCESSING AREA WITH STAINLESS STEEL TABLES AND WARES

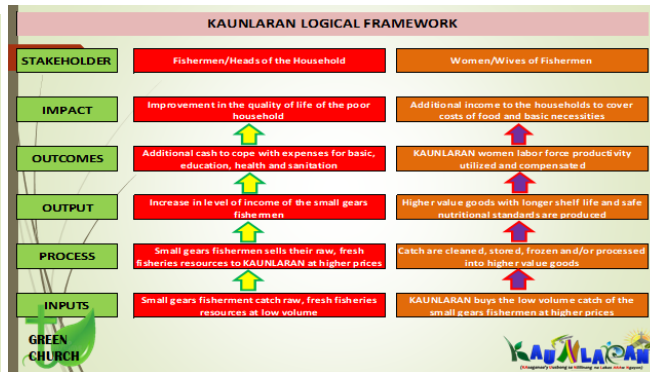
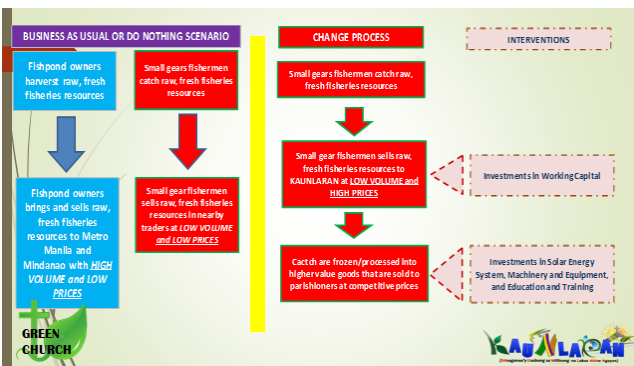


POVERTY ALLEVIATION PROCESSING OF ATCHARANG DAMPALIT



KAUNLARAN

INTERPLAY OF CLIMATE ACTION AND POVERTY ALLEVIATION



from GRASS... TO TABLE
THE PRIDE OF STA. CRUZ PARISHIONERS

A helping hand... Getting better together
ACHARANG DAMPALIT
The Pride of STA. CRUZ

A helping hand... Getting better together. The Pride of Sta. Cruz Parishioners

- LARGE P1000.00
- MEDIUM P750.00
- SMALL P480.00

SET A (Php 1,083.00)

- 2 Cookies
- 1 Banana Cake
- 1 Peanut Butter
- 1 Large Dampalit Atchara
- 1 Medium Dampalit Atchara
- 1 Small Dampalit Atchara

SET B (Php 891.00)

- 1 Cookies
- 1 Banana Cake
- 1 Peanut Butter
- 1 Large Dampalit Atchara
- 1 Small Dampalit Atchara

SET C (Php 715.00)

- 1 Cookies
- 1 Banana Cake
- 1 Peanut Butter
- 1 Large Dampalit Atchara
- 1 Medium Dampalit Atchara
- 1 Small Dampalit Atchara

SET D (Php 813.00)

- 1 Banana Cake
- 1 Peanut Butter
- 1 Large Dampalit Atchara
- 1 Medium Dampalit Atchara
- 1 Small Dampalit Atchara

JUBILEE SHELTER PROGRAM
LUMAYO BAYAN, PLARIDEL, BULACAN

DAMPALIT ATCHARA

- LARGE - Php 150.00
- MEDIUM - Php 130.00
- SMALL - Php 100.00

PEANUT BUTTER - Php 170.00

BANANA CAKE - Php 100.00

CRINKLES - Php 80.00



Physical Sales and Marketing were done in parishes by Climate Refugees




Session C was on Eco-Governance, chaired by Usec. Noel K. Felongco and moderated by **Lesly Comiso-Magalso** of St. Theresa's College Cebu. It had 3 speakers:



POWERPOINT PRESENTATION

- 2nd Philippine Environment Summit -
Greening together, Growing better

"Mainstreaming Innovations for Sustainable Development"

Eco-governance

Presented by:
Atty. Noel K. Felongco
DENR Undersecretary for Solid Waste Management and Indigenous Peoples Concern

QUESTION?

How to Resolve Governance Issues to Achieve Priority Sustainable Development Goals Related to Solid Waste Management in the Philippines?

The SDGs are ...

- > A set of 17 goals for the world's future, through 2030
- > Backed up by a set of 169 detailed Targets
- > Negotiated over a two-year period at the United Nations
- > Agreed to by nearly all the world's nations, on 25 Sept 2015

17
GOALS

What is new and different about the 17 SDGs?

First, and most important, these Goals apply to *every* nation ... and every sector. Cities, businesses, schools, organizations, *all* are challenged to act. This is called

Universality

17
GOALS

Second, it is recognized that the Goals are all inter-connected, in a system. We cannot aim to achieve just one Goal. We must achieve them all. This is called

Integration

17
GOALS

And finally, it is widely recognized that achieving these Goals involves making very big, fundamental changes in how we live on Earth. This is called

Transformation

17
GOALS

#1: End poverty in all its forms everywhere

#2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

#3: Ensure healthy lives and promote well-being for all at all ages

#4: Ensure inclusive and quality education for all and promote lifelong learning

#5: Achieve gender equality and empower women and girls



#6: Ensure access to water and sanitation for all



#7: Ensure access to affordable, reliable, sustainable and modern energy for all



#8: Promote inclusive and sustainable economic growth, employment and decent work for all



#9: Build resilient infrastructure, promote sustainable industrialization and foster innovation



#10: Reduce inequality within and among countries



#11: Make cities inclusive, safe, resilient and sustainable



#12: Ensure sustainable consumption and production patterns



#13: Take urgent action to combat climate change and its impacts*



#14: Conserve and sustainably use the oceans, seas and marine resources



Each goal is Important in itself ...

17 GOALS

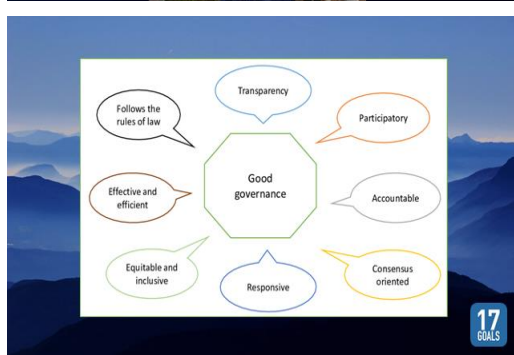
Each goal is Important in itself ...

And they are all connected

17 GOALS

Sustainable goals and Governance

17 GOALS



Key principles of environmental governance

At the international level, global environmental governance is "the sum of organizations, policy instruments, financing mechanisms, rules, procedures and norms that regulate the processes of global environmental protection."

- * Embeds the environment in all levels of decision-making and action.
- * Conceptualizes cities and communities, economic and political life as a subset of the environment.
- * Emphasizes the connection of people to the ecosystems in which they live.
- * Promotes the transition from linear systems (like garbage disposal with no recycling) to circular systems

17 GOALS

What is an Environmental governance?

"the whole range of rules, practices and institutions related to the management of the environment in its different forms (conservation, protection, exploitation of natural resources, etc.);"

"all the processes and institutions, both formal and informal, that encompass the standards, values, behaviour and organizing mechanisms used by citizens, organizations and social movements as well as the different interest groups as a basis for linking up their interests, defending their differences and exercising their rights and obligations in terms of accessing and using natural resources;"

"the formal and informal institutions, rules, mechanisms and processes of collective decision-making that enable stakeholders to influence and coordinate their interdependent needs and interests and their interactions with the environment at the relevant scales."

17 GOALS

Direct Links Between Solid Waste Management and SDGs

- SWM is a crosscutting issue that affects and impacts various areas of sustainable development in each of the three sustainability domains:
 - ecology,
 - economy,
 - society.
- The affected areas include living conditions, sanitation, public health, marine and terrestrial ecosystems, access to decent jobs, as well as the sustainable use of natural resources.



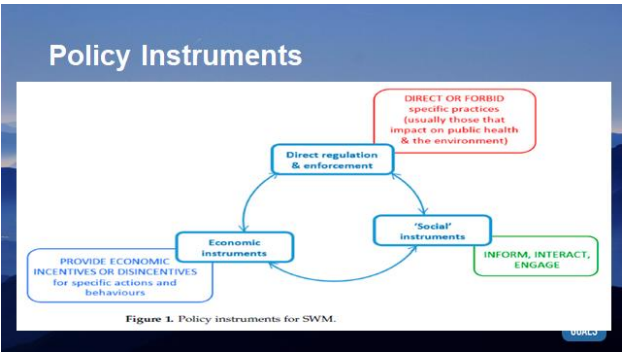
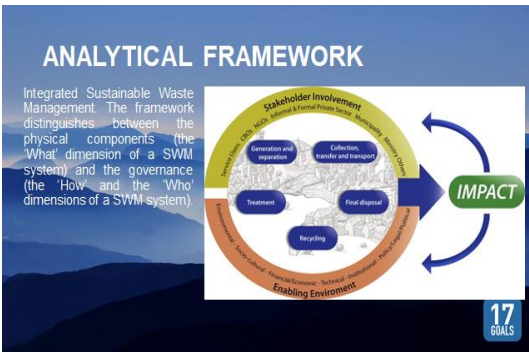

Table 1. Relationship between Sustainable Development Goals and Solid Waste Management.

Driver	Sustainable Development Goal (SDG) ¹	Specific Target	SWM Related 'Virtual SDG' ²
Protection of public health	SDG 11: Sustainable cities	11.1 Ensure access for all to adequate, safe, and affordable basic services; upgrading slums	→ Goal 1. Ensure access for all to adequate, safe, and affordable solid waste collection services. <i>Uncollected waste is often dumped in waterways or burned in the open air, thus directly causing pollution and contamination. Waste also clogs the drains, which exacerbates floods, keeping stagnant water and contributing to water-borne diseases and malaria. Children are among the most vulnerable, so they are affected the most.</i>
	SDG 3: Good health and well-being	3.2 End preventable deaths of children under 5 years 3.3 End malaria and combat water-borne diseases 3.9 Reduce illnesses from hazardous chemicals and air, water and soil pollution, and contamination	
	SDG 11: Sustainable cities	11.6 Reduce the adverse environmental impact of cities; special attention to waste management	
Protection of the environment	LOCAL		
	SDG 12: Responsible consumption and production	12.4 Environmentally sound management of chemicals and all wastes in order to minimize their adverse impacts on human health and the environment	→ Goal 2. Eliminate uncontrolled dumping and open burning as the first stepping-stone to achieving environmentally sound SWM practices.
	SDG 6: Clean water and sanitation	6.3 Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous materials	→ Goal 3. Achieve environmentally sound management of all wastes, particularly hazardous wastes (either chemical or biological hazardous wastes).
	SDG 15: Life on land	15.1 Ensure the conservation of terrestrial and inland freshwater ecosystems and their services	
	GLOBAL		
SDG 7: Affordable and clean energy	7.2 Increase the share of renewable energy in the global energy mix	→ Goal 3. SWM technologies can derive renewable energy from (organic) waste.	
SDG 13: Climate action	SDG 13: Take urgent action to combat climate change and its impacts	→ Goal 3. Adequate SWM practices can prevent emissions of large amounts of greenhouse gases. ³	
SDG 14: Life below water	14.1 Prevent marine pollution of all kinds, in particular from land-based activities, including marine debris	→ Goal 1 and Goal 2. Extending waste collection to all and eliminating uncontrolled dumping will prevent waste (particularly plastics) ending up in the oceans.	

Table 1. Cont.

