Youth EcoCamp Training Manual

A guide for conducting the SCPW Youth Ecological Camps

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This training manual was made possible with the generous support of the United Nations-World Food Programme under the Disaster Preparedness and Response (DPR).

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Acknowledgments

The Society for the Conservation of Philippine Wetlands, Inc. (SCPW) would like to thank the following people and organizations for their contribution in producing this Manual:

The CLEAR Partnership (Conservation of Laguna de Bay's Environment and Resources) composed of Laguna Lake Development Authority (LLDA), Unilever Philippines (ULP) and SCPW, for innovating the way we learn about lake conservation and making it fun and exciting for teenagers and teachers alike. The initial Eco-Camps conducted by CLEAR are the source of most of the materials and methods in this document;

The contributors and writers, who over the years continued to enrich the content as well as the learning experience of the youth, some of which have been teaching at the Youth Eco-Camps for the past 13 years, while others have just joined in and are just as passionate as well;

The staff of the SCPW Secretariat, who helped in writing the preliminary draft of this Manual particularly Zeni Ugat, Caloy Quintos and Darry Shel Estorba;

To Ms. Jenny Sunga-Amparo for providing advice during the whole process of producing this Manual;

To Mr. Irwin Gabriel S. Lopez and Arch. Aaron M. Lecciones for transforming the original Module from a simple conservation-oriented curriculum to one that draws the connection between wetlands and disaster risk reduction and highlight another aspect of disaster preparedness and response through an ecosystem-based approach;

More importantly, to the United Nations-World Food Program (UN-WFP), for recognizing the inextricable link between ecosystems integrity and long-term disaster reduction and preparedness by providing funds for six sessions of Youth Ecological Camps including the production of this Manual.

Editorial Team

Amy M. Lecciones
Aaron Julius M. Lecciones

Contributors and Writers

Amy M. Lecciones
Simplicia A. Pasicolan
Ma. Cheryl F. Prudente
Wilhelmina C. Ricamunda
Aaron Julius M. Lecciones
Zenaida M. Ugat
Jose Carlo H. Quintos
Darry Shel M. Estorba

Graphics and Layout

Aaron Julius M. Lecciones – Design
Rochella B. Lapitan – Layout
Jose Carlo H. Quintos – Photography
Zenaida M.Ugat – Photography

Consultants

Jennifer Marie Sunga-Amparo
Irwin Gabriel S. Lopez

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About the Manual

The Society for the Conservation of Philippine Wetlands, Inc. (SCPW) with its CLEAR Partners composed of Unilever Philippines (ULP) and the Laguna Lake Development Authority (LLDA) embarked on a Youth Ecological Camp (YEC) in 2003 to provide an experiential learning venue for lake conservation for High School students in the Laguna de Bay lakeshore towns. The first YEC was held in Tanay and to this day, 17 Camps have been conducted in 16 municipalities with more than 400 students directly benefitting from the 3-day course. To date, there are more than a hundred school- and community-based wetland conservation projects being implemented in the 92 High Schools that participated in these YECs in the Laguna de Bay Region. Three other camps were conducted using the same curriculum that centred on an ecosystem-based approach to wetland conservation in Lake Buhi, Agusan Marsh Wildlife Sanctuary and Naujan Lake.

In 2013, the United Nations World Food Program (UN-WFP) as part of its umbrella program on "Disaster Preparedness and Response Programme" (Building Resilience Against Disasters and Climate Change), recognized the merits of the Eco-Camp as a vehicle for teaching High School students about disaster risk reduction and preparedness and its link to the integrity of ecosystems, particularly wetlands. It should be noted that more often than not, wetlands are areas where disasters can occur frequently particularly when people are vulnerable and exposed to or are located in wetlands places like coastal areas, along rivers and lakes, and in floodplains. The SCPW believes that long-term programs for disaster preparedness should include taking care of our natural environment particularly wetlands because these specific ecosystems provide a natural hedge to climate change impacts. Among the ecosystem services provided by wetlands are water storage to prevent flooding, physical barriers against wave action such as mangroves, and provision of food and livelihood. Recognising the interlinkages and taking advantage of the Youth Ecological Camp as a platform for engaging the Youth on Disaster Risk Reduction and Management (DRRM) and preparedness, the UN-WFP and the SCPW worked together to develop a curriculum that would deliver this message to the Youth. Thus, from a straightforward conservation curriculum, the YEC was transformed into a learning adventure that provides a seamless integration of ecosystem concepts and disaster risk reduction and preparedness.

A Training of Trainers (ToT) for conducting the Eco-Camp using the new curriculum was held for ten High School teachers from three municipalities in Laguna namely Mabitac, Rizal and Pila. It was held back-to-back with an actual Eco-Camp that served as their practicum. The curriculum was further improved based on the experiences in these Camps and was again used for the second set of Eco-Camps in Mataasnakahoy, Balete and Tingloy in Batangas Province. So far, the results of the Eco-Camps have been outstanding just like initial Eco-Camps using the original curriculum. These results are also supported by the sustained implementation of school-based projects by the participating High Schools. With the curriculum and methods proven to be successful in conveying messages to the Youth, it is high-time that the activity be upscaled especially in highly vulnerable wetland areas. However, it will be very costly to conduct ToTs even just in priority wetland areas that are vulnerable to disasters. This Manual was therefore produced to provide a guide to people and organizations who would like to conduct a Youth Ecological Camp specifically designed for High School Students.

How to Use the Manual

This Manual has been designed as a *guidebook* in implementing a Youth Ecological Camp. It covers a wide range of activities for teaching High School students understand the inter-linkages between ecosystems integrity, disaster preparedness, and disasters risk reduction and management. It is envisioned to:

- Provide an overview of ecological concepts, fundamentals of Disaster Risk Reduction and Management and Climate Change, and ecosystem-based adaptation;
- Provide a step-by-step instruction on the methods and processes in conducting a YEC;
- Allow the Eco-Campers and facilitators to learn from experience and further enrich the curriculum.

This *Manual* is divided into three parts:

Part 1: The Youth Ecological Camp Design
Part 2: Preparing for the Youth Eco-Camp
Part 3: Useful Tips and Bright Ideas in Conducting a Successful Youth Ecological Camp

Part 1 includes the five (5) Modules that cover the substantial content of the Eco-Camp. These are:

- Module 1: The Seven Environmental Principles
- Module 2: Environmental Profile of the City or Municipality
- Module 3: Ecological Solid Waste Management
- Module 4: Wetlands and Water: The Connection Among Wetlands, Water Security and Disaster Preparedness
- Module 5: Fundamentals of Disaster Risk Reduction and Management and Climate Change

Each Module in this Manual consists of three parts: the design, a PowerPoint presentation for trainers and a corresponding handout for the students.


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Part 2 discusses implementation aspects including coordination with schools and the Local Government Units, selection of venue and handling of logistical arrangements, selection of speakers and facilitators, and fund management, among others.

Part 3 provides details on the actual conduct of the YEC and gives important tips and insights on time management, keeping the attention of the Eco-Campers, and conflict or issues resolution. It also discusses monitoring and evaluation and post-Camp activities.

This Manual is only intended as a guide, and does not attempt to be prescriptive and final. It is envisioned that it will help in reaching out to the Youth who should be embraced as partners in ecosystem conservation and in disaster preparedness.

Table of Contents

Acronyms

AVP	Audio-Visual Presentation	LLDA	Laguna Lake Development Authority
CC	Climate Change	LGU	Local Government Unit
CCA	Climate Change Adaptation	LPPCHEA	Las Piñas-Parañaque Critical Habitat and Ecotourism Area
CFC	Chlorofluorocarbons	MDRRMO	Municipal Disaster Risk Reduction and Management Officer
CCAM	Climate Change Adaptation and Management	MENRO	Municipal Environment and Natural Resources Officer
CLEAR	Conservation of Laguna de Bay's Environment and Resources	MPDC	Municipal Planning and Development Coordinator
CLUP	Comprehensive Land Use Plan	NASA	National Aeronautics and Space Administration
CRM	Coastal Resource Management	NOAD	National Oceanic and Atmospheric Administration
CSR	Corporate Social Responsibility	NSWMC	National Solid Waste Management Commission
DENR	Department of Environment and Natural Resources	NWAPP	National Wetlands Action Plan for the Philippines
DPR	Disaster Preparedness and Response	PCRA	Participatory Coastal Resource Assessment
DRR	Disaster Risk Reduction	SCPW	Society for the Conservation of Philippine Wetlands, Inc.
DRRM	Disaster Risk Reduction and Management	SRP	Sachet Recovery Project
EIA	Environmental Impact Assessment	ToT	Training of Trainers
EMB	Environmental Management Bureau	TSI	Trophic State Index
GD	Group Dynamics	ULP	Unilever Philippines
GMO	Genetically Modified Organism	UN-WFP	United Nations World Food Programme
IEC	Information, Education, and Communication	WWF	World Wide Fund for Nature
GHG	Greenhouse gases	YEC	Youth Ecological Camp

List of Tables

List of Figures

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Part 1: The Youth Ecological Camp Design

Overview

The Youth Ecological Camp is a 3-day, live-in curriculum that incorporates concepts on environmental protection and natural resources conservation in relation to disaster risk preparedness and climate change adaptation and mitigation in the local context of a municipality. The curriculum is designed for High School students, preferably those in 8th or 9th Grade in areas where wetlands are prominent features of a locality. It employs experiential learning methods and approaches such as knowledge-sharing sessions, field exposure visits, role playing, workshops, action planning, games and other activities that make it interactive and full of fun. Learning does not end at the actual Camp but is in fact practised through the implementation of school-based activities that the Eco-Campers craft during planning sessions. Moreover, the Eco-Campers get actual training in presentation and resource mobilization skills. This curriculum has been tested as an effective tool for increasing the awareness of the youth on wetland conservation for the past ten years, and lately, on disaster risk reduction, disaster preparedness, ecosystem-based adaptation, and other climate change-related issues. It has empowered the youth to become an important community actor in wetland conservation and disaster risk reduction, management and preparedness.

This Manual presents two options for conducting a Youth Ecological Camp based on two themes:

- Theme 1 presents the original curriculum that focuses on wetland conservation;
- Theme 2 presents the enhanced curriculum that integrates environmental conservation and ecosystems-based adaptation including disaster preparedness and climate change adaptation and mitigation.

The objectives of the Youth Ecological Camp vary based on the theme.

For the conservation-oriented curriculum, the objectives are:

- To learn about the basic ecological principles and how it applies to wetland conservation.

- To learn about the environmental status of the wetland, the pressures and problems besetting it and identify practical solutions that they can implement at their level.
- To appreciate the value of camaraderie and partnerships in working towards wetland conservation.

In addition to the above objectives, Theme 2 which integrates ecosystem-based adaptation, DRRM and preparedness and other CCAM aspects aims to:

- Create a venue where the provincial and municipal government can delegate Disaster Preparedness and Response and Climate Change Adaptation actions to the youth sector and to other actors at the community-level;
- Involve the local governments, schools or other actors in effectively engaging the youth in CCAM, DRRM and other initiatives;
- Educate the youth on climate change and how this phenomenon may affect the municipalities and their wetlands, and how these problems can be mitigated or altogether avoided;
- Empower the youth to take a more active role in disaster risk reduction and preparedness, and climate change adaptation.

Time Required or Duration

Three Days (Live-in); preferably Wednesday to Friday

Participants or Class Size

The target participants for the Eco-Camp are composed of students from various schools in the selected municipality or city. They should be high school students, preferably 8th and 9th graders, with good leadership potential. The preferred number of participants is from twenty-five (25) to thirty-five (35). There should also be a good mix of male and female participants. One (1) or two (2) high school teachers that will act as chaperones should also be invited as required by the Department of Education (DepEd).

Methods or Procedures

The first day of the camp is a learning session where resource persons are invited to provide simple technical lectures to share knowledge to the Eco-Campers about basic ecological principles, ecological waste management, and DRRM and CCAM, among others. A local Resource Person from the Local Government Unit, usually the Municipal Planning and Development Coordinator (MPDC) is also invited to talk about the environmental profile of the municipality. The Camp includes a field exposure trip on the second day, and this is where the difference between the two themes lie. For Theme 1, the field exposure trip entails rapid wetland profiling and assessment employing methods and activities such as water quality measurements, species identification, and land use observation. For Theme 2, the field exposure activity is called "Disaster Town Watching" where the Eco-Campers visit their most vulnerable village and practice the application of concepts such as village mapping for hazards, capacities, risks and vulnerabilities. This will be the basis for crafting their school-based or community-based projects that they will eventually implement. On the evening of the second day, a Talents Night is held to make the Camp a fun experience. The third day is devoted to Action Planning and reporting, and a simple graduation ceremony attended by the LGUs and school officials. Modules on specific topics are presented in the succeeding sections of this Manual.

Program

Below are the typical programmes for the Youth Ecological Camp.

Theme 1: Conservation-oriented curriculum

DAY 1

	MORNING SESSION
07:30	Arrival at the Eco-Camp venue Registration Refreshments
09:00	Opening Program ▪ Invocation ▪ National Anthem ▪ Welcome Remarks – *Municipal Mayor* ▪ Opening Remarks – Main Organizer ▪ Messages – *Partners and Sponsors*

	Photo Opportunity
10:00	What the Eco-Camp is All About and Expectations Setting
10:30	Team Building – Getting to Know You (Human Bingo)
11:00	LECTURE 1: The Seven Environmental Principles (Resource Person)
11:30	LECTURE 2: Environmental Profile of the Municipality (Municipal Planning and Development Coordinator)
12:00	Lunch and Check-In
	AFTERNOON SESSION
01:30	AVP on Conserving Our Wetlands
01:45	LECTURE 3: The State of the Local Wetland (MPDC, LGU or Representative from the local Department of Environment and Natural Resources)
02:15	GROUP ACTIVITY: *Ako, ang Aking Kapaligiran at ang Aking Komunidad* – Interrelationship of Human Activities with the Quality of the Environment (Facilitator)
02:45	Facilitated Discussion or Workshop: The Role of the Youth in Wetland Conservation and Disaster Risk Reduction, Management and Preparedness
03:00	Break
03:15	LECTURE 4: Ecological Waste Management (Resource Person)
03:45	LECTURE 5: Wetlands and Water (Resource Person)
04:15	LECTURE 6: Climate Change 101 (Resource Person)
04:45	Briefing for Field Exposure (Training Team)
05:30	Free Time
07:00	Dinner
08:00	Bonding Session
10:00	Lights Out

Theme 1: Conservation-oriented curriculum

DAY 2

	MORNING SESSION
06:00	Rise and Shine
07:00	Breakfast
08:00	Field Exercise: ▪ Field Observation ▪ Water Quality Monitoring Demonstration (Facilitators and Resource Person)
12:00	Lunch

	AFTERNOON SESSION
1:00	Processing of Field Data and Discussion of Field Results (Facilitator and Resource Person)
03:00	Snacks
	Presentation of Field Results (Facilitator and Resource Person)
4:00	Prepare for Talents' Night
06:00	Dinner
07:00	Talents Night
10:00	Lights Out

DAY 3

	MORNING SESSION
07:00	Rise and Shine
07:30	Breakfast
08:00	Visioning / Action Planning Workshop
10:00	Break
10:30	Presentation of Action Planning Workshop Outputs
12:00	Lunch
	AFTERNOON SESSION
01:00	Presentation of Action Planning Workshop Outputs (continued from morning session)
03:00	Closing Program
	Adoption and turn-over of Project Plans and Commitments
	Closing Remarks
	Awarding of Special Awards and Group Prizes
	Awarding of Certificates and Tokens
	Commitment Setting
04:00	Homeward Bound

Theme 2 Ecosystem-Based Adaptation and Disaster Preparedness and Response

Day 1

	MORNING SESSION
8:00	Arrival at the Campsite
	Registration
9:00 – 10:00	Opening Ceremonies
	- Invocation

	- National Anthem - Welcome Remarks *Municipal Mayor* - Opening Remarks *Society for the Conservation of Philippine Wetlands, Inc.* - Messages *Partners and Sponsors (UN-WFP; Department of Education, etc.)*
	Group Photo / AM Snacks
10:00	Team Building – Getting to Know You (Human Bingo) (Facilitator)
10:15	What the Eco-Camp is All About and Expectations Setting (Organizer/Facilitator)
10:30	LECTURE 1: Basic Profile and DRRM Programs of the Municipality including Profile of the Local Wetland (MPDC or MDRRMO)
11:00	L ECTURE 2: The Seven Environmental Principles (Resource Person)
12:00	Lunch / Check-in
	AFTERNOON SESSION
1:00	AVP – Conserving Our Wetlands
1:30	GROUP ACTIVITY: *Ako, ang Aking Kapaligiran at ang Aking Komunidad* – interrelationship between human activities with the quality of the environment (Facilitator)
2:00	LECTURE 3: Climate Change 101 (Resource Person)
2:30	LECTURE 4: Fundamentals of Disaster Risk Reduction and Management, Chapters 1 and 2 (Resource Person)
3:00	PM Break
3:30	LECTURE 4 (Cont.): Fundamentals of Disaster Risk Reduction and Management, Chapters 3 and 4 (Resource Person)
5:30	Free Time
7:00	Dinner
8:00	Bonding Session
10:00	Lights Out

Theme 2 Ecosystems-Based Adaptation and Disaster Preparedness and Response

Day 2

	MORNING SESSION
6:00	Rise and Shine
7:30	Breakfast
8:00	Start of Session Recap of Day 1

	Introduction to Disaster Town Watching and Orientation for the Field Visit and DRRM Activity (Resource Person; Eco-Camp Team)
8:30	Field Trip - Field Observation and DRRM Activity: Disaster Town Watching
11:30	Travel Back to Campsite
12:00	Lunch
	AFTERNOON SESSION
1:30	Processing of Data
4:30	Freshen-up and Prepare for Talents' Night
7:00	Dinner
8:00	Talents Night
11:00	Lights Out

Day 3

	MORNING SESSION
7:00	Rise and Shine
8:00	Breakfast
9:00	Processing, Analysis and Presentation of Day 2 Data
11:30	Visioning / Action Planning Workshop (Facilitator)
12:30	Lunch
	AFTERNOON SESSION
1:30	Visioning / Action Planning Workshop (*cont.*)
2:30	Presentation of Outputs / Sharing of Experiences
4:00	Closing Program Turn-over of Action Plans and Commitments: Awarding of Certificates and Tokens Commitment Setting Awarding of Special Awards and Group Prizes Closing Remarks
5:30	Homeward Bound

Feedback, Follow-Up and Sustainability

Feedback forms are accomplished by the Eco-Campers as well as the Resource Persons and Camp Staff at the beginning and conclusion of the Camp. Two weeks after the Camp, the Eco-Campers should conduct a School Assembly or Community Meeting to present their Action Plan and to solicit the support of the schools, parents and the local government. The Action Plan will then be implemented and it is

envisioned that the learnings of the Eco-Campers will be cascaded to other students and institutionalized by having an existing school organization (ie Science Club, Supreme Student Council) adopt the activities to ensure sustainability.

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Module 1: The Seven Environmental Principles

1. Introduction

   Among the Youth today are our future leaders who will chart the direction of the country's development. Thus, there is an urgent need to equip them with values, knowledge and practices that will enable them to be that Leader who will shape the future. Issues that the Youth can get involved in are in the field of environmental protection, natural resources conservation, and disaster risk reduction and preparedness. Understanding the underlying causes of environmental problems that we face today will lead to appreciation and hopefully, action from the Youth to take part in helping solve these problems. This Module discusses basic environmental principles and issues, threats to the various types of ecosystems particularly wetlands, and most importantly the role of Youth in environmental protection and disaster risk reduction and preparedness.

2. Learning Objectives
   - To know, understand and appreciate the current state of the country's environment including threats and issues and major initiatives of the Government.
   - To learn about basic environmental principles.
   - To have an idea of the activities that the Youth can implement to help in the overall effort of environmental protection and disaster risk reduction and preparedness.

3. Mode of Delivery:

   This Module may be taught through lectures and supplemented with an Audio-Visual Presentation (AVP) on wetlands and an activity that will allow the participants to appreciate the concepts being taught. There will also be a short facilitated discussion or if preferred, a workshop on the role of the Youth in conservation and disaster risk reduction, management and preparedness. Eco-Campers are provided with handouts after the lecture.

4. Total Training Time Required

   Total training time is 1.5 hours to be conducted in two sessions. It will consist of a 30-minute lecture, a 7-minute AVP and 7-minute reflection and discussion of the AVP, a 30-minute activity called "Ako,

ang Aking Kapaligiran at ang Aking Komunidad" or the "Inter-relationship of Human Activities with the Quality of the Environment", and a 15-minute facilitated discussion or workshop. This activity precedes and acts as introduction to Module 3 on Ecological Waste Management.

5. Participants / Pre-requisites

Ideally, the number of participants in YEC's could be between 25-35 High School Students in their 8th-9th Grades. It is recommended that the Eco-Campers should have already taken basic subjects in Earth and Life Sciences (Biology).

6. Materials and Equipment

LCD Projector, Projector Screen, Sound System, Laptop computer, crayons, scissors, paste, light blue construction paper, short bond paper (number depends on the number of Eco-Campers)

7. References

There are several websites that discuss this topic (see links below). These are summarized in the handout that is given to the Eco-Campers.

8. Course Content
   a) The State of Philippine Wetlands
      1) Wetlands Defined; Functions; Ecological Services
      2) Issues, Threats
   b) The Seven Environmental Principles
      1) Everything is connected to everything else.
      2) All forms of life are important (thus, the need for biodiversity)
      3) Everything must go somewhere (thus, too much can cause pollution)
      4) Ours is a finite earth (thus, the need for conservation)
      5) Nature knows best (thus, the need for ecological technology)
      6) Nature is beautiful and we are stewards of God's creation
      7) Everything changes.
   c) The Inter-relationship of Human Activities with the Quality of the Environment
   d) Role of the Youth in wetland conservation and in disaster risk reduction, management and preparedness

9. Methods/Procedures

9.1 Introduction to the Module		
Topic	**Process Performer**	**Method/Procedure**
Introduction to the Session	Facilitator	Welcome the participants to the session and gives an overview of the Module
Introduction of the Resource Person	Facilitator	Introduce the Resource Person for this topic highlighting their credentials, capability and authority in handling the lecture.
Introduction to the Module	Resource Person	Outline the overall coverage of the Module, its objectives, and the relevance of the lecture to the Eco-Campers as actors in conservation and DRRM, CCAM and disaster preparedness.

9.2 Discuss the content of the Module		
Topic	**Process Performer**	**Method/Procedure**
1. The State of Philippine Environment (Wetlands)	Resource Person	Interactive lecture; PowerPoint presentation
2. The Seven Environmental Principles	Resource Person	Interactive lecture; PowerPoint presentation; Eco-Campers are encouraged to give examples per principle
3. The Inter-relationship of Human Activities with the Quality of the Environment	Resource Person; Facilitator; Camp Masters	See Activity Design in Annex B.
4. Role of the Youth in wetland conservation and in disaster risk reduction, management and preparedness (Identify activities that the Youth can get involved in)	Resource Person; Facilitator	Facilitated discussion/workshop

10. Bibliography

The University of Maine (n.d). Commoner's Law of Ecology. Retrieved April 21, 2016 from https://extension.umaine.edu/tanglewood/4-h-earth-connections/leaders-guide/chapter-3/

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Commoner, B. (1974). The Closing Circle: Nature, Man, and Technology. Retrieved April 21, 2016 from http://icternodisola.it/public/uploaded/manuale%20della%20qual/lim%20Scuola%20Secondaria/percorso%20economico-soc/letter/The%20closing%20circle%20Commoner.pdf

Handout from Miriam College.