Driver	Sustainable Development Goal (SDG) ¹	Specific Target	SWM Related 'Virtual SDG' ²
Resource value	SDG 12: Responsible consumption and production	12.5 Reduce waste through prevention, reduction, recycling, and reuse 12.3 Halve global food waste and reduce food losses along production and supply chains This SDG also contributes to SDG 2: Zero hunger – End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	→ Goal 4. Substantially reduce waste generation through prevention and the 3Rs (reduce, reuse, recycle) and thereby create 'green' jobs <i>Waste prevention is the highest-ranking option in the waste management hierarchy. It is followed by reuse of products or their parts, and then by recycling of component materials.</i> → Goal 5. Halve per capita global food waste at the retail and consumer levels and reduce food losses in the supply chain. ⁴
	Supplementary driver: Industry	SDG 1: No poverty SDG 8: Decent work and economic growth	→ Goal 4 <i>Reuse and recycling have a significant potential for creation of jobs.</i> → Goal 1 and Goal 4 <i>In developing countries, SWM services are often provided by individuals and small and micro-enterprises. Any measures applied to support them will improve livelihoods and directly contribute to SDGs 1 and 8.</i>
	SDG 8: Decent work and economic growth	SDG 8: Promote inclusive and sustainable economic growth, employment and decent work for all	

¹ Source of SDGs and targets: [5]. The wording of the targets is shortened. Dotted lines denote overlap. ² Source of SWM related 'Virtual SDGs': [7]. Explanations are given in italics. ³ The potential of improved SWM practices to contribute to climate change mitigation is discussed in Topic Sheet 1 of the Global Waste Management Outlook (GWMO) [7] (pp. 12–15). ⁴ Examples of global good practices of food waste prevention are presented in Topic Sheet 11, Case Study 3, and Box 4.8 of the GWMO [7] (pp. 114–115, pp. 116–119 and p. 140), respectively.



Policy Instruments Continue

The three categories of policy instruments:

- 'sticks' (for direct regulation),
- 'carrots' (for economic instruments),
- and 'sermons' (representing communication and information-based instruments).

17
GOALS

GOVERNANCE ASPECTS OF THE BASIC SWM SERVICES

- 1.0 Direct Regulation and Implementation
 - 1.1 Direct Regulation for Waste Collection Services
 - 1.2 Direct Regulation for Controlled Waste Disposal
- 2.0 Economic Instruments
 - 2.1 Economic Instruments for Waste Collection Services
 - 2.2 Economic Instruments for Controlled Waste Disposal
- 3.0 Social Instruments
 - 3.1 Social Instruments for Collection Services
 - 3.2 Social Instruments for Controlled Waste Disposal
 - 3.3 Social Instruments for SWM in General

17
GOALS

1.1 Direct Regulation for Waste Collection Services

- National legislation in place requiring measures related to sanitation and solid waste mgt.
- SWM – legislation allocates the legal responsibility to a party – waste generator
- Municipal solid waste this responsibility is placed on LGUs
- Other types of waste, commercial and industrial generators are for arranging that their waste be adequately taken care of

17
GOALS

1.1 Direct Regulation for Waste Collection Services

The implementation in practice is inadequate in many places:

- Inadequate capacities of the authorities
- Lack of financial and technical capacities
- Lack of political commitment and support
- Lack of willingness and ability to pay of service users
- Lack of enabling local legislation to engage other parties

17
GOALS

1.1 Direct Regulation for Waste Collection Services

- As part of the remedy, public-private partnerships (PPPs) have been promoted in development policies as a means of harnessing the expertise, efficiencies, and investment that the private sector can bring to the delivery of public services.
- It is clearly important that the local laws and regulations allow for solutions involving third parties and indeed facilitate the inclusion of various service providers.

17
GOALS

1.2 Direct Regulation for Controlled Waste Disposal

- before countries embark on imposing stringent imported standards, the first essential step is getting waste to a controlled facility
- the problem with waste disposal is in the implementation of this legislation. Practices of open dumping and burning are explicitly against the law in most countries, but lack of law enforcement means that such practices continue in many developing countries. In other words, for environmental legislation to be effective and meaningful, it is essential that it be supported by decisive and visible enforcement
- there must be a synchronized effort to actually have facilities in place, ready to receive the waste once the regulations are enforced. This has been called the 'implementation conundrum'—regulations say that waste generators need to use a certain type of facility, but the regulations cannot be enforced until those facilities are available

17
GOALS

1.2 Direct Regulation for Controlled Waste Disposal

- getting from a situation with no facilities at all to the state-of-the-art facilities in one 'leap' is unrealistic. The 'answer' is in gradual implementation, where each step is relatively small and attainable with the resources available. The case of Moshi, Tanzania, mentioned below is a good example. This is also how the development proceeded in Europe and North America from the 1970s, in a series of steps, first focusing on upgrading dumpsites to controlled disposal, then gradually increasing the environmental standards, then turning attention to diversion from disposal [8]. By making each step relatively small, this helped mitigate both the 'implementation conundrum', in that each step in facility sophistication (and related incremental cost) was not so huge, and the 'enforcement conundrum', in that the increase in needed capacity (and related cost) of the environmental regulator was manageable. The end goal of environmentally sound waste disposal does however need to be borne in mind from the outset. Depending on the size of cities, inter-municipal cooperation may contribute to solve the problem of waste disposal, offering economies of scale for facilities and benefits of centralised operations and environmental controls.

17
GOALS

2.1 Economic Instruments for Waste Collection Services

- 'polluter pays' principle, various economic instruments have been devised to finance waste management activities or achieve desired behavior on the part of actors in the system
- funding is derived from a combination of user charges and property tax in varying proportions across the municipalities
- Securing financial sustainability of the service provision is an essential governance aspect that needs to be considered from the outset of any initiatives to introduce waste collection services.

17
GOALS

2.2 Economic Instruments for Controlled Waste Disposal

- Unlike the benefits of good waste collection service, the benefits of secondary collection, transport, and environmentally sound waste disposal are not directly visible to service users or obvious to city dwellers in general. Therefore, they are often not willing to pay for these. In addition to the willingness to pay, affordability of charges becomes an issue in low-income countries and expecting people to pay will be problematic.
- Therefore, investments in environmentally sound landfill technology and adequate financing of disposal site operations will be difficult in low-income countries. However, bringing disposal under control, getting from open dumping and burning to a basic level of controlled operations, can be done even under severe financial constraints, as the town of Moshi, Tanzania, exemplifies through their 3Cs approach to disposal: Confine, Compact, Cover

17
GOALS

3.1 Social Instruments for Collection Services

- Any change in the SWM system that entails changes in waste generators' attitudes and day-to-day habits requires appropriate actions to achieve such a change as it is not likely to happen on its own accord.
- Putting waste out for collection instead of dumping or burning in the yard or somewhere nearby will involve a significant degree of behavioral change on the part of householders.
- This means that government and public administration agencies depart from their traditional role as legislator and regulator and take a different role that of frame setting, engaging, communicating, educating, and negotiating.

17 GOALS

3.2 Social Instruments for Controlled Waste Disposal

- In the case of construction of a new landfill, it takes a lot of open communication to overcome NIMBY attitudes. The only experience that the local community has of waste disposal is what has happened previously, and if that was uncontrolled dumping, then that is what they will expect.
- It will take a lot of time and effort to establish trust both that the promises made by the authorities that 'this time it will be different' are genuine, and that the higher environmental standards of operation that have been promised are financially sustainable and will be enforced in practice by the environmental regulator.
- As previously discussed, the ability to offer some compensation to the host community can be helpful. Equally, if trust is not established and hurtured, any compensation offered will raise suspicion and may be perceived as another form of manipulation and lack of respect for the people, their lives, and realities.

17 GOALS

- Operating the new facility to the promised environmental standards is absolutely critical—seeing is believing—and being able to visit a new or existing good facility in a neighbouring city will go a long way in convincing protesters that the promises are genuine.
- In the case of a dumpsite upgrade, it is likely that there are waste pickers present at the dumpsite.
- While opinions differ on the desired course of action, most practitioners agree that some appropriate arrangements need to be made with the pickers for the upgraded disposal site [17] (Key Sheet 8, pp. 111–112) [40]. However, if done in a way that does not take into account the realities and interests of the waste pickers, this may be met with their fierce opposition, resulting in aggravation and prolongation of the dire situation, as was the case in e.g., Karachi, Pakistan [41].
- Therefore, any interaction in such a complex situation demands a lot of effort to establish trust and understanding, on both sides, in accordance with inclusivity as a characteristic of good governance.

17 GOALS

3.3 Social Instruments for SWM in General

- The chances that citizens will adopt new patterns of behavior and get involved will be higher if the local authorities lead by example, in other words, if they exemplify the desired behavior in government buildings and their vicinity.
- A common factor in successful waste management, and indeed other development interventions, is often a high degree of interest and commitment from political leaders

17 GOALS

CONCLUSIONS

Table 2 Key governance aspects of extending waste collection to all and securing controlled disposal.

Class of Policy Instruments	Goal 1: Waste Collection to All	Goal 2: Controlled Disposal	Necessary Condition	Enabling/Facilitating Factor
Direct regulation	Legal frameworks for inclusion of both public and private, and both formal and informal, service providers	Strong regulations requiring controls to protect the environment, and credible and consistent enforcement	Construction of facilities in parallel to the regulations	Institutional capacities to both enforce law and to work with various service providers
Economic instruments	Sustainable financing—securing funding for collection services, including some contribution from direct charges	Sustainable financing—securing funding for facilities, both capital costs and the continuing costs of operation	Affordability for service users	Availability of national and/or international funding, including EPR ¹
Social instruments	Awareness raising for behaviour change and clear instructions on new services, to avoid dumping and be willing to pay	Awareness raising for behaviour change, to avoid dumping	Collaboration with civil society including media	Authorities engaging with the public and leading by example

¹ EPR—Extended Producer Responsibility.

17 GOALS

Final Conclusion

- Efforts to extend waste collection services to all citizens, eliminate open dumping and burning, and upgrade dumpsites depends as much on governance aspects as they do on technology and the infrastructure installed.
- Improving these basic and essential services will make a significant difference to the lives of billions of people around the world. It will also provide a solid foundation for further improvements to SWM, including the transition from a linear to a circular economy, and contribute to better governance in general.

That's Not My Job

- This is a story about four people named Everybody, Somebody, Anybody and Nobody.
- There was an important job to be done and Everybody was sure that Somebody would do it. Anybody could have done it, but Nobody did it. Somebody got angry about that, because it was Everybody's job.
- Everybody thought Anybody could do it, but Nobody realized that Everybody wouldn't do it.
- It ended up that Everybody blamed Somebody when Nobody did what Anybody could have.

¹ (Source: <http://www.budbilanich.com/the-story-of-everybody-somebody-anybody-and-nobody/>, Accessed February 16, 2014)

17 GOALS

1. Topic: **Santiago City**

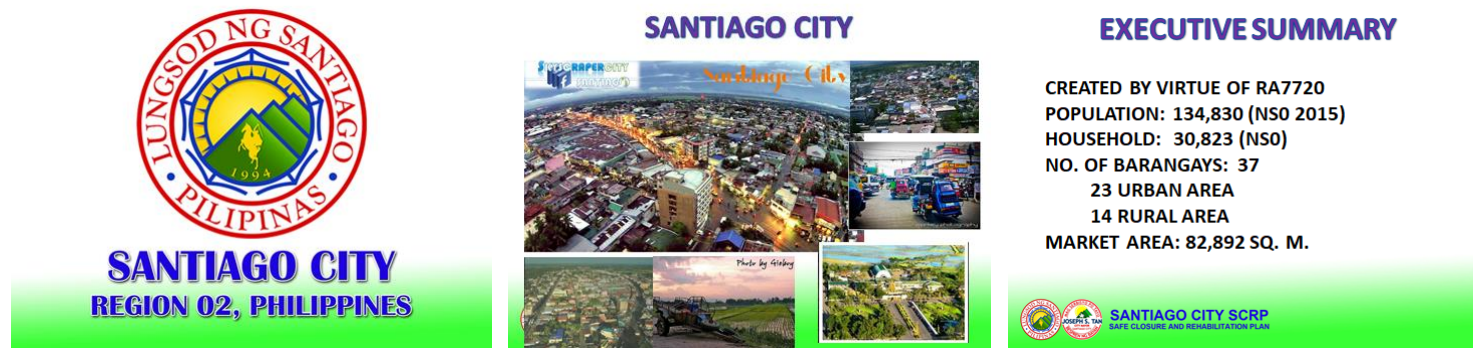
By Mario de Guzman

City Environment and Natural Resources Officer, Santiago City



CENRO Mario de Guzman presented their city's best practices on various projects and best practices on how to prevent disaster in relation to solid waste management which won them Gawad Kalasag Award in 2016. Their area is basically agricultural. They have addressed the issue on Disaster Risk and Reduction Management through the development of a culture of safety in the entire city through consistent information drive and training in various barangays, government units and public and private schools. They developed their own modules on Risk Reduction and Safety for K to 12 which are implemented in all schools. By 2017 they have achieved total transformation in their culture through hard work, training and monitoring.