11. Lecture Notes/Handouts

See Annex A

12. PowerPoint Presentation

See enclosed CD

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Module 2: Environmental Profile of the City/Municipality

1. Introduction

The selected site for the Youth Ecological Camp is usually a city or municipality that is within or close to a wetland. These could be areas that are adjacent to lakes, rivers, marshes, marine coastal areas or small island municipalities. Since the curriculum emphasizes the connection between ecosystems and ecosystem services provided by wetlands (including being a hedge against the impacts of climate change, a presentation on the profile of the municipality must be made to the Eco-Campers. When there is a major wetland in the area, ie a Ramsar site, it is recommended that a separate lecture on the said wetland be included in the curriculum.

2. Learning Objectives

- To learn about the environmental profile of the municipality or city, including the major wetlands in the area.
- To know about the initiatives of the LGU related to conservation and DRRM, preparedness and response;
- To have an idea of the activities that the Youth can implement to help in the overall effort of conservation, DRR, preparedness and response.

3. Mode of Delivery:

This Module may be taught through lectures supplemented with maps and photos of the LGU's related activities.

4. Total Training Time Required

Total training time is 30 minutes of lecture supplemented with the actual site visit to a wetland or to the most vulnerable Barangay in the municipality or city during the field exposure visit.

5. Participants/Pre-requisites

Ideally, the number of participants in YEC's could be between 25-35 High School Students in their 8th-9th Grades.

6. Materials and Equipment

LCD Projector, Projector Screen, Sound System, Laptop computer, Maps

7. References

The CLUP and the Municipal Disaster Risk Reduction Management Plan, when available, are good references for this lecture. The Resource Person may also check with the Biodiversity Management Bureau of the Department of Environment and Natural Resources (BMB-DENR) if they have data on their major wetland, when applicable.

8. Course Content
   a) Short history, area and population of the municipality or City
   b) Natural Resources available
   c) Issues and threats
   d) LGU initiatives relevant to resources conservation, environmental protection, CCAM, and DRRM, preparedness and response.

9. Methods/Procedures

9.1 Introduction to the Module		
Topic	Process Performer	Method/Procedure
Introduction to the Session	Facilitator	Welcome the participants to the session and gives an overview of the Module
Introduction of the Resource Person	Facilitator	Introduce the Resource Person for this topic highlighting their credentials, capability and authority in handling the lecture.
Introduction to the Module	Resource Person	Outline the overall coverage of the Module, its objectives, and the relevance of the lecture to the Eco-Campers as actors in conservation and DRRM, CCAM and disaster preparedness.

9.2 Discuss the content of the Module		
Topic	Process Performer	Method/Procedure
1. Short history, area and population	Resource Person	PowerPoint presentation;

9.2 Discuss the content of the Module		
Topic	Process Performer	Method / Procedure
2. Resources available	Resource Person	PowerPoint presentation; show how resources are used in the area and how it benefits the community; encourage Eco-Campers to participate; if there is a major wetland in the area, emphasize the benefits derived from it.
3. Issues and threats	Resource Person;	PowerPoint presentation; illustrations and examples; encourage Eco-Campers to participate and share their experiences
4. LGU initiatives relevant to resources conservation, environmental protection, CCAM, and DRRM, preparedness and response.	Resource Person; Facilitator	Show photos of LGU in action and mention activities where the Youth can participate.

10. Bibliography

Use your local library and government units to get site specific information and data.

11. Lecture Notes / Handouts

The handout follows the content of the presentation. The LGU may want to distribute brochures, pamphlets and other knowledge products that will help increase the awareness of the Eco-Campers about their municipality or city.

12. PowerPoint Presentation

To be prepared by Resource Person from the LGU following the Course Content

Module 3: Ecological Solid Waste Management in the Community

1. Introduction

Unmanaged solid waste has become one of the urgent problems in urban areas that demands the commitment and cooperation of every citizen in a community. Dumping of wastes indiscriminately endangers the health of communities, particularly of those living in adjacent dumpsites and those using water bodies for various purposes. The basic principles of solid waste management are taught in schools and to some extent has influenced communities to manage their waste. However, a concerted effort for improved solid waste management needs to be facilitated by champions, which could either be groups or individuals. The Youth Ecological Camps offers another venue for the Youth to actually take action and become champions in their own communities. The YECs also provides examples of various activities that they can implement within their homes. Moreover, it links the youth to the Local Government programs on solid waste, thus gaining support for their activities. This Module highlights the basic principles of ecological waste management and puts forward activities that the Youth can implement given their capacities and using resources that are available to them.

2. Learning Objectives
   - To review the basic principles of ecological waste management;
   - To learn about current efforts to manage community waste in the municipality;
   - To learn new and innovative activities in managing solid waste in homes, schools and communities.

3. Mode of Delivery:

This Module may be taught through lectures and sharing sessions with other Eco-Campers who have implemented solid waste management activities in their homes, schools or communities. Actual observation of how the community manages its waste will also be part of the field exercise called "Disaster Town Watching". Handouts are given as part of the YEC kit.

4. Total Training Time Required

Total training time is one hour to be conducted in two sessions. It will consist of a 30-minute lecture that can be combined with a sharing session and 30-minutes for field observation during the "Disaster Town Watching" activity. On the last day of the Eco-Camp, a planning session is held where Eco-

Campers plan activities that will help address the various issues they have identified, including solid waste management.

5. Participants and Pre-requisites

Ideally, the number of participants in YEC's should be between 25-35 High School Students in their 8th-9th Grades. It is assumed that these High School students have already received some instructions on basic community waste management principles such as the "reduce, reuse, and recycle".

6. Materials and Equipment

LCD Projector, Projector Screen, Sound System, Laptop computer, field work gear and materials

7. References
   - Relevant excerpts from Republic Act 9003 (Ecological Solid Waste Management Act of 2000)
   - Primer on Sachet Recovery Project (SRP)
   - There are several websites that discuss this topic (see bibliography). These are summarized in the handout that is given to the participants.

8. Course Content
   a) Ecological Waste Management in Communities
      1) Solid waste defined; types of solid wastes
      2) Facts and Figures on solid waste management at the national and local levels
   b) Impacts of Unmanaged Solid Wastes
      1) Health Impacts of unmanaged solid wastes on the community
      2) Impacts on unmanaged solid wastes on the environment (flooding, pollution, etc.)
   c) Innovative activities to help manage solid wastes in homes, schools and communities
      1) Sachet Recovery Project (SRP)
      2) Wetland Clean-up with Information Campaign
      3) Composting and Home / School Gardens
   d) Field observation of solid waste management in the community and crafting of activity to help manage solid waste.

9. Methods/Procedures

9.1 Introduction to the Module		
Topic	Process Performer	Method/Procedure
Introduction to the Session	Facilitator	Welcome the participants to the session and gives an overview of the Module
Introduction of the Resource Person	Facilitator	Introduce the Resource Person for this topic highlighting their credentials, capability and authority in handling the lecture.
Introduction to the Module	Resource Person	Outline the overall coverage of the Module, its objectives, and the relevance of the lecture to the Eco-Campers as actors in conservation and DRRM, CCAM and disaster preparedness.

9.2 Discuss and implement the contents of the Module		
Topic	Process Performer	Method/Procedure
1. Ecological Solid Waste Management in Communities	Resource Person	Interactive lecture; PowerPoint presentation
2. Impacts of Unmanaged Solid Waste	Resource Person	Interactive lecture; PowerPoint presentation; Eco-Campers are encouraged to give examples based on what they observe at home, in school and in the community
3. Innovative activities to help manage solid wastes in homes, schools and communities	Resource Person; Facilitator; former Youth Eco-Campers or Teacher-Coordinators	Interactive lecture; PowerPoint presentation; illustrations and examples, ie SRP, wetland clean-up with IEC, composting and home gardens
4. How the community (homes, schools, village) manage their waste and what the Youth can do to help.	Resource Person; Facilitator	Field observation of solid waste management in the community during field work (Disaster Town Watching" and crafting of activity to help manage SW during planning session.

10. Bibliography

Alam, P. and Ahmade K. (2013). Special Issue of International Journal Development and Green Economics. *Impact of Solid Waste on Health and the Environment.* Vol. 2, I-1. Pp. 167-168

Antimicrobial Resistance Network (2007). Pakistan Antimicrobial Resistance Network. *Hospital Waste Management.* Retrieved June 15, 2016 from http://www.parn.org.pk/index_files/HOSPITALWASTE.html

Environmental Management Bureau and National Solid Waste Management Commission (2015). *National Solid Waste Management Status Report (2009-2014).*Retrieved June 16, 2016 from http://119.92.161.2/portal/Portals/38/Solid%20Wastefinaldraft%2012.29.15.pdf

Official Gazette (2001). *Republic Act No. 9003*. Retrieved June 14, 2016 from http://www.gov.ph/2001/01/26/republic-act-no-9003-s-2001/

Singh, J., and Ramanathan, AL. (2010). *Solid Waste Management: Present and Future Challenges.* New Delhi: I.K International Publishing House Pvt. Ltd

Toowoomba Regional Council (n.d). Toowoomba Region. *Definition of domestic waste versus commercial waste.* Retrieved June 15, 2016 from http://www.tr.qld.gov.au/environment-water-waste/waste-recycling/waste-facilities-rubbish-tips/7413-what-is-domestic-waste

University of Georgia Cooperative Extension (2013). *Food Waste Composting: Institutional and Industrial Application.* UGA Extension. Retrieved June 16, 2015 from http://extension.uga.edu/publications/detail.cfm?number=B1189

UP Open University (n.d). *Laguna de Bay, the Largest Lake in the Philippines.* Faculty of Management and Developmental Studies. Retrieved June 16, 2016 from http://fmds.upou.edu.ph/index.php/academics/27-fmds-community/178-lagunalake

WebLaws.org (2013). Oregon Law. *Domestic Waste.* Retrieved June 14, 2016 from http://www.oregonlaws.org/glossary/definition/domestic_waste

11. Lecture Notes/Handouts

See Annex A

12. PowerPoint Presentation

See enclosed CD

Module 4: Wetlands and Water: The Link Among Wetlands, Water Security and Disaster Preparedness

1. Introduction

Wetlands are areas where water covers soil either all or part of the time. They provide many ecosystem services that benefit humans and nature alike. Wetlands protect and improve water quality, provide habitat for fish and wildlife, retain floodwaters and maintain surface water flow during dry spells. Water is a resource that is critical to society's socio-economic and environmental activities (Ramsar, 2013). Wetlands are the primary resource from which humans derive water and they are a major and critical component of the water cycle that ensures water supply. It is essential that people recognize that the water resource requirements of society are delivered by and through wetlands. Thus, it is important to raise people's awareness of the inter-dependence between water and wetlands and understand that without wetlands, there will be no water.

Conserving wetlands, therefore translates directly to water security and contributes to community resilience and preparedness during disasters.

2. Learning Objectives:

At the end of the course, the participants will:

- Learn about the definition and types of wetlands, their importance and functions;
- Understand and appreciate the connection among wetlands, water security and disaster preparedness from the global and local context;
- Acquire simple skills on how to characterize wetlands;
- Plan and implement simple projects or activities that will contribute to community resilience particularly in relation to water security and disaster preparedness.

3. Total Session Time:

Total session time will be 1.5 hours to be conducted in 3 sessions for an Ecosystem-based adaptation and Disaster Preparedness Camp. For a regular wetland conservation curriculum, the Field Exercise will be substituted with water quality monitoring activity for inland wetlands or a transect walk or similar activity for coastal wetlands. The field work will be implemented on Day 2 of the Eco-Camp.

4. Mode of delivery

   Lectures, workshops, demonstrations and field exercises

5. Participants/Prerequisites/Class Size:

   Participants should meet the following qualifications:

   - Should belong to Grade 8 or 9 in any public or private High School;
   - The ideal number of participants should not be more than 35;
   - Preferably, there should be a balance between male and female participants as well as the number of those coming from private and public High Schools.
   - It will be helpful if the participants have some background in basic High School biology and chemistry.