POWERPOINT PRESENTATION



SANTIAGO CITY

EXECUTIVE SUMMARY

CREATED BY VIRTUE OF RA7720
POPULATION: 134,830 (NSO 2015)
HOUSEHOLD: 30,823 (NSO)
NO. OF BARANGAYS: 37
23 URBAN AREA
14 RURAL AREA
MARKET AREA: 82,892 SQ. M.

SANTIAGO CITY
REGION 02, PHILIPPINES

SANTIAGO CITY SCRP
SAFE CLOSURE AND REHABILITATION PLAN

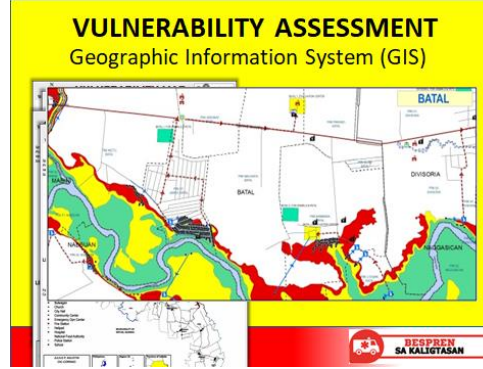


THE TOTAL TRANSFORMATION:

A culture of safety and preparedness in the City of Santiago

- THE LONG GRIND**
- 17th GK Search (2014) – The beginning of our Journey
 - 18th GK Search (2015) - The State of DRRM in the City of Santiago
 - 19th GK Search (2016) - Nurturing a Culture of Safety and Preparedness in the City of Santiago
 - 20th GK Search (2017) – The Total Transformation of the Santiagueño

- INSTITUTIONAL DEVELOPMENT**
- Expanded the LDRRM membership to include CENRO, DPOS, PWD, OSCA, IP's, SACGEA, Women Representative, GSO, 3 Kabalikat Groups, YES-O, Agri & Fishery Council, SSAA (fire brigade volunteers)
 - DRRM Orientation in every conduct of Pre-Marriage Counseling activities
 - DRRM-YO
 - BIKERS
 - Household Profiling & Skills Mapping Project
 - Bantay Ilog/ Barangay DRRM Workers



ELEMENTS AT RISK

2016 SUMMARY OF FLOOD AFFECTED HOUSEHOLDS (BY BARANGAY)

Barangay	Household	Age 0	Age 1-4	Age 5-13	Age 14-19	Age 20-59	Elderly	Sub-Total	Male	Female	PWD	Progress	Livesack	Pat
BATAL	20	1	3	27	48	8	36	123	54	69	0	0	0	0
BLENKASTA	23	1	3	27	48	8	36	123	54	69	0	0	0	0
CAKALAN	13	0	3	27	33	2	71	36	36	0	0	0	0	0
CAKALAN EAST	33	4	52	156	165	43	380	175	205	3	0	0	0	0
CAKALAN WEST	42	4	35	45	38	16	139	67	72	0	0	0	0	0
DAWAGA	81	10	46	101	107	18	383	193	190	7	0	0	0	0
DAWAGA EAST	67	8	35	71	128	13	263	142	121	0	0	0	0	0
DAWAGA WEST	136	22	154	147	389	29	731	401	330	2	0	0	0	0
MAHIN	29	1	12	25	72	1	118	60	58	0	0	0	0	0
MARIBAN	63	4	41	81	129	11	249	130	119	3	0	0	0	0
MOGOGAN	13	0	12	24	27	4	67	34	33	0	0	0	0	0
PALIS	7	0	10	4	14	1	29	13	16	0	0	0	0	0
PARADIL	33	4	18	40	48	1	134	64	70	0	0	0	0	0
PIAL	7	1	3	13	14	0	31	16	15	0	0	0	0	0
PARADIL	23	2	12	21	26	3	75	37	38	0	0	0	0	0
SAHEL	10	1	10	42	121	1	176	84	92	0	0	0	0	0
SANGHAN	10	1	10	42	121	1	176	84	92	0	0	0	0	0
Grand Total	976	87	608	1,023	2,118	204	4,230	2,158	2,072	28	0	0	0	0

BUDGETARY REQUIREMENTS

EXCERPT FROM THE MINUTES OF MEETING OF THE CITY DEVELOPMENT COUNCIL HELD ON OCTOBER 14, 2015 AT SANGGUNIANG PANLUNGSOD SESSION HALL, SAN ANDRES, CITY OF SANTIAGO

CDC RESOLUTION NO 2015-09

APPROVING THE LOCAL DEVELOPMENT INVESTMENT PROGRAM (LDIP), 2016 ANNUAL INVESTMENT PROGRAM (AIP) AND THE SHORTLIST OF PRIORITY PROJECTS UNDER THE 20% ECONOMIC DEVELOPMENT FUND OF THE PROPOSED 2016 ANNUAL BUDGET OF THE CITY GOVERNMENT OF SANTIAGO

ADOPTED, October 14, 2015.

Are there disaster mitigation measures integrated/ mainstreamed in the local development plan, comprehensive land use plan, and annual investment plan?

Local Development Investment Plan (LDIP)

Current Appropriation	Continuing Appropriation	Total Funds Available
69,922,300.00	688,700.00	70,611,000.00

HAZARD MONITORING & EARLY WARNING EQUIPMENT

- AWS – Project Noah/DOST
- AWS – Weather Philippines
- AWS – BFAR
- Earthquake Intensity Meter
- Visual Markers
- Flood EWS Siren



LOCALLY DEVELOPED AUTOMATED STREAM GAUGE



PREPAREDNESS

- Training for 981 First Responders including 35 out of school youth
- Training for 211 CDRRMO & other LGU Personnel



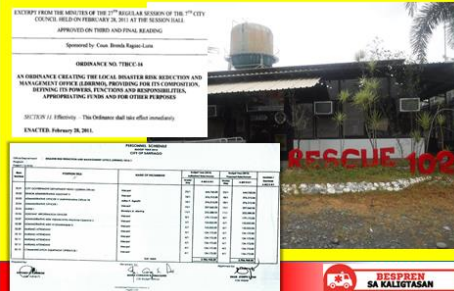
DRILLS & OTHER IEC PROGRAMS COVERED SOME 10,7010 SANTIAGUEÑOS



THE DRRM MODULES



THE DRRM OFFICE



THE DRRMO EQUIPMENT & VEHICLES



THE DRRMO EQUIPMENT & VEHICLES





“The shield cannot be used as a garb but rather it must be digested by heart and shared”

Julius P. Agustin

RESPREN SA KALIGTASAN

As for **GOD**, His way is perfect; He is a shield for all who take refuge in **HIM**.

Psalm 18:30

RESPREN SA KALIGTASAN

2. Topic: **Eco Governance in San Carlos City**

By *Engr. Arthur Batomalaque*

*Head, Integrated Waste Management & Pollution Control Division, City Environment Management Office,
San Carlos City, Negros Occidental*



The city is blessed with ridge to reef ecosystems that have been comprehensively and sustainably managed. They have well- managed programs using highland-to-ocean approach. With overseas partners like Japan, USA, Netherlands and Germany that provided technology and funding, San Carlos City was able to address the issues on solid waste management and pollution control. They have crafted their 20-year Master Development Plan that attracts foreign support. The plan includes protection and restoration plans, monitoring of possible threats through LAWIN, Coastal Resource Management Program, Waste and Water Treatment facilities, Zero Open Defecation Program, Solid Waste Management Program, Regulation on the Use of Plastic, No segregation No collection policy and the final closure of their open dumpsite. With their well-implemented programs, San Carlos City is a Hall of Famer for being a 6-peat Galing Pook Awardee.

POWERPOINT PRESENTATION

ENVIRONMENTAL MANAGEMENT PROGRAMS AND OTHER BEST PRACTICES
San Carlos City, Negros Occidental
Region VI

ENGR. ARTHUR A. BATOMALAUQUE
Division Head
Integrated Waste Management/
Pollution Control Division

LGU PROFILE

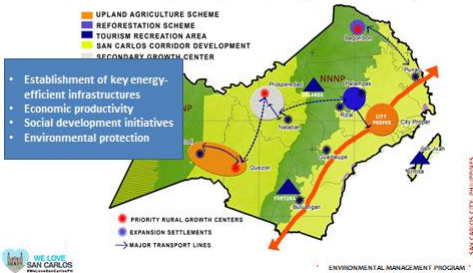
- Located in Northern Negros Island. Population of approximately 132,536 inhabitants
- 2nd Class Component City
- July 1, 1960 per RA 2643
- No. of Barangays: 18
- Total Length of Coastline:
 - 37 Km.
- Land Area: 45,150 ha.
- More than 17,000 ha. of forest protected area

STRATEGIC LOCATION

WHY SAN CARLOS CITY?

- Proximity to 4 Visayan Capitals
- 400 Hectares PEZA-Approved Special Economic Zone
- 4,995 Hectares of CARP-Exempt Land (San Carlos Corridor)
- Abundant Natural Resources
- Environment Friendly
- Good Peace and Order
- Progressive and Competent LGU

20-YEAR MASTER PLAN FOR ECONOMIC AND SOCIAL DEVELOPMENT (2000 - 2020)



HIGHLANDS-TO-OCEAN (H2O) APPROACH



FOREST PROTECTION PROGRAMS

- Northern Negros Natural Park Rehabilitation and Protection Program
- Mount Kanlison Natural Park Rehabilitation and Protection Program

LANDSCAPE AND WILDLIFE INDICATORS (LAWIN) SYSTEM BIODIVERSITY AND THREATS MONITORING

In late 2015, B+ Wiser through DENR introduce the Landscape and Wildlife Indicators (LAWIN) to different LGUs within Negros Occidental. LAWIN is an innovative tool for biodiversity and threats monitoring in the Protected Area, especially on the identified High Value Conservation Areas (HVCA).

Spatial Monitoring And Reporting Tool Wildlife Conservation Society

CyberTracker Wildlife Monitoring and Line Transect Survey Application Cyber Tracker Conservation Society

- Monitors forest condition and regeneration
- Monitors wildlife (including Indicator Species)
- Monitors Existing Threats and Issues

UPLAND ECOSYSTEM

ANNUAL BIRD CENSUS

Annual Waterbird Census (AWC) which aims to monitor the flocks of bird seeking refuge and prey, acquire annual information of population and its possible nomenclature within the coastal wetland areas of Northern Negros, initiated by the Department of Environment and Natural Resources (DENR),



WATERSHED MANAGEMENT

Water Levy for Watershed Development

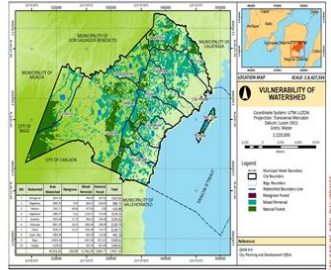
For each cubic meter of water, the city government charges 1.00 Peso which goes to a trust fund for watershed development and protection



WATERSHED MANAGEMENT

Water Levy Fund

The San Carlos City Development Board has reforested more than 600 hectares of idle and marginal land, not only helping the environment but also providing 1,000 individuals with additional source of income in seedling production and forest establishment activities.



WASTEWATER MANAGEMENT

Creation of WWM TWG



WASTEWATER MANAGEMENT

WWM Plan



WASTEWATER MANAGEMENT

Completed and On-Going Projects

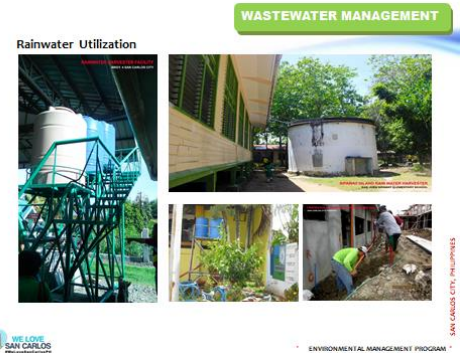
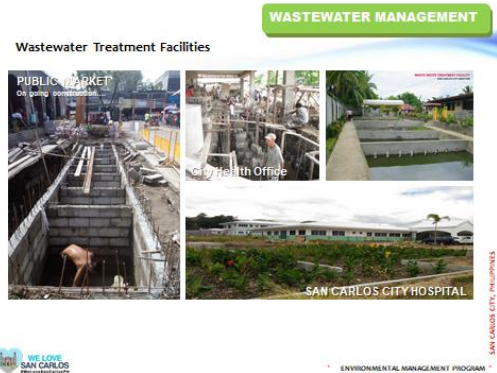
Wastewater Management Projects	Appropriation
1. Improvement of City Abattoir Wastewater Treatment	Php 483,250.00
2. New City Health Office Wastewater Treatment Facility	Php 280,000.00
3. Rainwater Harvester at the Public Transport Terminal	Php 150,000.00
4. Installation of a Rainwater Collection and Distribution System for the New City Hospital	Php 2,901,795.00
5. Construction of New City Hospital Wastewater Treatment Facility	Php 1,775,000.00
6. Improvement of Eco-Center WWTF	Php 124,340.00
7. Construction of Public Market Wastewater Treatment Facility	Php 909,000.00
Total	Php 6,623,485.00

To be implemented

1. Construction of Septage Treatment Plant Note: Plans and Programs of Works are already done	Php 3,700,000.00
2. Construction of Sipaway Island Centralize WWT Plant to be estimated	

SAN CARLOS
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ENVIRONMENTAL MANAGEMENT PROGRAM



ZERO-OPEN DEFECTION PROGRAM

Beneficiaries as of 2017

Barangay	Sitio	No. of Beneficiaries (households)	Remarks
Buluangan	Sitio Lavis	89	Completed
Punao	Sitio Kanipa-an (Proper)	35	Completed
Punao	Sitio Kanipa-an (Tunga)	14	Completed
Punao	Sitio Pasil (Proper)	28	Completed
Punao	Sitio Riverside	29	Completed
Punao	Sitio Maloloy-on	35	Completed
Punao	Sitio Talave	32	Completed
Rizal	Sitio Medina	19	Completed
Rizal	Camaren Area	8	Completed
Palampas	Ledesma Hts.	31	Completed
Palampas	Sitio Haguimitan	54	Completed
		564	TOTAL

SAN CARLOS
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ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Lifestyle Change Program

- Year I - 2003
An Ecological Solid Waste Management (ESWM) Information Education & Communication Campaign for the Urban Areas
- Year II - 2004
An ESWM Information Education & Communication Campaign for the Lowland and Upland Rural Areas and Lowland Urban Areas
- Year III - 2005
An Integrated SWM Information, Education & Communication Campaign - Monitoring and Evaluation of the Implementation of R.A. 9003 by all Barangays
- Year IV - 2006
Participative Formulation and Installation of a Monitoring & Evaluation System, Policies and Procedures for a Sustainable ESWM Program

Campaign Materials

House-to-House Campaign

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ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Lifestyle Change Project

- Incentives and Awards

Every Sunday is NO PLASTIC DAY
For Public Market (Fresh and Meats Section) Starting August, 2013
Environment First! Say No to Plastic Bags
reduce • reuse • recycle

'No Plastico Day' Campaign

San Carlos City Green City
YES To Recyclable Bags
NO To Plastic Bags
BYOB (Bring Your Own Bag)

Search for Sustainable & Eco-Friendly School Contest

SAN CARLOS
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ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Lifestyle Change Project

NO SEGREGATION, NO COLLECTION POLICY

NO SEGREGATION, NO COLLECTION POLICY

NO SEGREGATION, NO COLLECTION POLICY

SAN CARLOS
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ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Final Disposal Facility

Eco-Center Area = 5 Hectares

Vital Facilities:

- Material Recovery Facility (MRF)
- Sanitary Landfill (SLF)
- Leachate Treatment Facility
- Composting Facility

Initial Cell = 6,800 sq.m.

Eco-Center

SAN CARLOS
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ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Final Disposal Facility

- Eco-Center

Sanitary Landfill

Materials Recovery Facility

Wastewater Treatment Facility

SAN CARLOS
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ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Eco-Center Operation

- Bio Processing

ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Eco-Center Operation

- Non-Bio Processing

ENVIRONMENTAL MANAGEMENT PROGRAM

HOLCIM CEMENT PARTNERSHIP

Waste materials baled at the Eco-Center

Hauling of waste materials for delivery to SCC Port

ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Eco-Center Operation

- Waste Minimization and Increased Waste Diversion

2016 WASTE DIVERSION

33% to Landfill

67% Waste Diverted

- Recyclables 30.2%
- Compostable Waste 22.8%
- Hazardous Waste 0.3%
- Other 0.7%

ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Eco-Center Operation

RECORDED INCOME AS OF DEC. 2017

RECYCLABLES	-	1,712,547.75
COMPOST (sold)	-	
COMPOST (given for free to gov't projects)		
Natural Compost	-	
Vermicast	-	
CASH AWARDS / GRANTS	-	1,320,000.00
TOTAL		3,032,547.75

As Tourist Attraction

- Total No. of Visitors as of December 2017: 8,027

ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Final Closure of Old Dumpsite

The Former

Spreading and Compaction of 45 cm thick Liner

Covering of 15cm Garden Soil & Installation of Gas Vents

Construction of Earth Bank

ENVIRONMENTAL MANAGEMENT PROGRAM

SOLID WASTE MANAGEMENT

Final Closure of Old Dumpsite

ENVIRONMENTAL MANAGEMENT PROGRAM

COASTAL RESOURCE MANAGEMENT

Programs and Activities
Bantay Dagat Program
Coastal Resource Management Program
Establishment of Marine Protected Area
Protection of Mangrove Areas
Fisheries and Aquatic Resources Management Program
Day and Night Seaborne Patrol Operations

ENVIRONMENTAL MANAGEMENT PROGRAM

COASTAL RESOURCE MANAGEMENT

Sketch Map of the Marine Protected Areas

- MPA of Brgy. San Juan
Total Area - 96 has.
- Marine Sanctuary - 25.75 hectares
Fishery Reservation Area - 70.25 has.
- MPA of Brgy. Ermita
Total Area - 215.4 has
- Marine Sanctuary - 59.0 hectares
Fishery Reservation Area - 156.4 has

ENVIRONMENTAL MANAGEMENT PROGRAM

COASTAL RESOURCE MANAGEMENT

FISHFOREVER

Amelita Tero
UNEP Ambassador

Melissa Wright
Bioscience Philanthropist

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

Ordinances

LEGISLATION

Ordinance No. 12-08

Ordinance No. 14-04

Ordinance No. 14-36

Ordinance No. 14-53

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

CREATION OF LAW ENFORCEMENT TEAM (LET)

LET Laktay Aral at Bago City
April 24, 2014

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

ENFORCEMENT

Charcoal Confiscated

14-53 Day & Night Enforcement

CRM Apprehension

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

RENEWABLE ENERGY PROJECTS

Ethanol Plant - The Philippines' First Integrated Fuel Ethanol and Power Cogeneration Facility

San Carlos Solar Power

Bio Power

San Carlos Sun Power

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

BIO-FUEL

San Carlos Bio-Energy, Inc. (SCBI)

The first fuel Bioethanol distillery and Co-generation facility in the country and Southeast Asia.

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

SOLAR ENERGY

San Carlos Solar Energy, Inc.

The first large scale Solar Power Plant in the country that is generating a total gross of 45 MW solar power energy. The solar farm will provide supplemental electricity to an area of short supply and increasing demand for power.

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

SOLAR ENERGY

San Carlos Sun Power, Inc.

San Carlos Sun Power (SaCaSun), has completed the construction and commissioning of its 59-MW solar power project in Negros Occidental and is now exporting power to the Visayas grid.

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

BIOMASS

San Carlos Bio-power

The 19MW Biomass Power Plant will be fuelled by sugarcane and other agricultural trash

SAN CARLOS CITY, PHILIPPINES

ENVIRONMENTAL MANAGEMENT PROGRAM

FUTURE R.E. PROJECTS

Wind and Mini-Hydro Power Plants



GHG INVENTORY

SAN CARLOS CITY COMMUNITY LEVEL GHG INVENTORY (BASE YEAR 2015)

Emission Source	GHG Emissions (Tonnes CO2e)	Proportion of Total Emissions
Scope 1 Emissions (Direct Emissions)	68,109	79.5%
Scope 1 Emissions (Direct Emissions) - Fossil Fuel Combustion	68,109	79.5%
Scope 2 Emissions (Indirect Emissions)	17,541	20.5%
Scope 2 Emissions (Indirect Emissions) - Purchased Electricity	17,541	20.5%
Total Emissions	85,649	100.0%

Scope 1: 68,109 tonnes

Scope 2: 17,541 tonnes

SAN CARLOS CITY, PHILIPPINES



ENVIRONMENTAL MANAGEMENT PROGRAM

GHG INVENTORY

GHG Team conducted community-level green house gas inventory and accounting

TOTAL OF SCOPE 1 EMISSIONS:	68,109 TONNES
TOTAL OF SCOPE 2 EMISSIONS:	17,541 TONNES
COMBINED EMISSIONS :	85,649 TONNES
EMISSIONS REMOVAL (FORESTRY)	-172,655.19 TONNES

TOTAL EMISSIONS: -87,006.19 TONNES



SAN CARLOS CITY, PHILIPPINES



ENVIRONMENTAL MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS

Galing Pook Awards

NATIONAL LEVEL

- 1995- Buluanan Fishport Project
- 1996- Homelot Program
- 1997- Daan sa Kaunlaran
- 2000- Punong Kahoy sa Bawat Pumanaw
- 2007- Water Levy Project
- 2008- Sustainable City Project



ENVIRONMENTAL MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS

Galing Pook Awards

1995- Buluanan Fishport Project



ENVIRONMENTAL MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS

Galing Pook Awards

1996- Homelot Program



ENVIRONMENTAL MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS

Galing Pook Awards

1997- Daan sa Kaunlaran



ENVIRONMENTAL MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS

Galing Pook Awards

2000- Punong Kahoy sa Bawat Pumanaw



Tree Park. After five (5) years the boxes will be transferred and buried underneath the adopted/planted tree at the Memorial Tree Park



ENVIRONMENTAL MANAGEMENT PROGRAM

2007- WATER LEVY AND WATERSHED MANAGEMENT PROJECT

2008- THE SUSTAINABLE CITY PROJECTS

2008- AWARD FOR CONTINUING EXCELLENCE



AWARDS AND RECOGNITIONS

1st Place: Zero Basura Olympics 2009
(Awarded at Malacañan Palace)

NATIONAL LEVEL



ENVIRONMENTAL MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS

NATIONAL LEVEL

- Semi Finalist, "Gawad SAKA" National Search for Outstanding FARM-C 2010
- Received Plaque of Recognitions



ENVIRONMENTAL MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS

NATIONAL LEVEL



Inverter with Solar Panel

National LGU Eco Champions



AWARDS AND RECOGNITIONS

PROVINCIAL LEVEL



Seal of Good Environmental Governance Year IV – Platinum Seal



Best Locally Managed MPA in Tanon Strait for Negros Occidental



Juancio Diala
2017 Ocean Heroes Finalist
Engr. Loreto C. Sanchez
Heroes for the Environment

ENVIRONMENTAL MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS

International Awards



ASEAN Eco-Schools Award



Seameo Japan ESD Awards



INTEGRATED WASTE MANAGEMENT PROGRAM

AWARDS AND RECOGNITIONS



Awarded as the 2nd Most Liveable City in the World (75,000-150,000 Population) with Special Whole City Award in the UN-Backed 2011 International Awards for Liveable Communities held Oct. 27-31, 2011 at Songpa, Seoul, South Korea



ENVIRONMENTAL MANAGEMENT PROGRAM

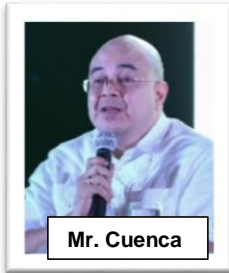
3. Topic: **Bongabon, Nueva Ecija**

*By Hon. Ricardo Padilla
Mayor, Bongabon, Nueva Ecija*



Nueva Ecija Mayor Ricardo Padilla discussed the 2 task forces that he created, Task Force Kaligtasan and Task Force Kalinisan, to make Bongabon Clean, Green and Colored. To make the city clean, the focus was on sanitation. They adopted policies that were doable and inexpensive. Some of these are the No Stray Animal in open spaces that sanctions violators, cleaning of markets at least 3 times a week, requiring establishments and public utility vehicles to have trash cans, and regular clean up days for barangays. Greening projects include tree planting projects in every barangay and the establishment of plant nurseries in

schools, barangays and other localities. Color programs focus on tourism. They institutionalized programs to protect their nine (9) waterfalls.