6. Materials and Equipment:

   Laptop, LCD projector, Secchi Disc, pH paper or pH meter (optional), DO meter (optional) (see other materials and equipment needed in the Activity Designs)

7. References:

   Handout

8. Course Content
   a) Definition and types of wetlands, their importance and functions
      1) The Ramsar Convention's definition of "Wetlands"
      2) Status and Prospects of selected wetlands in the Philippines (Ramsar Sites or Wetlands of International Importance, other local wetlands)
      3) Importance and functions of wetlands
         i. provisioning services
         ii. regulating services
         iii. supporting services
         iv. cultural services
      4) Threats to wetlands
      5) Some initiatives to conserve and manage wetlands
         i. Ramsar Convention
         ii. National Wetlands Action Plan for the Philippines (2011-2016)

b) The link between wetlands, water security and disaster preparedness
c) Profile of a major wetland in the locality (optional, only for major wetlands)
    1) Background and History
    2) Importance (Geological Value, Ecological Value, Economic Value)
    3) Prominent Species in the wetland (Fishes, Invertebrates, Phytoplankton, Zooplankton)
    4) Issues and problems
    5) Initiatives to conserve wetlands
d) What you can do to help conserve wetlands and enhance community resiliency

9. Methods/Procedures

9.1 Introduction to the Module		
Topic	Process Performer	Method/Procedure
Introduction to the Session	Facilitator	Welcome the participants to the session and gives an overview of the Module
Introduction of the Resource Person	Facilitator	Introduce the Resource Person for this topic highlighting their credentials, capability and authority in handling the lecture.
Introduction to the Module	Resource Person	Outline the overall coverage of the Module, its objectives, and the relevance of the lecture to the Eco-Campers as actors in conservation and DRRM, CCAM and disaster preparedness.

9.2 Discuss the content of the Module		
Topic	Process Performer	Method/Procedure
1. Definition and types of wetlands, their importance and functions; threats; initiatives to conserve wetlands	Resource Person	Film Showing (10 mins) - Lecture (see PowerPoint presentation (20 mins)

9.2 Discuss the content of the Module		
Topic	Process Performer	Method / Procedure
2. Discovery Session: Wetlands in the Municipality, their status and functions	Resource Person; Facilitator	Based on the definition of wetlands, the Facilitator asks the Eco-Campers to describe wetlands in their Barangay, if any.
3. Alternative Field Exercise: Water Quality Monitoring / Use of Secchi Disc or transect walk for coastal wetlands	Resource Person;	See Activity Design in Annex B.

10. Bibliography

"Wetlands Take Care of Water", a leaflet for World Wetlands Day 2013 (Ramsar Convention)
http: / / www.waterfootprint.org / ?page=files / YourWaterFootprint

11. Lecture Notes / Handouts

See Annex A

12. PowerPoint Presentation

See enclosed CD

Module 04A: Marine and Coastal Wetlands

1. Introduction

Wetlands provide a variety of services ranging from provisioning (i.e. water, food, biodiversity, and hydroelectricity), supporting services (i.e. soil formation, nutrient cycling), regulating services (i.e. regulation of floods and drought), and cultural services (i.e. recreation, spiritual, education).

Coastal wetlands also give other benefits in the form of products that can be exploited for human use. The range is enormous: fruit, fish, shellfish, crocodile and other meats, timber for building, rice, fuelwood, fodder for animals, etc. Exploitation is carried out in all levels - subsistence level, cottage industry, and the larger commercial scale - in all parts of the world.

Additionally, wetlands also help on lessening the effects and impacts of disasters and climate change through ensuring food security, serving as natural infrastructure, becoming a source of livelihood, and enabling habitat for biodiversity.

This Module is only applicable in areas where there are coastal wetlands.

2. Learning Objectives

- To know the different types of coastal and marine wetlands, their status, issues and problems confronting them;
- The role of coastal and marine wetlands in Climate Change mitigation and adaptation, and in disaster risk reduction, management and preparedness
- To learn about coastal and marine resources management concepts;
- To learn about activities that the Youth can implement to conserve coastal and marine resources to enhance ecosystems resilience.

3. Mode of Delivery:

This Module may be taught through lectures field observation. Handouts will be given as part of the YEC kit.

4. Total Training Time Required

   Total training time will be 2.0 hours to be conducted in three sessions. It will consist of a 30-minute lecture and one-hour field observation. During the last day of the Eco-Camp, there will be a 30-minute planning session where Campers plan activities that will help address the various issues confronting coastal wetlands in their locality.

5. Participants/Pre-requisites

   Ideally, the number of participants in YEC's could be between 25-35 High School Students in their 8th-9th Grades. It is assumed that these High School students have already received some instructions in Biology.

6. Materials and Equipment

   LCD Projector, Projector Screen, Sound System, Laptop computer, field work gears and materials (transect line, field notebooks, pencils or ball pens, camera)

7. References

   A handout will be given to the participants.

8. Course Content

   e) Overview on Coastal Wetland Ecosystems
      3) Corals Reefs
      4) Mangroves
      5) Seagrass Beds
      6) Lagoons and Estuaries
      7) Beaches and foreshore areas

   f) The Role of Coastal Wetlands Roles in Climate Change Mitigation and Adaptation and Disaster Risk Reduction and Management
      1) Food Security
      2) Natural Infrastructure
      3) Source of Livelihood
      4) Habitat for biodiversity

   g) Introduction to Coastal Resource Management

1) Importance
2) Participatory Activities
   i) Status of Coastal Resources in your Locality
   ii) Transect Walk
   iii) Workshop and group discussion on human impacts / problems in the coastal zone

9. Methods / Procedures

9.1 Introduction to the Module		
Topic	Process Performer	Method / Procedure
Introduction to the Session	Facilitator	Welcome the participants to the session and gives an overview of the Module
Introduction of the Resource Person	Facilitator	Introduce the Resource Person for this topic highlighting his / her credentials, capability and authority in handling the lecture.
Introduction to the Module	Resource Person	Outline the overall coverage of the Module, its objectives, and the relevance of the lecture to the Eco-Campers as actors in conservation and DRRM, CCAM and disaster preparedness.

9.2 Discuss the content of the Module		
Topic	Process Performer	Method / Procedure
1. Overview of coastal wetlands ecosystems	Resource Person	Interactive lecture; PowerPoint presentation
2. Facts and figures, issues and problems of coastal and marine wetlands	Resource Person	Interactive lecture; PowerPoint presentation; Campers are encouraged to give examples based on what they observe in their nearby coastal communities
3. The role of coastal and marine wetlands in Climate Change mitigation and	Resource Person; Facilitator;	Interactive lecture; PowerPoint presentation; illustrations and examples, field observation

9.2 Discuss the content of the Module		
Topic	Process Performer	Method / Procedure
adaptation, and in disaster risk reduction, management and preparedness. 4. Introduction to coastal resources management 5. Participatory activities	former Youth Eco-Campers or Teacher-Coordinators Resource Person; Facilitator	

10. Bibliography

Deguit, E., Smith, R., Jatulan, W., and White, A. (2004). Participatory Coastal Resource Assessment Traning Guide. Coastal Resource Managent Project of the Department of Environment and Natural Resources. Cebu, City Philippines. Retrieved January 6, 2016 from httpdf: / / oneocean.org / download / db_files / pcra_training_guide.p

Department of Environment and Natural Resources, Bureau of Fisheries and Aquatic Resources of the Department of Agriculture, and Department of Interior and Local Government (2001). Philippine Coastal Management Guidebook Series No. 1: Coastal

Management Orientation and Overview. Coastal Resource Management Project of the Deparment of Environment and Natural Resources, Cebu City, Philippines. Retrieved January 6, 2015 from http: / / oneocean.org / download / db_files / crmguidebook1.pdf

Wetlands International (2014).Mangroves for coastal resilience. Retrieved January 6, 2015 from http: / / www.wetlands.org / Whatwedo / Mangrovesforcoastalresilience / tabid / 174 / Default.aspx

11. Lecture Notes / Handouts

See Annex A

12. Slide Presentation

See enclosed CD

Module 5: Fundamentals of Disaster Risk Reduction and Management and Climate Change

1. Introduction

   With the knowledge gained from the previous four modules, the Eco-Campers are now ready to link them together with issues of Climate Change and Disasters. In this module, the Eco-Campers are challenged to think of disasters as a function of an anthropogenic ally influences global environmental change – and to see the scale and scope of disaster risk reduction and management at a local and global scale. They are then placed in the context of their own community to identify hazards and to create locally-owned solutions.

2. Learning Objectives:
   - To evaluate and apply the concepts of 'hazard' and 'vulnerability' within an ecosystems context.
   - To assess how the interaction of physical and human systems creates and sustains vulnerability in an ecosystem.
   - To evaluate the ecosystem-based approach and disaster management cycle in a local Philippine context.
   - To apply knowledge of disaster risk assessment through the conduct of a Disaster Town Watching activity.

3. Total Training Time Required:

   Total training time will be three hours to be conducted in two sessions. This module includes a *Disaster Town Watching* field exposure activity conducted in a predetermined site for 3-4 hours depending on the distance of the field exposure site from the Eco-Camp venue.

4. Mode of delivery:

   This module will be taught through lectures and readings. Students will be pre-circulated with reading or other preparatory work for the second session and will be expected to be familiar with this material for activities and field exposure.

5. Participants/Prerequisites:

Participant numbers may differ among the cohorts of Eco-Campers year-on-year but all participants are recommended to have taken the following basic K-12 core curriculum subjects:

- Earth and Life Science (or Earth Science for those taking STEM Strand)
- Physical Science (Disaster Readiness and Risk Reduction for those taking STEM Strand).

6. Materials and Equipment:

This module requires the following equipment:

- LCD Projector
- Projection Screen
- Mobile public speakerphone
- Digital camera
- Manila paper and A4 sheets of paper
- Ball pens, markers, coloring materials
- Personal protection equipment for fieldwork

7. References:

The module includes the provision of a digest of key information as readings. It will help the participants to read literature outside of the key references used in this module.

The following are key references for this module:

UNEP-CUAS, 2015. *Disasters and Ecosystems: Resilience in a Changing Climate,* Cologne: United Nations Environment Programme and Cologne University of Applied Sciences.

8. Course Content

This module looks at the concepts in Disaster Risk Reduction and Management and Climate Change within the context of the development experienced in an ecosystem focusing on both physical and human environments and the interactions between them. Participants are encouraged to consider how these concepts vary spatially and socially, as well as how they can be used to develop policy interventions.

Chapter 1: Disasters and Ecosystems
- A. History and Background
  - a. Geographical Context
  - b. Social Context
- B. Disaster Statistics
  - a. Global statistics
  - b. Philippine statistics

Chapter 2: Introduction to disasters, risk reduction, and climate change
- A. Concepts and Definitions
  - a. Ecosystem
  - b. Livelihoods
  - c. Disaster
  - d. Disaster Risk
  - e. Hazard
  - f. Vulnerability
  - g. Capacity / Resilience
  - h. Risk

Chapter 3: Linking disasters, climate change, and ecosystems
- A. Ecosystem services and Human well-being
- B. Provisioning, regulating, supporting, and cultural ecosystem services

Chapter 4: Disaster management, resilience, and ecosystems
- A. Ecosystem-based Disaster Risk Reduction and Adaptation Framework
- B. Disaster Risk Reduction Management Framework

Chapter 5: Disaster Town Watching
- A. Introduction to Disaster Town Watching
- B. Fieldwork exposure trip

9. Methods/Procedure

Day 1
- Session 1: Chapters 1-2 (1-hour lecture and activity)
- Session 2: Chapters 3-4 (2-hour lecture)

Day 2
- Fieldwork Exposure: Chapter 5 and field exposure trip (3-hour fieldwork)

9.1 Introduction to the Module		
Topic	Process Performer	Method/Procedure
Introduction to the Session	Facilitator	Welcome the participants to the session and gives an overview of the Module
Introduction of the Resource Person	Facilitator	Introduce the Resource Person for this topic highlighting their credentials, capability and authority in handling the lecture.
Introduction to the Module	Resource Person	Outline the overall coverage of the Module, its objectives, and the relevance of the lecture to the Eco-Campers as actors in conservation and DRRM, CCAM and disaster preparedness.

9.2 Discuss the content of the Module		
Topic	Process Performer	Method/Procedure
Chapter 1: A. History and Background; Disaster Statistics	Resource Person	Interactive lecture; PowerPoint presentation; Encourage Eco-Campers to contribute to the discussion based on local experience or from what they see on television.
Chapter 2: Basic concepts and definitions related to disasters, risk reduction, and climate change.	Resource Person	Interactive lecture; PowerPoint presentation; exercises
Chapter 3: Linking disasters, climate change and ecosystems	Resource Person	Interactive lecture; PowerPoint presentation; illustrations and examples
Chapter 4: Disaster management, resilience, and ecosystems	Resource Person	Straight lecture; PowerPoint presentation; exercises

9.3 Disaster Town Watching		
Topic	Process Performer	Procedure
Chapter 5: Introduction to Disaster Town Watching	Resource Person	Straight lecture; PowerPoint presentation

9.3 Disaster Town Watching		
Topic	Process Performer	Procedure
Field Exposure Trip	Resource Person; Facilitators; Camp Masters; Camp Aides	See Activity Design (Annex B)
Data Processing	Facilitator; Resource Person	See Activity Design (Annex B)
Reporting	Facilitator; Resource Person	See Activity Design (Annex B)

10. Reference

EU-ISDR-KU. (2009). *Town Watching handbook for Disaster Education: Enhancing Experiential Learning.* Kyoto: European Union, International Strategy for Disaster Reduction, Kyoto University.

RHUL. (2011). *Module 5: Hazards and Vulnerability.* Egham: Department of Geography, Royal Holloway, University of London.

Shaw, R., & Takeuchi, Y. (2007). *Sustainable Community Disaster Education in Saijo City and its Effectiveness in Landslide Risk Reduction.* Kyoto: Kyoto University.

UNEP-CUAS. (2015). *Disasters and Ecosystems: Resilience in a Changing Climate.* Cologne: United Nations Environment Programme and Cologne University of Applied Sciences.

WB. (2009). *Climate Resilient Cities: A Primer on Reducing Vulnerabilities to Disasters.* Washington, D.C.: The World Bank.

11. Lecture Notes/Handouts

See Annex A

12. PowerPoint Presentation

See enclosed CD

Module 5A: Climate Change 101

1. Introduction

   Climate Change 101 is a stand-alone Module for Theme 1 and an introductory lecture for Theme 2 of the YEC curriculum. It is intended to provide the basic concepts about Climate Change for Theme 1 and background and context for the ecosystems-based adaptation focus of Theme 2.

2. Learning Objectives
   - To know what climate change is and what causes it.
   - To learn about the consequences of climate change.
   - To have an idea of the activities that the Youth can implement to help in the overall effort of climate change mitigation and adaptation.

3. Mode of Delivery:

   This Module may be taught through lectures supplemented with an Audio-Visual Presentation on Climate Change. A list of videos available on YouTube is provided for reference.

4. Total Training Time Required

   Total training time will be one hour to be conducted in one session.

5. Participants/Pre-requisites

   Ideally, the number of participants in YEC's could be between 25-35 High School Students in their 8^{th}-9^{th} Grades. It is recommended that the Eco-Campers should have already taken basic subjects in Earth and Life Sciences (Biology).

6. Materials and Equipment

   LCD Projector, Projector Screen, Sound System, Laptop computer

7. References

   There are several websites that discuss this topic (see links below). These are summarized in the handout that will be given to the Eco-Campers.

8. Course Content
    h) Climate Change (CC) defined.
    i) What causes Climate Change?
    j) What are the consequences of Climate Change?
    k) What young people can do to (a) cope with the impacts of CC, and (b) mitigate the impacts of CC.

9. Methods/Procedures

9.1 Introduction to the Module		
Topic	Process Performer	Method/Procedure
Introduction to the Session	Facilitator	Welcome the participants to the session and gives an overview of the Module
Introduction of the Resource Person	Facilitator	Introduce the Resource Person for this topic highlighting their credentials, capability and authority in handling the lecture.
Introduction to the Module	Resource Person	Outline the overall coverage of the Module, its objectives, and the relevance of the lecture to the Eco-Campers as actors in conservation and DRRM, CCAM and disaster preparedness.

9.2 Discuss the content of the Module		
Topic	Process Performer	Method/Procedure
1. Definition of Climate Change	Resource Person	PowerPoint presentation
2. What causes Climate Change?	Resource Person	PowerPoint presentation; Eco-Campers are encouraged to give examples of the causes of Climate Change.
3. What are the consequences of Climate Change?	Resource Person;	PowerPoint presentation; illustrations and examples

9.2 Discuss the content of the Module		
Topic	Process Performer	Method / Procedure
4. What young people can do to (a) cope with the impacts of Climate Change and, (b) help mitigate the impacts of Climate Change.	Resource Person; Facilitator	Facilitated discussion / workshop

10. Bibliography

Adapted from www.climatecrisis.net and http: / / earthethicsinstitute.org / facultycurriculum_pdf / Fundora_EAP_ ClimateChangeHandout.pdf

11. Lecture Notes / Handouts

See Annex A

12. PowerPoint Presentation

See enclosed CD

Photography credits: SCPW, Inc.

Part 2: Preparing for the Youth Eco-Camp

Introduction

A successful Youth Ecological Camp (YEC) is largely attributed to adequate preparation and careful attention to details. This part of the Manual discusses the various steps and activities that should be taken to ensure a successful YEC. It also provides insights and advice in cases where bottlenecks are encountered in the preparation process.

The YEC Project Team


Photography credits: SCPW, Inc.

A Project Team that will plan and implement the YEC should be organized early on (at least two months before the scheduled YEC) as part of the preparation process. It does not have to be large team but should include a Team Leader or Project Coordinator, a Project Officer and a Project Assistant. Other human resources needed could be sourced from existing staff in the organization or through volunteers. The main task of this team is to organize and implement the YEC. They could also take on additional roles during the conduct of the YEC which are over and above their regular tasks, i.e. Resource Person for a topic or Camp Master.

The Project Coordinator is tasked to oversee the preparation and conduct of the YEC. They are also responsible for making the initial contacts with possible partners including the Local Government Unit (LGU) and the Resource Persons. The Project Officer is responsible for liaising with partners and procuring the venue, food, accommodation, supplies and other materials necessary for the smooth and successful conduct of the YEC. The Project Assistant provides support in all these activities while the

volunteers can be assigned specific tasks. The usual practice is to involve the existing Administrative and Finance Officer in the organization to be part of the project to administer fund disbursements.

Another set of people is actually responsible for the conduct of the YEC itself which could also include some or all of the members of the preparation team. Their specific tasks are described below:

- The Project Coordinator oversees the conduct of the YEC.
- The Camp Masters are responsible for ensuring that the Camp is going according to plan and that the Eco-Campers are participating in the activities actively. They are also responsible for decision-making during the conduct of the YEC.
- The Camp Aides assist in the actual implementation of the activities during the Camp. They make sure the equipment, supplies and materials and meeting rooms are ready before the sessions start. They also coordinate logistical preparations including vehicles during the Camp. They make sure the meals are served on-time. The camp aides can be divided into committees focusing on different duties and responsibilities: Welcome and registration, logistics and physical arrangements, program and communication, food and venue, documentation and evaluation, and publicity and awards.
- The Facilitators are responsible for the smooth conduct of the sessions during YEC. They closely work and communicate with the participants especially during the field exposure trip and action planning-workshop.
- The Resource Persons of the YEC are selected based on the expertise on the topics on wetlands conservation, Disaster Risk Reduction and Management (DRRM), Climate Change, and environmental principles. The MDDRMO or the MPDO is also invited to talk about the environmental profile of the municipality, information about wetlands in the locality and their experience on disasters and in reducing and managing them. It is also important to invite officials from the Municipality / City to give messages or remarks in the opening of the eco-camp

Selection of the Site

The objectives of the YEC are the main principles that guide the selection of sites for the event. The selection of municipalities / cities for the Eco-Camp is decided on by the management of SCPW and its partners. Since the SCPW is mainly concerned with wetlands and its wise use and conservation, municipalities or cities located near wetlands, exert influence on wetlands or are influenced by wetlands are priority.

Photography credits: SCPW, Inc.

In the case of Theme 1 where the curriculum focuses on wetland conservation, priority areas are Laguna de Bay and other major or critical inland wetlands in the country such as Naujan Lake and Agusan Marsh Wildlife Sanctuary. For Theme 2, priority sites would be cities or municipalities that are vulnerable to disasters and other effects of Climate Change.

The user of this Manual can be guided by the SCPW criteria in selecting a site for the Eco-Camp to optimize the effectiveness of the curriculum.

Contacting the LGU

Once the site (municipality or city) has been selected, exploratory talks with the Local Government Unit (LGU) has to be done to determine whether they are interested in co-organizing a YEC. It is best to contact the Municipal Planning and Development Coordinator (MPDC) (for Theme 1) or the Municipal Disaster Risk Reduction Management Officer (MDRRMO) (for Theme 2) and brief him or her about the activity. If the person is receptive, a letter to the Municipal Mayor inviting the LGU to co-organize the activity will be sent. The letter should include supporting documents such as the Concept Note or Activity Design and indicate what is expected from the LGU (See Annex C for a sample letter). At this stage, a follow-up call is helpful to ask whether the Mayor has endorsed the proposed activity. If the decision is to proceed with the activity, ask for a point person whom the project team can coordinate with. Usually, this is either the MPDC or the MDRRMO. It is recommended that a project team member go for a site visit and meet with the LGU designated point person and the local High Schools to decide on the date and venue of the YEC. During the ocular visit, the organizer may request for the LGU to provide vehicles in transporting the Eco-Campers from their Schools to the venue and during the Field Exposure Trip. The support of the LGU in coordinating the activity with the schools will be very valuable.

Photography credits: SCPW, Inc.

Choosing the Date and the Venue

Ideally, the YEC should be conducted later in the week, from Wednesday to Friday. This is to give time for the Eco-Campers to rest after the 3-day activity. The decision to set the date has to be consulted with the High Schools in the locality. What usually happens is that after the Mayor approves the activity, he writes to the Principals in the city or municipal High Schools about the activity. If time permits, the Project Officer may pay a courtesy call to the Principal to introduce the activity. Dates to avoid are examination periods and when the schools have already scheduled major events that the students have to attend such as Science Fairs and the like. Once the date has been confirmed, the next step is to choose the venue.

The organizers should ask the LGU for recommendations on possible venues for the Camp and assist the team during ocular visits. In choosing the venue, it is important to consider the following aspects: (1) accessibility; (2) availability of dorm-type facilities; (3) availability of a function room that can comfortably accommodate the Eco-Campers and the Training Team; and (4) availability of sound system. The availability of a function hall that can comfortably accommodate the number of the participants is also important to check.

Checklist in Selecting a Venue

Item	Description	Yes	No
1. Accessibility	Can be reached by land vehicle or boat		
2. Facilities			
▪ Dorm-type facility	Multiple beds in a room for accommodation		
▪ Function Room	Can accommodate participants and training team comfortably		
▪ Sound System	Functional sound system		
▪ Projector Screen	Functional; if none, a blank white wall facing the participants will do		
▪ Tables	Registration, for projector, for Eco-Campers		
▪ Chairs	Should be adequate for participants, training team and guests		
▪ Dining Area	Clean, well-ventilated, enough tables and chairs		
3. Security and Safety	The venue has adequate security especially at night. Make sure you get information on emergency exits and other safety measures.		
4. Meals	Inquire whether they serve meals, if not, if outside caterers can be tapped to provide meals. Ask for referrals.		

It is prudent to check-out at least three alternative venues since funding agencies usually require a canvass. Possible venues may also be searched on the Internet or through recommendations of trusted individuals. Once a shortlist is made, contact the venue and request for a quotation with the details of the event. It does not always mean that the venue is best just because it is the cheapest. Always make sure that the venue will serve your requirements. Most importantly, the Project Officer should do an ocular visit of the possible venues. The venue should already be decided one a month before the event.