Session D discussed Tools for Resiliency, chaired by **Romell Antonio O. Cuenca**, Deputy Executive Director of Climate Change Commission and moderated by **Prof. Edgar Gahisan**, of the University of Southern Philippines Foundation. The session had 4 speakers:



POWERPOINT PRESENTATION

BUILDING RESILIENCY
Strategy for Local Climate Action

Romell Antonio E. Cuenca
Deputy Executive Director
Climate Change Commission

Philippines is one most vulnerable to climate change

- 2013 : Yolanda (Haiyan)
- 2012 : Pablo (Bopha)
- 2008 : Frank (Fengshen)
- 2008 : Reming (Durian)

National Climate Change Action Plan (2011 – 2028)

- Build adaptive capacities of communities
- Upgrade resilience of vulnerable sectors and ecosystems
- Optimize mitigation opportunities toward sustainable development

7 NCCAP Priority Areas

- Food security
- Water security
- Ecological and Environmental Stability
- Human Security
- Sustainable Energy
- Climate Smart Industries and Services
- Knowledge and Capacity Development

Climate Change Adaptation

- IPCC : The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- UNDP : The process by which strategies to moderate, cope with, and take advantage of the consequences of climatic events are enhanced, developed, and implemented.
- UNFCCC : The practical steps to protect countries and communities from the likely disruption and damage that will result from effects of climate change.

WAYS OF DOING ADAPTATION

- Shifting Natural Resource Management Practices.
- Establishing Monitoring/Early Warning Systems
- Building Institutions
- Revolutionizing Agricultural Practices
- Launching Planning Processes
- Empowering People
- Raising Awareness
- Promoting Policy Change
- Promoting Technology Change
- Improving Infrastructure
- Providing Insurance Mechanisms

SOME LGU CCA METHODS

- Evacuation Centers
- Flood Mitigation
- Medical Assistance
- Dikes
- Solar Home Lighting
- Disaster Recovery

A Key Role of CCA

When discussing the role of LGUs, it is crucial to take into account the characteristics of the LG in question, as they largely determine the kinds of CC issues it responds to. **Areas of close geographical proximity may face very different adaptation approaches.** Furthermore, since LGUs experience CC firsthand, they know the relativism of the effects it deals with different kinds of people.

CCC Adaptation Programs

- Climate Twin Phoenix
- ReBuild
- People's Survival Fund
- SupportCCC
- ADB Green Growth
- Ecotown

Ecotown Components

COMPREHENSIVE LAND USE PLAN: Ang Kaayusan ng gamit sa lupa, sa CLUP ang simila.

Local Climate Change Action Plans (LCCAP)

- Natural Resource Assessment
- Vulnerability Assessment
- Ecosystem Services Valuation
- Adaptation/Mitigation Measures
- Climate Adaptation Support Service
- Financial Support Programs

People's Survival Fund

- Created by RA No. 10174
- A P1 billion annual special fund to finance climate change adaptation programs and projects.
- Can be used by LGUs and local communities for **adaptation activities** such as water resource management, agriculture and fisheries, health, infrastructure development, and natural ecosystems
- Can also be tapped for disease control and prevention; institutional support against droughts and floods; and as a guarantee for risk insurance needs for farmers and agricultural stakeholders.

The Need for Risk Assessment

Risk assessment presents an assessment of **hazards and vulnerabilities** and provides a basis for **improving preparedness** and response to **minimize losses**. It also informs policies and decision-making processes intended to reduce risk, raise public awareness, and recommends risk reduction measures that could be implemented at household and community levels.

Risk Reduction

- Integration of green infrastructure with "gray" or man-made structures to strengthen community and ecosystems resilience.
- Reduce the natural dangers to the community in coastal and typhoon-ravaged areas.
- Provide better protection for human lives and property.
- Improve the future prospects of communities.

San Vicente, Palawan

San Vicente's 14-kilometer beach is the first coast in the Philippines to have a 50-meter setback from the high tide – the first 30 meters is a no-build zone and additional 20 meters of non-habitable, non-permanent structure.

Communities of Resilience (CORE)

Objectives:

1. **Enhance the knowledge** of local government units in undertaking climate change and disaster risk resilience.
2. **Strengthen the institutional and technical capacity** for effective integration of climate change and disaster risk concerns into local development plans.
3. **Formulate and adopt national and local policies** to institutionalize the CORE initiative.

Components of CORE

- Natural Resource Assessment (NRA)
- Climate/Disaster Risk & Vulnerability Assessment (CCDRA)
- Climate Change & Disaster Risk Assessment (CRRA)
- Awareness Raising & Capacity Building on Mainstreaming CCA and DRR
- Environmental and Natural Resource Accounting (ENRA)
- Greenhouse Gas (GHG) Emission Inventory
- Prioritization of Adaptation & Mitigation Measures
- Local Climate Change Action Plan
- Climate Adaptation Support Services
- Monitoring & Evaluation

National Convergence Program

The national program aims to “enhance **national resilience towards sustainable development** by significantly reducing mortalities an economic losses from natural hazards an climate risks and increasing the economic contribution of the sectors through optimization of climate change adaptation & mitigation opportunities.”

Specific Objectives

1. Increase the capacities of national and local governments to lead local stakeholders in reducing losses from natural hazards and climate change and increase socio-economic contribution of the sectors from CC adaptation & mitigation opportunities.
2. Increase the capacities of critical national and local partners such as local academic institutions, civil society organizations and the private sector to consistently support climate change and disaster risk management actions.
3. Increase the capacities of communities to address the impacts of natural hazards, adapt to climate change, and develop resilience towards sustainable development.

1. Topic: **Integrated Geohazard Mapping**

by Josephine Aleta

Supervising Geologist, Mines and Geosciences Bureau (MGB), Region 7



Ms. Aleta discussed mainly the mandate of MGB and the assessment and mapping tools of the bureau. MGB manages geo science programs, establishes mineral reservations, conducts research and development studies, and provides geological laboratory services. They have a Geohazard Assessment and Mapping program called GAMP, to identify areas in the country that are susceptible or vulnerable to various geohazards. Through GAMP, they were able to produce 1:10,000 scale maps that focus on rain-induced landslide, flood susceptibility, coastal hazards, subsidence hazard and vulnerability and risk exposure. Impact of these events were lessened or mitigated through the geohazard reports and threat advisories, landslide warning signages, IEC materials, and information uploaded in their web portal. The Bureau provides valuable information to LGUs with very specific data like susceptibility of particular barangays to landslide and floods.


MGB GEOHAZARD ASSESSMENT and MAPPING PROJECT
A TOOL TOWARDS ENHANCED ENVIRONMENTAL PROTECTION

2nd Philippine Environment Summit
 February 20-22, 2018
 Cebu City, Cebu



PRESENTATION OUTLINE


- INTRODUCTION
- MGB MANDATE FOR LANDS GEOLOGICAL SURVEY DIVISION (LGSD) & MARINE GEOLOGICAL SURVEY DIVISION (MGSD)
- ORGANIZATIONAL STRUCTURE OF THE MGB & ITS REGIONAL OFFICES
- MGB GEOHAZARD ASSESSMENT and MAPPING PROJECT (GAMP)/ COMPLETED and ON-GOING PROGRAMS
- WHAT HAVE BEEN DONE SO FAR?
- ENHANCED ENVIRONMENTAL PROTECTION
- BEYOND MAPPING



Geohazard Assessment and Mapping Project: Introduction

WHAT IS A GEOHAZARD?

GEO



naturally occurring geological phenomenon


HAZARD

situation that poses a level of threat to people's lives, health, properties, or environment

Geohazards cannot be prevented, but can be mitigated (negative impacts can be reduced).

Geohazards do not have to become disasters, if people are informed and prepared.

Slide from Capacity Building for Mines and Geosciences Bureau Personnel in the CD/RO and PE/MDP



Geohazard Assessment and Mapping Project Introduction

COMMON GEOHAZARDS IN THE PHILIPPINES

Cherry Hills Subd, Anlipolo, Rizal 1999
Guinsaugon, St. Bernard, So. Leyte 2006
La Trinidad, Benguet 2007
Pantukan, Compostela Valley 2012

LANDSLIDE

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project Introduction

2013 Bohol Earthquake
Tagbilaran, Bohol

SINKHOLE COLLAPSE

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project Introduction

Typhoon Frank
Iloilo 2008
Tropical Storm Ondoy
Angeles, Manila 2009
Tropical Storm Saola
Cagayan de Oro 2011
Typhoon Pablo
Compostela Valley 2012

FLOOD

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment Project Introduction

GROUND SHAKING, GROUND RUPTURE, LIQUEFACTION, LANDSLIDE, TSUNAMI

July 14, 1990 North Luzon Earthquake
Magnitude 7.6
PHIVOLCS
October 15, 2013 Bohol Earthquake
Magnitude 7.2
PHIVOLCS
July 14, 1990 North Luzon Earthquake
Magnitude 7.8
Lingayen, Pangasinan
October 15, 2013 Bohol Earthquake
Magnitude 7.2
Beligan, Cebu

EARTHQUAKE

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project Introduction

PYROCLASTIC FLOW, SURGE, LAVA FLOW, LAHAR, ASH FALL

LAHAR
Bamban, Iraloc
September 1991
ASH FALL
Clark Air Base
1991 Mt. Pinatubo Volcanic Eruption
Zambales

VOLCANIC ERUPTION

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project Introduction

2013 Super typhoon Yolanda
Legaspi, Albay

STORM SURGE

IPACED by National Society

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

MGB MANDATE

> LANDS GEOLOGICAL SURVEY DIVISION

- Manage the national geosciences programs on land geoscientific surveys (geological mapping, mineral exploration, geohazard assessment, hydrogeological exploration and vulnerability assessment, and engineering geological and geo-environmental studies)
- Establishment of mineral reservations
- Conduct research and development on geosciences
- Provide geological laboratory and information services

> MARINE GEOLOGICAL SURVEY DIVISION

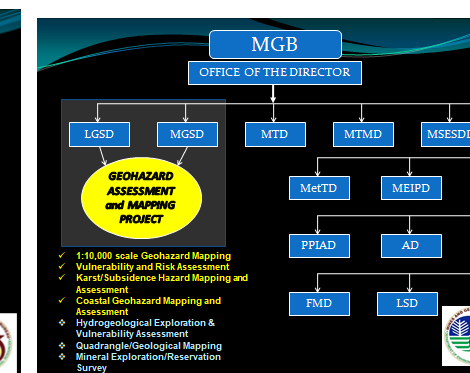
- Undertake marine geosciences surveys (coastal/offshore geohazard assessment, mineral exploration and geo-environmental study)
- Provide marine geoscientific services

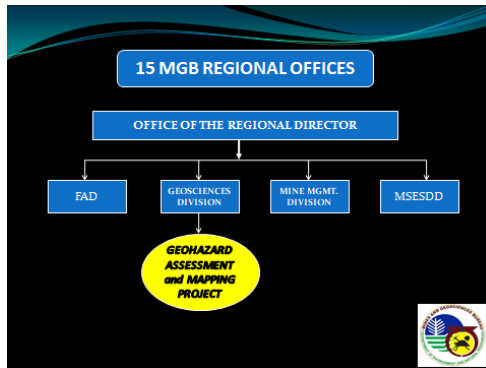
Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

The Geohazard Assessment and Mapping Project (GAMP)

- > a priority undertaking of the Department of Environment and Natural Resources (DENR) since 2006
- > implemented by the Mines and Geosciences Bureau (MGB)
- > initially focused on rain-induced landslide, flood, and coastal hazards; now includes subsidence hazard and VRA

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"





Geohazard Assessment and Mapping Project

COMPLETED ACTIVITIES

- > 1:50,000 scale landslide and flood susceptibility assessment and mapping (2006-2010)
- > 1:10,000 scale landslide and flood susceptibility assessment and mapping (2011-2014)
- > Conduct of Information, Education and Communication (IEC) Campaign for stakeholders (until 2017)

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

MGB Geohazard Assessment And Mapping Project

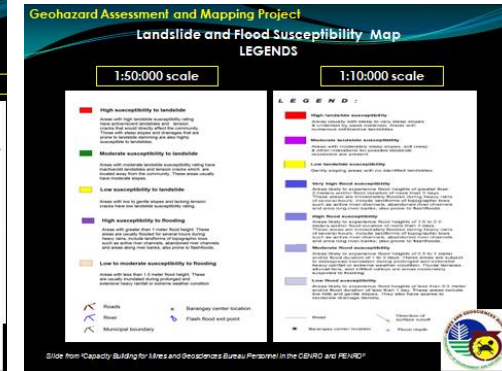
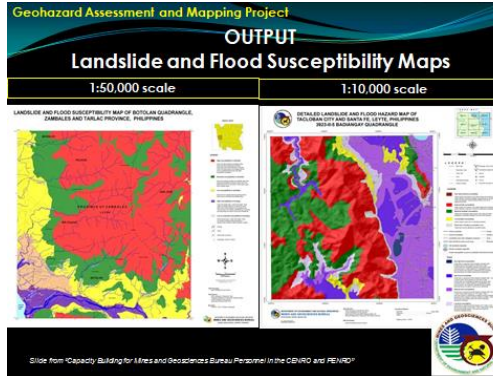
1:10,000 scale Geohazard Mapping And Assessment Program