Selection of Eco-Campers

Once the venue and the date of the YEC are confirmed, invitation letters should be prepared addressed to the High School Principals. The invitation could either come from the organizers or the LGU. The advantage of having the LGU issue the invitation letter is that it builds ownership of the activity. All High Schools in the city or municipality, whether public- or privately-operated should be invited to nominate Eco-Campers. The number of participants per school vary depending on the number of High Schools. The usual number of participants is 35, and this should be evenly distributed among the High Schools. There should be also a good gender balance among the Eco-Campers. The criteria for selection of Eco-Campers are the following: (a) preferably a student in Grade 8 or 9, and (b) with good leadership potential. Nominations should be received at least two weeks before the Camp so that the organizers are guided as to the rooming assignments, size of t-shirts, among others.

Waiver forms are required before allowing any youth to participate in the Eco-Camp because the consent of the parents is needed for minors. Participants who fail to submit the waiver will not be permitted to join the Eco-Camp particularly in the field exposure trip. The YEC should strictly follow the "No Waiver, No Eco-Camp" policy to ensure the safety of everybody. It is also important to incorporate the health condition of the nominated Eco-Campers in the profile and waiver forms.

Photography credits: SCPW, Inc.

It is recommended that letters are sent to the Department of Education offices, either to the Division Office or the Office of the Superintendent to inform them of the activity and solicit their support. In Laguna, a letter informing the Division Office is a must so this practice was also implemented by SCPW in Batangas. In the letter to the Division Office, a request for Teacher-Chaperone from any of the invited schools is made to be compliant with the requirement of the Department of Education in conducting out-of-school activities. Sample letters are in Annex C.


Photography credits: SCPW, Inc.

Inviting Resource Speakers and Facilitators

Aside from the LGU and schools, Resource Persons for the camp who will speak on various topics and oversee exercises should be sent their respective invitations as soon as the date and venue are finalized. Each letter is sent with supporting documents as applicable such as the Activity Design and Brochure, and Provisional Program. Availability of the Resource Persons and Facilitators should be confirmed at least a week before the event. Sample letters are in Annex C.

Meals and Accommodation

The participants will be billeted at a selected venue for three days and two nights. Dorm-type accommodation is recommended to foster camaraderie among the Eco-Campers. It is important that when accommodations are in separate buildings, at least one teacher-chaperone is assigned per building to ensure the safety of the students.

Meals usually start with morning snacks on the first day and ends with afternoon snack on the third day. On the second day, morning snacks should be packed for the field exposure visit. Midnight snacks shall also be served during the Talents Night which is likewise on the second day of the camp.

Meals are usually arranged as part of the package with the venue. However, in some cases, caterers are allowed to provide food service. In both cases, it is recommended that the Menu should suit the preference of the Youth but without compromising on their nutritional values. Below is a typical meal arrangement for the YEC.

	Breakfast	AM Snacks	Lunch	PM Snacks	Dinner	Midnight Snacks
Day 1		✓	✓	✓	✓	
Day 2	✓	✓	✓	✓	✓	✓
Day 3	✓	✓	✓	✓		

Transportation

The organizing team and the participants will need vehicles and boats during the conduct of the camp.

1. Land transportation for the organizing group

Weeks before the scheduled camp, the organizers of the camp should arrange for a vehicle that they will use to travel to the selected Eco-Camp venue. The vehicle should be large enough to accommodate all members of the team and the equipment, banners, kits and other materials that will be used in the Camp.

2. Transportation for participants

Transportation should also be arranged for the participants to convey them from their schools to the venue, vice versa, before and after the event. On the second day of the Camp, the participants will also need land and/or boats for the field trip, depending on the theme of the YEC. These vehicles will either be arranged by the camp organizers or usually come from the partner LGU.

a. Land Transportation during Field Exposure Trip (Jeepney/LGU Service Vehicle)

From the venue, the participants will be transported to the field exposure site. For Theme 2, the Eco-Campers observe and interview key persons in the most vulnerable barangay in the municipality in order to prepare a hazard map. After the exposure trip, the participants will be transported back to the venue for lunch. In cases where the LGU cannot provide service vehicles for the field exposure visit, local transportation is used such as hiring jeepneys or tricycles. In some cases, the organizer pays for the fuel of LGU service vehicles used during field exposure visits.

b. Boats

For Theme 1, the participants conduct water monitoring activity in a wetland (i.e. lake) and will need

boats with life vests and a trained crew. From a designated point, the participants will ride a boat for the Water Quality testing. With the supervision of partner personnel, the participants measure the lake's water quality by using basic equipment such as a multi-parameter tester when available or a Secchi Disc. After the demonstration and actual presentation, the participants will head back to the port and to the venue.

Certificates and Prizes

At the end of the Eco-Camp, certificates will be given to the event's partners and participants. The Local Government Office of the selected municipality / city will receive a Certificate of Appreciation while the Eco-Campers and teachers will receive a Certificate of Participation. The winning groups and individuals from the activities conducted especially on the social's night will also receive awards and prizes at the end of the camp. Sample certificates are in Annex C.

Kits for ToT and Youth Ecological Camp

Each participant will be given a YEC kit composed of reference materials and handouts about the topics that will be discussed in the Camp. The Municipal or City Profile of the site where the Camp is being held should also be included in the Kit. The Kit may contain a notebook, ball pen, and if funds are available, it is good to include a themed t-shirt and Eco-bag.

Sample of the eco-camp kits are shown in Annex D.

Supplies and Equipment

Once the list of Eco-Campers is complete, the preparation of supplies and equipment for the Camp should be started. All the needed materials and additional requirements should be ready a week before the start of the camp. The list of supplies and equipment is in Annex E.

Banners and other collaterals

Banners are important in letting the public know that an event is on-going. It also promotes goodwill among the partners particularly if Corporate Social Responsibility funds are tapped for the activity. Brochures and flyers may also be produced and included in the kit. These little details have proven effective in instilling recall about the event, the concepts discussed and even good memories that the

Eco-Campers treasure until they are adults. Usually, the logos of all partners and sponsors are included in the banner. The traditional way is to have bigger sizes of logos of the major partners and smaller logos. The mood of the layout should be young and dynamic. However, it should be noted that some agencies, companies and international organizations have their own communication guidelines that set the rules for the use of their logos and other communication materials. It is good practice to consult your partners about this to make sure that your collaterals are compliant with the guidelines of your partners. Sample banner designs are in Annex D.

Budget and Possible Funding Sources

The budgetary requirements for conducting a YEC vary depending on many factors such as location of venue and availability of facilities. Table 1 below shows the indicative budget items that can serve as guide in preparing the budget for this activity.

Table 1. Indicative Budget items

Activity: Youth Ecological Camp			
Budget Item	**Particulars**	**Unit Cost**	**Total Cost (PhP)**
1. Training Venue and Accommodation			**24,000**
a) Function Room	P4,000 / day x 2 days (1 whole day, and half day for 2 days)	P8,000.00	
b) Accommodation for participants (35 pax)	Non-aircon rooms for 35 person (P200 / person for 2 nights)	P14,000.00	
c) Accommodation for Training Team on Friday, 01 July 2016	Non-aircon rooms for 10 person (P200 / person for 1 night)	P2,000.00	
2. Food for Eco-Camp			**54,500**
a) Day 1 (35 pax) : am / pm snacks, lunch, dinner	P450.00 / person x 35 people	P15,750.00	
b) Day 2 (35 pax) : breakfast, am / pm snacks, lunch, dinner	P550.00 / person x 35 people	P19,250.00	
c) Day 3 (35 pax): breakfast, am / pm snacks, lunch	P450.00 / person x 35 people	P15,750.00	
d) Talents Night	P75.00 / person x 50 people	P3,750.00	

3. Honoraria (WFP Rates)			
a) Honoraria for Resource Persons	P1,800 / hour x 11 hours		**19,800**
b) Honoraria for Camp masters	P1,000 / person x 2 people x 3 days		**6,000**
c) Honoraria for Camp aides	P500 / person x 2 people x 3 days		**3,000**
4. Transportation			**5,000**
a) Van Hire	P3,500.00 / day x 1 day	P3,500.00	
b) Fuel and toll	P1,500.00	P1,500.00	
5. Supplies and Materials			**5,000**
a) Banner		P1,500.00	
b) Other supplies		P3,500.00	
6. Communication and Coordination		P1,000.00	**1,000**
7. Contingency			**10,000**
Total in PhP			**128,300**

Sources of funds for this type of activity may be solicited from Corporate Social Responsibility Programs of the business sector, Bottoms-Up-Budgeting from LGUs, and Disaster Risk Reduction Fund from LGUs. Some schools raised funds for their YECs (i.e. Mabitac) with the support of their LGU.

Useful Tips:

- Make sure that the local chapter of Red Cross or the Rural Health Unit of the Camp site is aware of the activity so that they can easily respond to any emergency.
- Have a First Aid Kit ready.

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Photography credits: Jose Carlo Quintos; SCPW, Inc.

Part 3: Useful Tips and Bright Ideas in Conducting a Successful Youth Ecological Camp

This section discusses practical tips and other ideas that contribute to the successful conduct of a Youth Ecological Camp. These are drawn from reliable references and from more than 10 years of experience in working with the Youth and other partners such as the schools, the Government including the LGUs and with funding agencies and organizations.

The discussion focuses on the various types of communication and the techniques in communicating with Eco-Campers to help them understand and appreciate concepts and knowledge that are shared in the Eco-Camp. It also touches on the characteristics of the Youth and the principles of how they effectively learn. Finally, it gives tips and suggests activities to make learning a fun experience.

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How Do the Youth Learn?

Based on various researches distilled from across disciplines, below are the basic principles that underlie basic learning (Carnegie Mellon University, 2008):

1. Prior knowledge can help or hinder learning.
   Knowledge, beliefs and attitudes brought by the Youth to the classroom influences how they filter and interpret what they are learning. If prior knowledge possessed by the Youth is robust and accurate *and activated at the appropriate time*, it makes for a strong foundation for creating new knowledge. However, it can interfere with or hinder new learning in cases where knowledge is inert, insufficient, activated improperly or inaccurate.

2. How the Youth organize knowledge influences how they learn and apply what they know.
   Young people naturally make connections between bits and pieces of knowledge. When those connections form knowledge structures that are precisely and meaningfully organized, they are better able to retrieve and apply their knowledge more effectively and efficiently. On the other hand, when

knowledge is connected in inaccurate and unsystematic ways, students may fail to retrieve or apply it properly.

3. Motivation determines, directs, and sustains what the Youth do to learn.
   As the Youth goes through the latter years of High School and gain greater control over what, when, and how they study and learn, motivation plays a critical role in determining the direction, intensity, persistence and quality of their learning behaviours. When they find positive value in a learning goal or activity, the chances of achieving the desired outcome is higher. Further, they are likely to be strongly motivated to learn when they perceive support from their environment.


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4. The Youth must acquire component skills, practice integrating them and know when to apply what they have learned to develop mastery.

   Aside from developing component skills and knowledge necessary to perform complicated tasks, the Youth must also practice combining and integrating them to develop greater ease and facilitate mastery. They must learn when and how to apply the skills and knowledge they have learned. Teachers and trainers must have a conscious awareness of these elements of mastery in order to help the Youth learn more effectively.

5. Goal-directed practice combined with targeted feedback enhances the quality of the Youth's learning.

   Learning and performance are best promoted when the Youth: (a) engage in practice that focuses on a specific goal or objective; (b) targets an appropriate level of challenge; and (c) is practiced frequently to meet the performance criteria. Practice must also go hand-in-hand with feedback that clearly communicates about some aspects of the Youth's performance in relation to specific target criteria, provides information to help them progress in meeting those criteria, and is given at a time and frequency that allows it to be useful.

6. The current level of development of the Youth interacts with the social, emotional, and intellectual environment to impact learning.

   It is important to note that aside from being intellectuals, the Youth are also social and emotional beings. The Youth are still developing their full range of intellectual, social and emotional skills. While mentors cannot control the development process, they can shape the intellectual, social, emotional, and physical aspects of the learning environment in an appropriate manner. A negative environment may impede learning, while a positive one can boost learning.


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7. For the Youth to become self-directed learners, they must learn to observe, check and adjust their approaches to learning.

   There are various ways by which the Youth can engage in a variety of meta-cognitive processes to monitor and regulate their learning process. These include assessing the task at hand, evaluating their own strengths and weaknesses, planning their approach, applying and monitoring various strategies, and reflecting on the degree to which their current approach is working. Unfortunately, this process does not come naturally to most people, including the Youth. When the Youth develop the skills to engage in these processes, they gain intellectual habits that not only improve their performance but also their effectiveness as learners.


Photography credits: SCPW, Inc.

How to communicate with the Youth?

For the wise use of wetlands, effective communication is needed to affect a change in behaviour of all stakeholders. For the Youth, what we intend to do at the Eco-Camp is to increase the awareness and provide them with knowledge and skills so that they can take actions to conserve wetlands. We also would like to impress on them the connection between ecosystems integrity and resilience of communities. When these concepts are understood, and the Youth is equipped with knowledge and some skills needed to take action, then we can be assured that the Youth can indeed play an active role in DRRM and CCAM.

> "Communication is needed – but not just communication but effective communication that is focused on a specific issue or problem and designed for a specific target or group."

Communication involves the imparting or exchange of thoughts, opinions, or information among people by speech, writing, or signs. People communicate in various ways. It will help to get familiar with some communication concepts as discussed below (BrightHubPM, 2015):

Verbal Communication

Verbal communication involves the use of words in delivering the intended message. The two major forms of verbal communication include written and oral communication.

- Written communication refers to traditional pen and paper letters and documents, typed electronic documents, e-mails, text chats, SMS and anything else conveyed through written symbols such as language. This type of communication is imperative for formal business communications and issuing legal instructions.
  - Examples of communication formats that primarily use written communication are handbooks, brochures, contracts, memos, press releases, formal business proposals, and the like. The effectiveness of written documents depends on the writing style, grammar, vocabulary, and clarity.
- Oral communication, on the other hand, refers to the spoken word, either face-to-face or through phone, voice chat, video conferencing or any other medium. Also classified under this are the various forms of informal communications such as the grapevine or informal rumour mill, and formal communications such as lectures, conferences which are considered as forms of oral communication. Oral communication is useful in discussions and causal and informal conversations. Factors affecting the effectiveness of oral conversations are clarity of speech, voice modulation, pitch, volume, speed, and even non-verbal communications such as body language and visual cues.

Verbal communication is the most successful form of communication. It makes the process of conveying thoughts easier and faster. Yet, verbal communication makes up only seven percent of all human communication!

Nonverbal Communication

Nonverbal communication involves communicating by sending and receiving wordless messages. These messages usually support verbal communication, but they can also convey thoughts and feelings on their own.

> "Said does not mean heard.
> Heard does not mean understood.
> Understood does not mean agreed.
> Agreed does not mean taking action.
> Taking action does not mean taking action again *and again and again*."

- Body language, or physical nonverbal communication includes facial expressions, eye contact, body posture, gestures such as a wave, clapping hands and the like, overall body movements, tone of voice, touch, among others.
- The most common among all nonverbal communication are facial expressions. For example, a smile or a frown conveys distinct emotions hard to express through verbal communication. Research shows that body language, including facial expressions, account for 55 percent of all communication.
- The way something is said, rather than what is actually said, is an important element of nonverbal communication. Also referred to as paralanguage, this includes voice quality, intonation, pitch, stress, emotion, tone, and style of speaking, and communicates approval, interest or the lack of it. Research states that tone of the voice accounts for 38 percent of all communications.
- Other forms of nonverbal communication usually communicate one's personality including the following:
  - Creative expressions or aesthetic communication such as dancing, painting, and the like.
  - Physical appearance or the style of dressing and grooming, which communicates one's personality.
  - Paintings and landscapes which are space languages used to communicate social status and taste.
  - Symbolisms such as those in religious, status, or ego-building symbols.

Visual Communication

A third type of communication is visual communication through visual aids such as signs, typography, drawing, graphic design, illustration, colour and other electronic resources.

- Visual communication usually consists of visual aids such as signs, typography, drawing, graphic design, illustration, colour and other electronic resources. It usually reinforces written communication, and can in many cases, replace written communication altogether. The adage "a picture is worth a thousand words," holds true and in many occasions, visual communication proves to be more powerful that verbal and non-verbal communication. Technology has in fact made expressing visual communications much easier these days compared to before.

People remember
- 10% of what they hear
- 30% of what they read
- 50% of what they see
- 90% of what they do

Source: Provoke, Relate, Reveal, Scottish Natural Heritage

A good understanding and appreciation of the various types of communication and communication styles can help in knowing how to deal with people, particularly the Youth better, clear up misunderstandings and misconceptions, and contribute to the success of the endeavour.

Making Learning More Fun for the Youth

The Concept of Group Dynamics (GDs) and Icebreakers

Why use GDs and Icebreakers

GDs and icebreakers are set of activities structured and designed to facilitate conversation among the learners, build their group, and encourage positive learning environment through interactive and fun games, exercises, and other activities (Reproline Plus, 2015). GDs and icebreakers also aim to break barriers among the participants, especially those coming from various places or schools, making sure that they feel comfortable to create a good working relationship with each other resulting to a successful outcome. It also refreshes the participants after long periods of lectures, workshops, planning and other formal activities done while in the Eco-Camp.

When to use GDs and icebreakers?

Consider implementing GDs or icebreakers when:

- Participants come from different backgrounds.
- People need to bond quickly so as to work towards a common goal.
- Your team is newly formed.
- The topics you are discussing are new or unfamiliar to many people involved.

GDs and icebreakers are also used when the learners feel sleepy, after breaks, before or after learning sessions, when the energy of the participants are low, and when waiting for the next speaker or activities to avoid idle time.

How to design and implement GDs and Icebreakers?

When designing GDs and icebreakers, it is important to know the profile of the participants. The GDs or icebreakers to give must be appropriate to their backgrounds: age, gender, religion, ethnicity etc. Younger people may enjoy more physical activities. Some religion prohibits some acts used in the GDs or icebreaker. Certain GDs and icebreakers may offend some ethnic groups through words used. The facilitator should know about these to avoid conflicts. Also, some GDs and icebreakers are designed to help the event achieve its objectives.

The type of session and time available must also be considered in designing and giving GDs and icebreakers. When the session or event is too formal or serious, the GDs must not be heavy on physical activities that may require repositioning of chairs and tables, make the participants shout a lot, etc. Moreover, if the waiting time is only for five minutes, the facilitator must not throw GDs and icebreakers that require longer time to finish or to implement. Usually, only claps are given when the next speaker is already in the venue and prepared to give lecture, while competitive games are given to fill out relatively longer waiting or idle time in the eco-camp, or raise the low energy of the Eco-Campers.

Furthermore, when doing GDs and icebreakers, the facilitator must be energetic to entice the learners and should be a keen observer to know what particular GD or icebreaker to give. Also, the facilitator

must give instructions clearly to avoid confusion. Sample GDs and team building activities are in Annex B.

Experiential Learning Concept and Tools

Experiential learning is an effective way of embarking lessons and knowledge to the audience, especially to the youth participants. According to Kolb (1984) "deeper learning runs through a cycle of concrete experiences, reflective observation, abstract conceptualization and active experimentation. Applying lessons learned into future actions provides the basis for another cycle of learning." It involves not only learning through doing, but also learning through evaluation and reflection of these experiences.

In 1984, Kolb stated that experiential learning cycle which involves experience, reflection, experimentation and conceptualization phase. This cycle includes the process of exploration, analysis, decision, and action activities (see Figure 1).

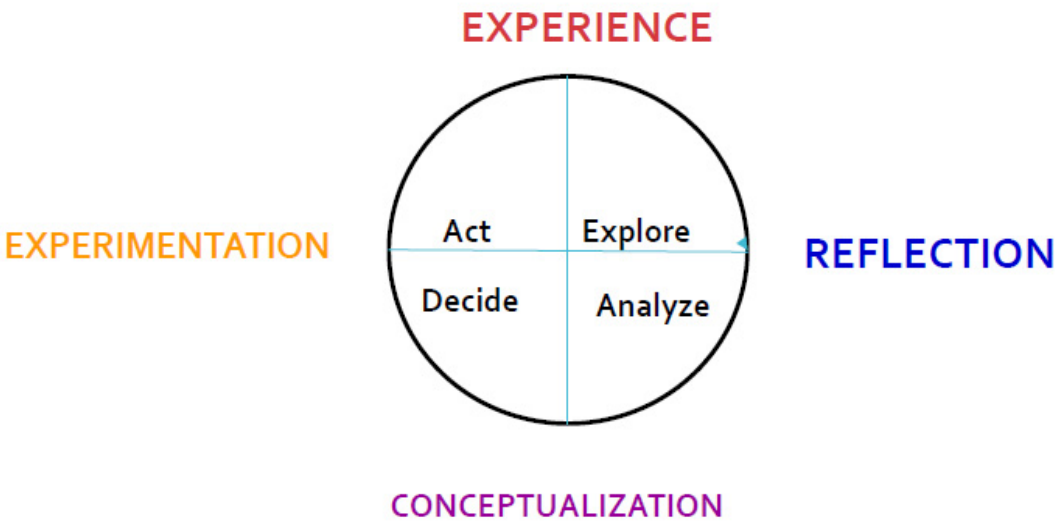

Figure 1. Experiential Learning Cycle (Kolb, 1984)

As shown in Figure 2, Kolb (1984) also proposed an experiential learning model which facilitates the learning process of the participants. It is composed of five (5) steps comprises of experiencing, sharing, processing, generalizing, and applying stage.

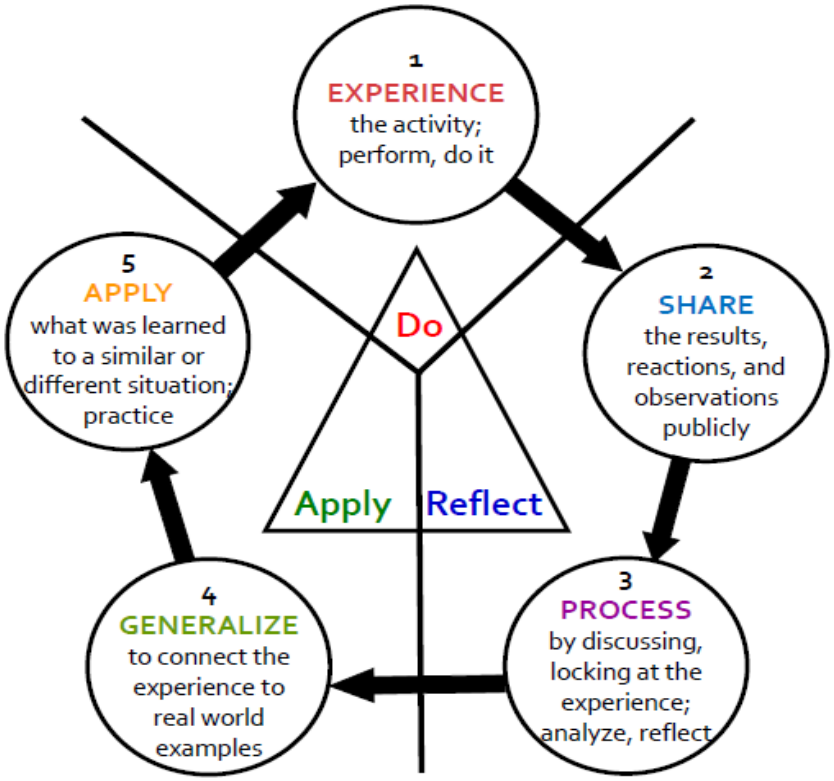

Figure 2. Experiential Learning Model (Kolb, 1984)

Experience

In the experience stage, the activities are planned for discoveries; involves actions and performance and a first-hand experience. The key objectives in this part are oriented towards "to explore, to examine, to construct, to arrange" which facilitates the learner to observation and see the "bigger picture."

Share

The key concept in this part is "responding." After the experience, the observations, results, and reactions are being stated by the participants. The statement and output in this stage are geared towards answering

the key question, "what happened?" The leader can also use the following questions to facilitate the sharing process:

- *What did you do?*
- *How did you feel?*
- *What did you notice?*
- *What was most difficult? Easiest*?