- Barangay and Purok level mapping and survey of landslide and flood-affected areas
- Acquiring anecdotal data from long-time residents in the area
- Plotting of points and polygon data on 1:10,000 scale base maps
- Exit reports and issuance of threat advisories
- Generation of Composite Geohazards (Rain-induced Landslide and Flood Susceptibility) Maps

Geohazard Assessment and Mapping Project

FLR INFLOOD @ LOWER TALAYON, BADJAN, CEBU

1:10,000 scale Geohazard Mapping And Assessment Program



Geohazard Assessment and Mapping Project

OUTPUT

Geohazard Reports and Threat Advisories

Report of results of geohazard assessment

Geohazard advisory

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

OUTPUT

Landslide Warning Signages

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

OUTPUT

IEC Materials

Poster, Flyers, VCDs

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

OUTPUT

Geohazard Map Portal and Visualization in the Web

ARCIS-based platform Google-based platform

www.mgb.gov.ph

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

OUTPUT

Geohazard Map Portal and Visualization in the Web

Option to download the specific geohazards map (e.g. Masinloc Quadrangle Map Sheet)

Provide information on susceptibility of a specific barangay to landslide and flood (e.g. Bgy Bani, Masinloc, Zambales)

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

SUB-ACTIVITY

Turn-over of Geohazard Map and IEC materials to LGUs

Provincial governors are briefed on the geohazard maps of their respective provinces by the MGB Geohazard IEC team (Left photo: Misamis Oriental-2011; Right photo: Ilocos Sur-2009)

Representatives of the Municipalities of Ginatlian (left) and Sambongan (right) in Cebu Province receive the geohazard maps and IEC materials from the MGB Geohazard team during the Training Workshop on Understanding 1:10,000 Scale Geohazard Maps held in 2017

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

SUB-ACTIVITY

Provision of Geohazard Report and Threat Advisory to LGU

Geohazard threat advisory Report of results of geohazard assessment

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

SUB-ACTIVITY

Installation of Landslide Warning Signages

Itogaya City, 2008 La Trinidad, 2008 Olongapo City, 2011

Aniñolo City, 2014 Quezon City, 2015

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

SUB-ACTIVITY

Conduct of Seminar-Workshop on Understanding Natural Hazards and Geohazard Maps for LGUs and Teachers

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

SUB-ACTIVITY

Identification of relocation sites

Proposed relocation site in Tubigon, Bohol (affected by 2013 Bohol Earthquake)

Proposed relocation site in Monkayo, Compostela Valley (affected by TY Pablo, 2012)

Bgy. Maccas, Tubigon

Purok 2, Bgy. Upper Ulip, Monkayo

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project

ONGOING ACTIVITIES

- Updating of 1:10,000 Scale Geohazard Maps
- Vulnerability and Risk Assessment (VRA)
 - ❖ Risk Exposure Maps
- Subsidence Hazard Assessment
- Coastal Hazard Assessment

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project: Updating 1:10,000 Scale Geohazard Maps



STATUS

- 2015 – updated geohazard maps of 26 cities and municipalities
- 2016 – updated geohazard maps of 21 cities and municipalities
- 2017 – updated geohazard maps of 20 cities and municipalities
- 2018 – targeting the updating of 200 cities and municipalities (in tandem with VRA)

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO"

Geohazard Assessment and Mapping Project: Vulnerability and Risk Assessment (VRA) Survey

- Actual field mapping and updating of geohazard data
- Overlaying of Municipal/LGU population, infrastructure and road maps on the geohazard map
- Data analysis and preparation of Risk Exposure maps





Geohazard Assessment and Mapping Project: VRA

STATUS

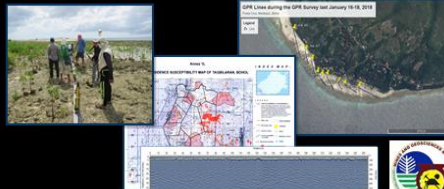

2015 – conducted VRA of 35 cities and municipalities
 2016 – conducted VRA of 200 cities and municipalities
 2017 – conducted VRA of 200 cities and municipalities
 2018 – targeting conduct of VRA of 200 cities and municipalities and conduct of IEC on VRA for 235 cities and municipalities

Slide from 'Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO'



Geohazard Assessment and Mapping Project: Karst/Subsidence Hazard Mapping and Assessment

- Field mapping and assessment
- Ground Penetrating Radar (GPR) survey and sinkhole inventory
- Interpretation of GPR Radargrams
- Production of Karst (Subsidence) Hazard Maps





Geohazard Assessment And Mapping Project: Karst/Subsidence Hazard Mapping And Assessment

STATUS

2013-2014 – conducted karst subsidence hazard assessment of 19 cities and municipalities
 2015 – conducted karst subsidence hazard assessment of 15 cities and municipalities
 2016 – conducted karst subsidence hazard assessment of 15 cities and municipalities
 2017 – conducted karst subsidence hazard assessment of 15 cities and municipalities
 2018 – targeting conduct of karst subsidence hazard assessment of 15 cities and municipalities

Slide from 'Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO'



Geohazard Assessment and Mapping Project: Coastal Geohazard Mapping and Assessment

- Shoreline Mapping and coastal assessment
- Beach profiling utilizing Emery Method
- Sediment sampling (optional)

Cluster: Pasayon 2, Barangay: Lasaan, EB Magarao, Neg. Occ.





Geohazard Assessment and Mapping Project: Coastal Hazard Mapping and Assessment

STATUS


2015 – 2017 : conducted coastal hazard assessment of 629 cities and municipalities
 2018 – targeting conduct of coastal hazard assessment of 248 cities and municipalities

Slide from 'Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PEVRO'



WHAT HAVE BEEN DONE SO FAR?

- ✓ 1:10,000 scale Geohazard Mapping and Assessment started in 2012 and completed in 2014; Updating of geohazards data/maps commenced in 2015
- ✓ IEC and rolling out of geohazards maps to LGUs started in 2015 (prioritized Yolanda-affected areas)
- VRA was initiated in mid-2015, simultaneous with updating of geohazards data/map for 2018 ; on-going
- Subsurface (Karst Hazard) assessment commenced post 2013 Bohol EQ; included in the GAMP in 2015 with the procurement of Ground Penetrating Radar (GPR) units for all MGB Regional Offices in late 2014; on-going
- Coastal hazards mapping and assessment commenced in late 2015; on-going




Enhanced Environmental Protection is achieved through...

- Geohazards Awareness of the populace and strict compliance to and implementation of "NO BUILD ZONES" i.e., hazardous slopes and river channels are not encroached upon by people and structures
- Adoption of appropriate slope protection and flood mitigation measures by concerned LGUs
- Integration of the MGB Geohazards Map in LGU's CLUPs and DRRM Programs
- Re-issuance of Threat Advisories/Regulation of development or Build up in identified High Risk Exposure areas
- Pro-active networking/linkages between LGUs and NGAs towards a more resilient society as regards natural hazards/calamities




Enhanced Environmental Protection is achieved through...

- More efficient utilization of groundwater resources as a result of Hydrogeological Exploration and Vulnerability Assessment (Groundwater Availability maps/province)
- More sensible utilization of mineral resources through the various safety nets and regulatory functions of MGB's MMD and MSESDD



**BEYOND MAPPING:
PDRA**




- PDRA stands for **Pre-Disaster Risk Assessment** which is established in 2015 and spearheaded by the Executive Director of the National Disaster Risk Reduction and Management Council (NDRRMC)
- MGB, through the Lands Geological Survey Division of the Central Office and the Geosciences Divisions of the Regional Offices comprises one of the core group members of PDRA. The other core group member agencies are **OCD, DOSI, DILG, DSWD, DOH, DPWH, AFP, PIA**
- The trigger for the conduct of PDRA is either a blue or red alert declared by NDRRMC in response to impending geohazard events



Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PENRO"

Role of MGB in PDRA



MGB provides list of barangays with High to Very High susceptibility to landslide and flood which are also forecasted to receive more than 100 mm of accumulated rainfall in 24 hours. MGB also reissues threat advisories to LGUs.

Slide from "Capacity Building for Mines and Geosciences Bureau Personnel in the CEVRO and PENRO"

**BEYOND MAPPING:
MAKING PEOPLE EQUIPPED THRU IEC**

■ INFORMATION AND EDUCATION CAMPAIGNS IN VARIOUS FORA

**BEYOND MAPPING:
PROVISION OF GEOHAZARD MAPS /THREAT ADVISORIES, VCDS AND POSTERS TO LOCAL GOVERNMENT UNITS**




For further inquiries:



MGB-DENR
Mines and Geosciences Bureau
North Avenue, Diliman, Q.C
www.mgb.gov.ph/gheqsmgb@gmail.com

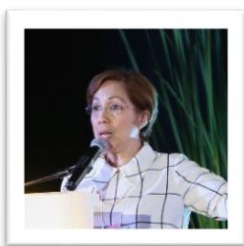
THANK YOU
DAGHANG SALAMAT
MARAMING SALAMAT




2. Topic: Tools for Adaptation from Private – Academe Partnership

by Marianne Quebral

Executive Director, Oscar M. Lopez Center Foundation



The Philippines is most vulnerable to risks related to climate change. That is why OML Center aims to be a leading catalyst for generating science-based solutions to climate-related risks and disasters in the developing world. They went into partnership with academic institutions to conduct studies and programs on Climate Change Adaptation. The collaboration hopes to bring investment and talent/knowledge together to develop science-based solutions. Co-development research projects with state universities and colleges focus on vulnerable regions and priority themes of water related hazards and natural resource management.

Researches are then translated into usable solutions. Networking with policymakers is on-going to make the information available and support climate change informed decisions.

POWERPOINT PRESENTATION

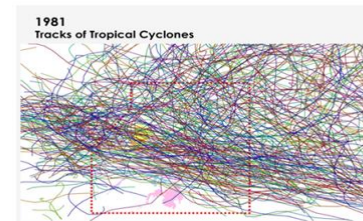
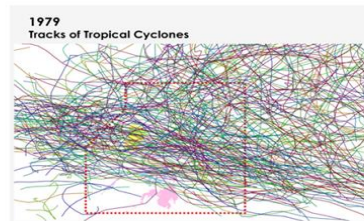
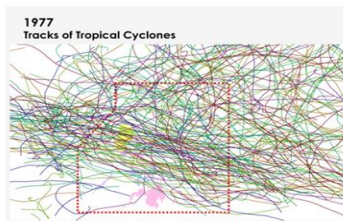
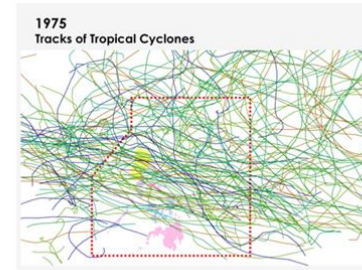
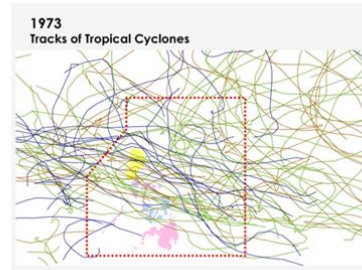
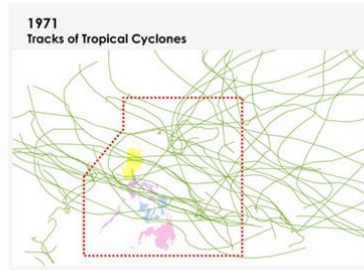
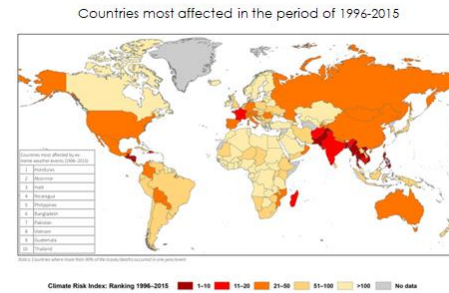
Tools for Adaptation from
Private-Academe
Partnerships
Marianne G. Quebral

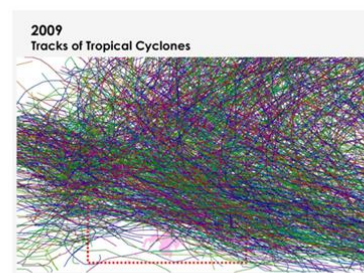
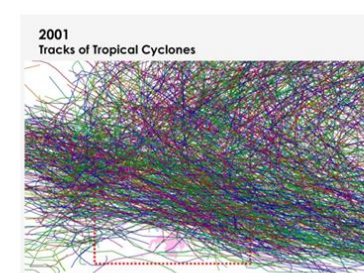
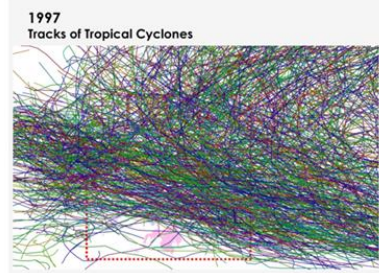
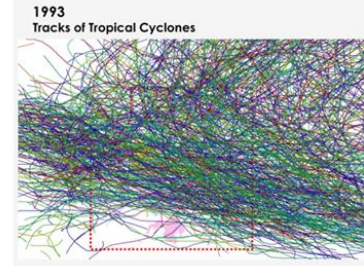
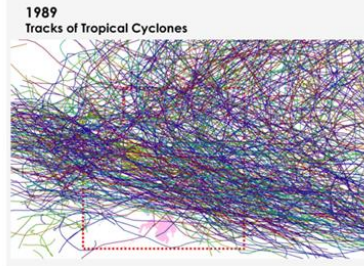
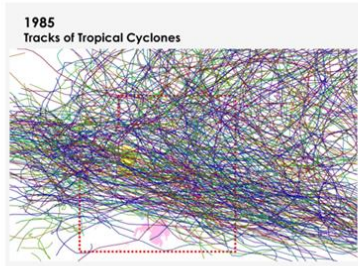


The Philippines remains one of the most at risk countries


Countries most affected in the period of 1997-2016

CR	Country	CR score	Death toll	Deaths per 100-500 inhabitants	Total losses in million USD, PPP	Losses per unit GDP in %	Number of events total (1997-2016)
1 (1)	Honduras	12.17	393.65	4.20	561.21	1.968	61
2 (1)	Mali	13.50	280.40	2.96	418.77	2.730	72
3 (2)	Myanmar	14.00	7 097.75	14.55	1 277.86	0.694	43
4 (4)	Nicaragua	19.33	162.45	2.96	234.60	1.127	44
5 (3)	Philippines	20.17	856.55	0.98	2 933.41	0.611	289
6 (6)	Bangladesh	26.50	641.55	0.44	2 311.07	0.678	187
7 (7)	Pakistan	30.50	523.10	0.33	3 816.82	0.605	141
8 (8)	Vietnam	31.83	312.60	0.37	2 029.80	0.549	216
9 (10)	Thailand	33.83	139.60	0.21	7 696.59	0.967	137
10 (11)	Dominican Republic	34.00	210.90	2.32	241.53	0.202	49





What does this mean for us?

 This image cannot currently be displayed.

Solutions are
needed today.

So what if...

... we could make our cars float during floods?



... zoning and land use plans were informed by climate science? Will we still need no-build zones and evacuation centers?



... "bangus" could adapt to warming waters?



Oscar M. Lopez Center
Science for Climate Resilient Communities

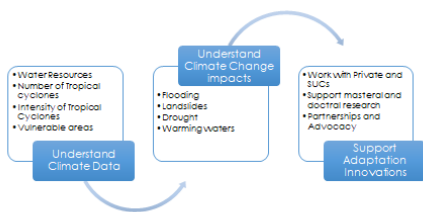
"To be a leading catalyst for generating science-based solutions to climate-related risks and disasters in the developing world."

The climate challenges of our time demand interdisciplinary, multi-sectoral action, that involves all actors and stakeholders.



What have we found?

Focus on Adaptation (vs. mitigation)



Tools for Adaptation OML Center Grants

Water Resource Accounting for a Climate Change Ready Philippines

Geoscience Foundation, Inc.



You cannot manage what you can not measure.

Tools for Adaptation OML Center Grants



Harvesting & Managing Rainwater Using Collapsible Rubber Tanks to Augment Water Supply and Groundwater Recharge and Flood Control

Months with too much rain versus months without water

University of the Philippines Los Baños Foundation, Inc.

Tools for Adaptation OML Center Grants



Developing a Methodology for Calibrating Inoperability Input-Output Models (IIM)

De La Salle University

Tools for Adaptation OML Center Grants



Settlements & Resilience of Ocoy River Communities

Siliman University

Tools for Adaptation OML Center Grants



Healthy Reefs, Healthy Communities

Dr. La Salle University, Main Proponent
California Academy of Sciences, Co-Proponent

Building a network of community scientists

Tools for Adaptation Using Climate Data for Planning

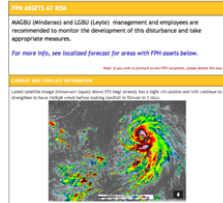


SAVER: Spatial Analysis of Vulnerability Exposure and Risk



Helping farmers protect and increase rice production and yield through flood mapping technology such as LIDAR and GIS

Tools for Adaptation Develop climate risk information



Weather Advisories

Provides regular weather monitoring and advisory services that are tailor fit for decision-makers within the Lopez Group.

These early warnings lead to effective and safe mobilization of staff and assets.

Tools for Adaptation Develop climate risk information



Scientific publications

In collaboration with CCC (PhilCCA) & PAGASA (SPC)

We add to localized climate information to identify knowledge gaps

We aim to make technical climate data relevant and easily understandable

Design of a Car Flotation System DLSU Taft



Mainstreaming Disaster Risk Reduction into Land Use Planning: Developing the Competencies, Tools, and a Community of Practice Earthquakes and Megacities, Inc.

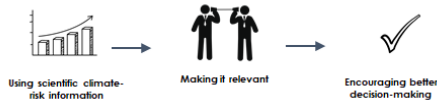


Development of Climate Envelope Models for Assessing Climate Change Risk for Milkfish (Chanos Chanos Forsskål) Aquaculture in Coastal Ponds UP Diliman



Towards becoming climate-informed decision-makers

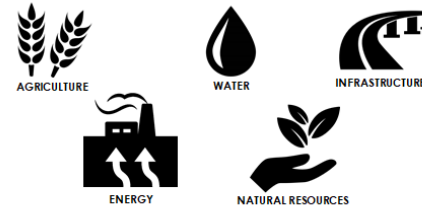
Effective decision making for adaptation requires the best available information about climate changes and their past and potential impacts



The private sector and climate change adaptation



Private sector investments in crucial adaptation sectors



Why Private-Academe Partnerships in Climate Change Adaptation?

- Collaboration will bring investment and talent/knowledge together to solve common problems.
 - Private and Public sectors can provide resources
 - Academe provides the knowledge and scientific rigor to develop solutions – science is a neutral broker

Looking forward...

- Co-development of research projects with State Universities and Colleges (SUCs) focusing on vulnerable regions and priority themes of water related hazards and natural resource management
- Ensuring access to and translation of researches to ensure usability of solutions
- Networking with Policymakers to make information available to them that will support climate informed decisions

3. Topic: **Watershed Information Portal of the Philippines**

by *Rex Victor Cruz*

Overall Project Leader, Integrated National Watershed Research & Development Project, PCCARD



Mr. Cruz discussed INWARD or Integrated National Watershed Information Research and Development Project that aims to establish a network of learning watersheds across the country to build up watershed databases in support of science-based policy and management decision making. The project is funded by DOST-PCAARD, under the leadership of the College of Forestry and Natural Resources of University of the Philippines, Los Banos (CFNR-UPLB). The cooperating agencies are

Mariano Marcos State University (MMSU), DENR-ERDS Region 11, LGUs and other state universities and colleges. They will develop time series of empirical databases and profiles that will be uploaded and made available in a webpage portal to develop stakeholders' capacity for watershed monitoring and science-based planning and decision making. Project sites are the Quiaoit Watershed in Ilocos Norte, Pagsanjan-Lumban Watershed in Southern Tagalog and Saug Watershed in Davao del Norte and Compostela Valley.

POWERPOINT PRESENTATION



MRDP FOR WATERSHED MANAGEMENT

TITLE:
National Research and Development Project for Watershed Management

FUNDING AGENCY:
DOST-PCAARRD

LEAD AGENCY:
College of Forestry and Natural Resources, University of the Philippines Los Baños (CFNR-UPLB)

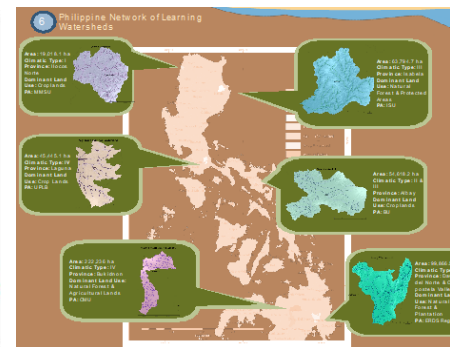
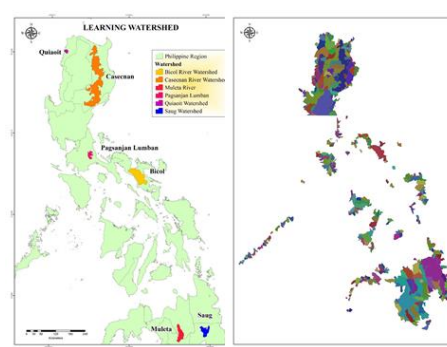
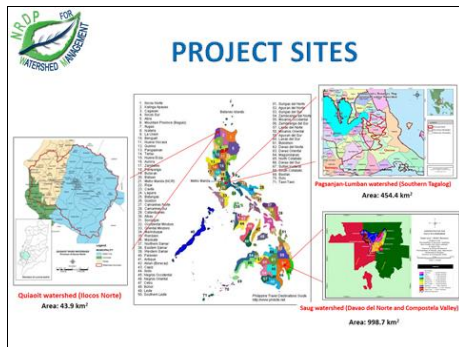
COOPERATING AGENCIES:
Mariano Marcos State University (MMSU), DENR-ERDS XI, BU, CMU, ISU, LGUs, POs, SUCs

PROJECT DETAILS

MRDP FOR WATERSHED MANAGEMENT

VISION

“Establish a network of learning watersheds (LWN) across the country to build up time series of watershed databases in support of science-based policy and management decision making”



Key Objectives

1. Develop time series of empirical databases and profiles of LWN
2. Promote the availability and accessibility of watershed information base to various users
3. Develop culture of data sharing and exchange

Key Objectives

4. Promote public awareness and understanding on the importance of watersheds
5. Develop stakeholders' capacity for watershed monitoring and science-based planning and decision making
6. Promote long-term and interdisciplinary watershed studies among public and private R&D institutions

Key Strategies

1. Develop standard protocols for the selection and maintenance of strategic learning watersheds
2. Develop collaborative mechanisms for multistakeholder watershed monitoring and management
3. Develop a blend traditional and state of the art monitoring systems

Key Strategies

4. Experiential learning for local stakeholders on watershed monitoring and management
5. Partnership with key national and local government and private institutions
6. Engagement of students and youths
7. Regular disclosure and information dissemination program through publications, forums, web-based media and others

Develop time series of empirical databases of LWN

Activities

- Biodiversity monitoring
 - Establishment of permanent monitoring plots
- Soil erosion and Sediment yield
 - Establishment of soil erosion plot for each site
- Water quality monitoring
 - Geo tagging
 - Ecotourism sites
 - POI's, AOI's

Outputs

- Standard protocols for watershed monitoring
- Watershed databases
- Maps

Develop time series of empirical databases of LWN

Activities

- Socio-Economic and Biophysical Characterization
 - Surveys
 - Focus Group Discussions
- Vulnerability and risk assessment

Outputs

- Watershed Profiles
- Vulnerability and risks maps

Promote the availability and accessibility of watershed information base to various users

Activities

- Web-based watershed portals

Outputs

- Easily accessible watershed profiles and databases
- Online reference materials
- Online training modules

Develop culture of data sharing and exchange

Activities

- Recruitment and hosting of watershed profiles and databases for watersheds under various agencies

Outputs

- Accessibility of watershed profiles and databases for various watersheds

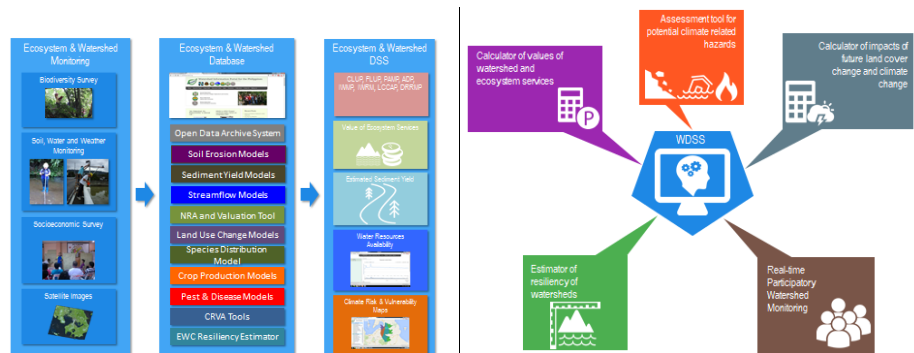
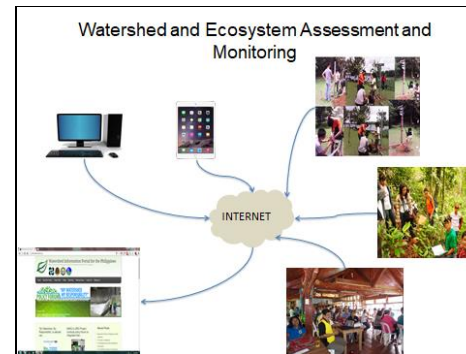
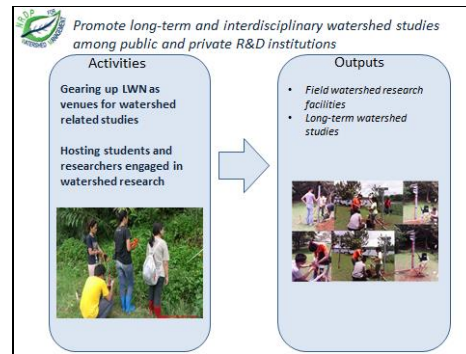
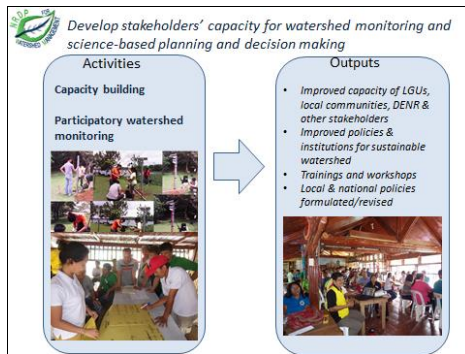
Promote public awareness and understanding on the importance of watersheds

Activities

- IEC Program
- Stakeholders Forum
- Youth Conferences

Outputs

- Workshops/dialogues, & other forums
- Local stakeholders' participation in watershed governance



4. Topic: **NACI Dike River Technology: Riverbank Rehabilitation Strategy**
 by Engr. Alvin Quer
 Program Manager, Tribal Leaders Development Foundation, Inc.



Engr. Quer discussed how their project was able to repair the Naci River by using bamboos and Napier grass to trap the substrate which eventually led to the improvement of its riverbank, mitigate flash floods and river swelling and in the long run establish areas for agriculture.

POWERPOINT PRESENTATION




Naci Dike Technology: Riverbank Rehabilitation Strategy

Alvin M. Quer
Program Manager
TLDFI

Our Prevailing Situation:

Damage Riverbank




Source: AVLDA


Flash flood



Swelling of Rivers



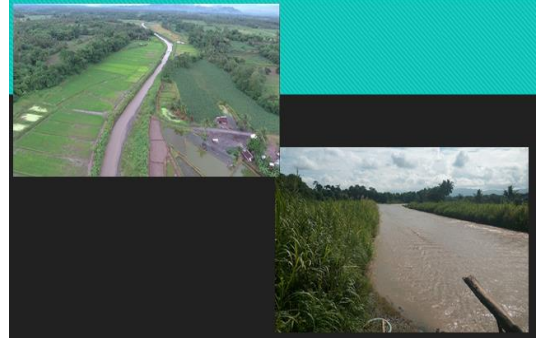
Damaged Farms

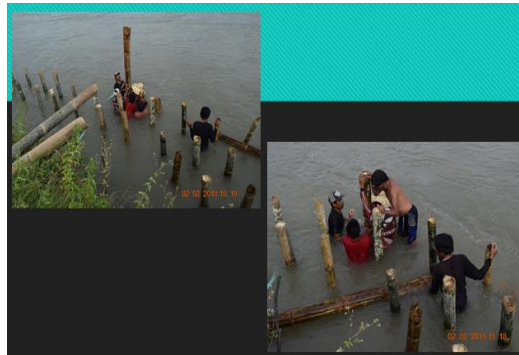


Source: AVLDA



LOCAL IDEA AS A POSSIBLE SOLUTION





Design of Naci Dike

1. 10 ft of bamboo poles are driven to the ground with at least 6.0 ft of its length buried to hold its position against water flow or during flooding.
2. Bamboo trigs, branches are placed in between poles to trap silt and clay deposits during flooding.
3. Napier grass is planted on top of clay and silt deposits after its formation.

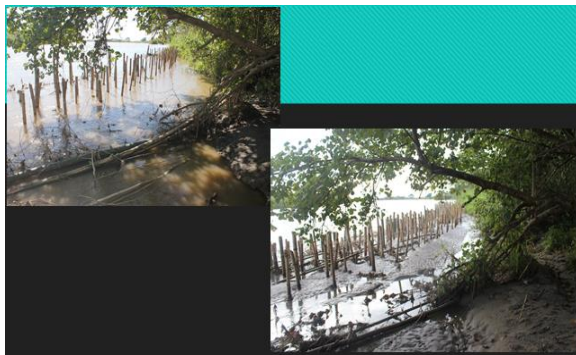
Design of Naci Dike

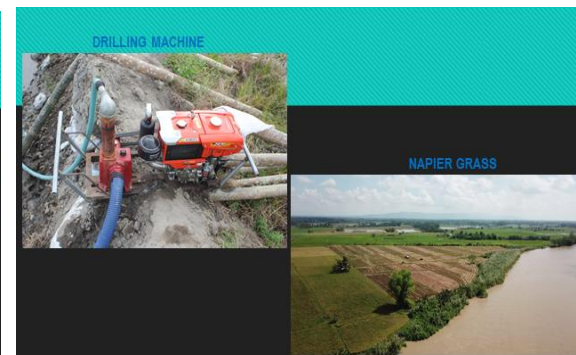
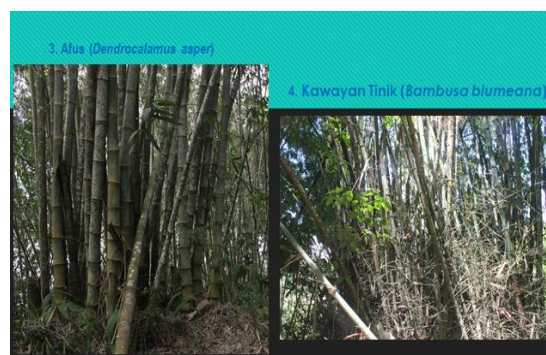
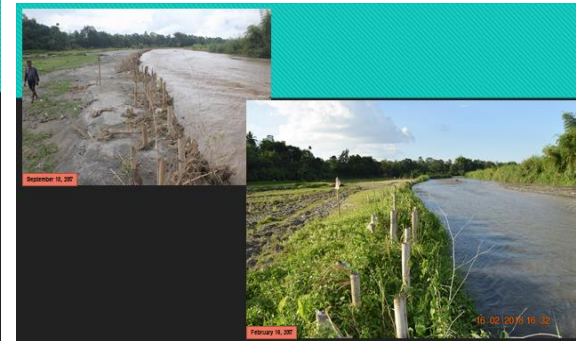
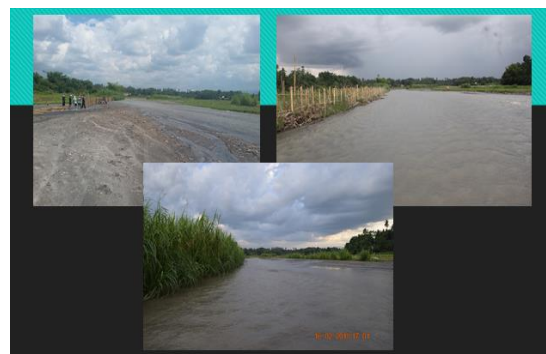
3.0 meters from edge of river

Controls soil erosion

Traps Soil deposits

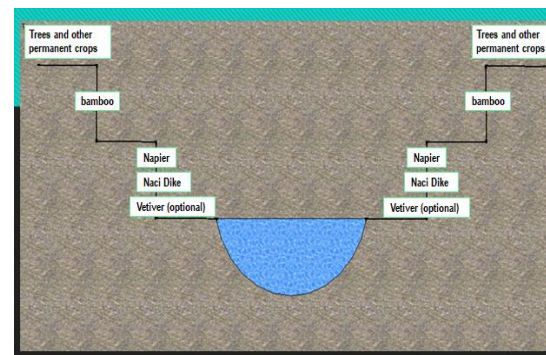
river flow



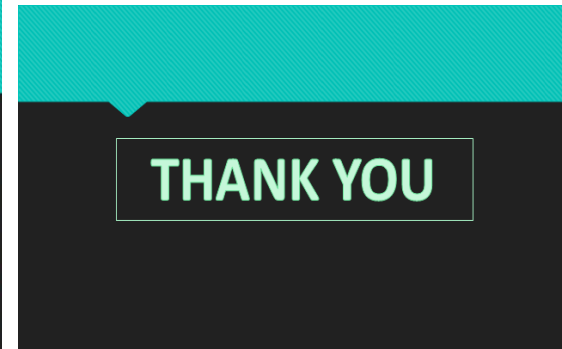


Costs Estimates

ITEM	Unit Cost/km	Labor Cost/km	Fuel/km	Total Cost/km
Bamboo poles				
1. Alus (<i>giant bamboo, dendrocalamus asper</i>)	Php 50 000.00	Php 59,000.00	Php 7,000.00	Php 116 000.00
2. Kawayan Tinik (<i>bambusa blumeana</i>)	Php 30 000.00	Php 59,000.00	Php 7,000.00	Php 96 000.00
3. Bayog (<i>Bambusa Blumeana</i> var. <i>Luzonensis</i>)	Php 30 000.00	Php 59,000.00	Php 7,000.00	Php 96 000.00
4. Lasak or Bulong (<i>Dendrocalamus latiflorus</i>)	Php 25 000.00	Php 59,000.00	Php 7,000.00	Php 91 000.00



- ### Elements of Success in Dike Establishment
1. Community participation
 2. Involvement of the local government unit
 3. Technology transfer
 4. Equipment
 5. Benefits for the farmers



Session E presented winning Eco-friendly and Sustainable Schools. It was chaired by **Asec. Corazon Davis** and facilitated by **Elenida Basug**, Environmental Education Division Chief of EMB-DENR.



Asec. Corazon Davis gave a brief presentation on Green or Sustainable Lifestyle that covered eco-schools and eco-cities. Last November 2014, in Nagoya Japan, UNESCO launched its 10-year Framework Plan of Sustainable Lifestyle and Education Program (10YFP). This is a global platform aimed to scale up sustainable lifestyle at a global level.

“Sustainable Lifestyle” is a cluster of habits and patterns of behavior embedded in a society and facilitated by institutions, norms and infrastructures that frame individual choice, in order to minimize the use of natural resources and generation of wastes, while supporting fairness and prosperity for all. Some examples are online shopping, mass and green transportation, resource recovery, waste avoidance, minimalism, and sharing of usable items, among others.

At the ASEAN level, the Philippines strongly supports the promotion of eco-schools under the ASEAN Environmental Education Action Plan (2014 and 2018) and the ASEAN Eco-schools Awards. It likewise, supports ASEAN Environmentally Sustainable Cities Program through its active participation in the ASEAN Working Groups on Environmental Education and Environmentally-Sustainable Cities.