Process

Analysing patterns are being done in the processing stage where discussions and reflections on the experience take place. Assessments are being performed to see "what's important?" in the event and / or experience. The leader's role in facilitating this part is to: 1) *allow adequate process time to include sharing*; 2) *encourage "pair-share" and large groups share; 3) use open-ended questioning to stimulate thinking and feeling*. Examples of open-ended questions that can be used are below:

- *What are some important things you learned about?*
- *What problems or issues to occur over and over? Why did that happen?*
- *What if you had ___?*
- *If you could do it again, what would you do differently?*

Generalize

In generalizing, inference is made to answer the question "so what?" The leader must guide the participants on creating connections between the *personal inner meaning of the activity and the broader world* or to relate their experience to the real world. The facilitator can ask questions about what the participants learned about themselves through the activity, major themes or ideas related to what the participants do in their lives, and also what did they learn or life skills acquired while doing the activity.

Apply

This stage is the occurrence of practice and actions, and where learning materializes, answering the key question, "now what?" The leader's role in this stage is to motivate the *youth in finding ways to use what they have learned in new situations*. Some of the guide questions that can be utilized in this stage are:

- *What will you do next time you run into a similar situation?*
- *How can you use what you have learned in a similar situation?*
- *What will you differently next time?*

This experiential model by Kolb is a cycle of doing, reflecting, applying activities, and then uses the information and knowledge gained in the experience in going through the whole process again. Skills that can be enhanced in experiential learning include life skills, project or content skills, science process skills, applied skills, workforce or leadership skills, and service learning skills.

Examples of experiential learning activities and tools are being used in the Youth Ecological Camp curriculum. Such are participatory learning sessions, environmental games, field exposure visits, visioning and action planning, socials night, up to the application stage which is the implementation of the school and / or community projects. These experiential learning tools produce good outcomes which incorporate not only knowledge but also positive behaviour and attitude change to the participants.

Photography credits: SCPW, Inc.

Safety Tips

- At the start of the session, explain the emergency exits in the venue and post it in the meeting room
- Use life vests in going out in a boat
- Make sure to check the weather forecast before going out to the lake or other water body

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Photography credits: River in Balete, Batangas by Carlo Quintos (SCPW)

Annex A

All materials in the Annexes are available in electronic format in the enclosed compact disc.

Annex A – Module Handouts

- The Seven Environmental Principles
- Environmental Profile of Site
- Solid Waste Management in the Community
- Wetlands and Water
- DRRM and CCMA
- Climate Change

Module 01 - The Seven Environmental Principles*

1. Everything is connected to everything else. (*Ang lahat ng bagay ay magkakaugnay.)*

The intricate relationships of various elements of the ecosystem bind the components together into one functional unit. The trees in the forest are home to ferns, orchids, birds, insects and mammals. When these plants and animals die, their products of decomposition contribute to soil fertility. Plants provide oxygen to animals for aerobic respiration while animals furnish carbon dioxide to plants for photosynthesis. The quality of the soil determines the type of vegetation that exists while vegetation contributes to the minerals of the soil when they die. The living component of the ecosystem affects and is affected by the abiotic components, such as air, temperature, land. Inter-specific relationships create a dependency with each other so that they both have to co-exist to live. All these relationships provide dependencies, check and balances that compose the details of our life-support systems.

Human interaction with nature oftentimes alters the ecosystems. The waste we improperly dispose of brings about the deterioration of land and water quality. This may in turn reduce their capacity to provide life for other organisms. Deforestation causes soil erosion and the earth deposited on the water bodies covers the coral reefs resulting to fishery loss. Suspended particulates from vehicular and stationary sources may cause lung problems among city residents. War causes destruction of wildlife and habitats. There is a cause and effect chain, even when it is neither always visible nor observable.

Global economic systems affect the distribution of biological goods worldwide. Through the Galleon trade, spices reached different parts of the world. Today, oranges and apples from China have become easily accessible to the Filipino market. Developing countries argue that globalization promotes the introduction of species detrimental to the recipient habitat and market.

2. All forms of life are important. (*Ang lahat na may buhay ay mahalaga*.)

All living organisms were created for a purpose in relation to humans, other species on earth and global ecosystem in general. Thus, when a species becomes extinct, it is like removing a piece of a jigsaw puzzle from the web of life. The variety of life forms, manifested by the different levels of biological diversity – community, species and genes – contributes to the stability of the environment. Food webs, food chains and ecological relationships link plants and animals together in the web of life. Even bacteria, insects, snakes and rats have ecological functions even though humans perceive them as parasites or pests.

The Philippines ranks high among the biodiversity hotspots – the richest but the most threatened of terrestrial ecosystems in the world. The Philippines has rich flora and fauna: an estimated 13,500 plant species, 80 amphibians, 240 reptiles, 556 birds, 174 mammals, 300 corals, 27 mangrove species. Of these, approximately 75% are endemic. Some of the threatened species are the Philippine eagle

(*Pythecophaga jefferyi*), Philippine crocodile (*Crocodylus mindorensis*), and Tamaraw (*Bubalus mindorensis*).

The composition of biological diversity naturally changes slowly but the rate of transition has become faster due to factors such as habitat destruction. Deforestation may diminish forest species such as birds that are vulnerable to modification of their home. Pollution of waters reduces the quantity of fishes, shells, algae and other aquatic life. Over harvesting of natural products likewise contributes to the unsustainable use of food and material resources.

To maintain ecological balance, therefore, the conservation of genes, species and ecosystems becomes essential to keep life together. Biodiversity conservation strategies commence with the protection of both terrestrial and aquatic ecosystems. Land uses, such as protected areas, ensure that the natural state of these habitats continue to exist in designated areas. Community-based approaches in conservation maximize citizens' participation in protected areas. Integrity of natural ecosystems can likewise be guarded through the preservation of indigenous species.

Strategies outside of the protected areas can be adopted. Cities and human settlements can still keep trees, patches of forests and garden as home for wildlife like birds, butterflies, and insects. Agricultural ecosystems sustain the variety of plants and animals through inter-cropping, multi-cropping and crop rotation. Plant and animal breeding can increase the population of commercially important species without directly harvesting from the wild. The captive breeding of Pag-asa, the Philippine eagle, provided a solution to the diminishing eagle population. Although it is still recommended that habitat protection must be the first step to species protection.

3. Everything must go somewhere. (*Ang lahat ng bagay ay may patutunguhan*.)

By-products of consumption go back to the environment. Everything that we throw away – pieces of paper, left-over food, peelings of fruits, plastic wrappers, used containers – have to go somewhere. Even plants and animals have their own wastes – feces, urine, dead leaves and branches. It is the law of nature that the by-products of metabolism return to the soil, acted upon first by worms, bacteria and fungi, and then converted into minerals, to be again absorbed by plants and eaten by animals. In short, they enter into a material cycle that is an integral part of the ecosystem. But what happens if what we throw is an artificial product such as plastic? Then natural bacteria can not recognize them and may not be capable of breaking them apart. These non-biodegradable products must enter another material cycle – the one that goes to the factory to be manufactured into a new product. Thus the retrieval, collection and recycling of these materials become necessary so that they do not pollute land and water habitats.

In our present consumer-oriented, setting up an ecological solid waste management system becomes necessary for maximizing the use of resources. Ecological solid waste management recommends that solid

wastes be reduced, segregated, re-used and recycled. Biodegradable materials are either to be eaten again or composted. Non-biodegradable materials have to be segregated and collected for recycling.

Industries have their own responsibility in reducing their effluents. End-of-the-pipeline technologies are augmented by clean technologies in raw product extraction and manufacturing. The "polluters pay" principle adopted by governments intensifies the campaign for clean land, water and air. Waste exchange programs by industry turn wastes of one industry into raw products of another. In that way, habitats for organisms are not destroyed or deteriorate.

4. Ours is a finite earth. (Ang kalikasan ay may hangganan.)

Everything that we need is provided by nature in abundance – food, water, energy, minerals and air. However, some resources that we depend upon nowadays are extracted excessively but are slow to replace. These non-renewable resources experience limits of supply. For instance, fossil fuels produced over thousands of years may be exhausted in a hundred years. Some energy sources like water, and wood may be replaced easier but have become inaccessible due to pollution and excessive extraction. Diminishing forest cover have resulted from logging, ineffective reforestation and continued land conversion. However, food scarcity and poverty may have resulted from failed distribution systems rather than inability of the land and water bodies to yield food.

It can be argued that increasing population decreases the amount of resources available to each person. Carrying capacity, or the ability of the ecosystem to support a number of people, may be influenced by limit of resources due to an increasing population. Competition increases as the carrying capacity is reached. Per capita consumption must also be taken into account because people in Northern countries generally consume more food, energy and resources than people in the developing Southern countries. Carrying capacity may be addressed two ways: increase resources and reduce population growth. Agricultural productivity for instance may be increased with better availability of water and farm inputs.

Pollution reduces the absorbing capacity of air and water. Pollution likewise reduces the availability of land and water to produce food for human consumption. A river classified a Class IV means that it becomes fit only for only for navigation and can no longer sustain life forms. Likewise, oil spills from accidents or war destroy bays and rivers. Waterways that have become cesspool of domestic wastes cannot contain fishes and shells or if they do might transmit toxins and harmful bacteria to consumers.

Several solutions have been suggested to solve this problem: reduction of consumption, increased use of renewable energy, emissions trading, and pollution control. The conservation ethic and technological solutions have become viable strategies to address finiteness of resources. Biodiversity conservation is anchored on the principle that lost species are irreplaceable. Thus, extinct species have acquired a greater value – more effort has to be exerted to protect and save endangered species. The

conservation ethic supports the belief that we should tread lightly on the earth by using only what we need. The philosophy of *"sapat*", meaning "enough" suggests that we should buy and consume only what we need and leave some for the less privileged and the next generation.

5. Nature knows best. (*Ang kalikasan ang mas nakakaalam.)*

Nature manifests certain processes that enable it to maintain balance and remain in a state of equilibrium. The nutrient cycling of nitrogen, carbon, sulfur and phosphorous in the air, water and land indicates that minerals are utilized within the confines of the earth. The flow of energy from the sun enables light to be converted into sugar in plants through photosynthesis, and later for consumer organisms to obtain energy from plant starch. Food chains and food webs allow transfer of energy from producers and consumers and provide the means for all living organisms to acquire nutrition. Population control also occurs naturally through predator – prey relationships.

The equilibrium in the ecosystem is maintained, thus if humans intervene, unforeseen negative impacts known as ecological backlash, may arise. Floods are often times backlashes of excessive felling of trees. The importation of golden kuhol, that became a pest, reminds us that biological organisms may not acclimatize in a new environment or may cause harm to indigenous species.

The environmental ethics promote that we conform to ecological principles and stay close to natural products and processes. We should patronize natural food and consumable materials. Organically grown vegetables provide healthy food without the side effects that may arise from pesticides. Ecological technology offers an option for us to choose, that which is closest to nature. The extent to which Genetically Modified Organisms (GMOs) affect health remains debatable and the formidable task of providing adequate safe food for a growing population continues to challenge agricultural scientists and environmental managers worldwide.

6. Nature is beautiful and we are stewards of God's creation. (*Ang kalikasan ay maganda at tayo ang tagapangasiwa ng lahat na nilikha ng Diyos.*)

Creation presupposes the existence of a Creator. The beautiful nature around us, perfect by itself, has deteriorated due to the negative impacts of human use. This principle suggests how a Human-Creator relationship is translated in our attitude towards creation. Theologians explain that there are different levels of this relationship. First is a relationship determined by dominion of humans over creation, that humans can do as they wish because this was given by God. The book of Genesis says "have dominion over the fish of the sea and the birds of the air…" The second level is one of stewardship, that of a caretaker where humans are not owners but guardians of the integrity of nature. The third level promotes a kinship relationship postulated by St. Francis de Assisi in the famous verse "Bother sun, Sister moon", where humans are no higher than the birds and fishes of the sea. Fourth is one of sacrament, where

nature becomes a testimony of God's love. Fifth is a covenant relationship, where protection of the earth is a life mission manifested in the things that we do and say.

Different religions from Islam to Buddhism to Judeo-Christian to indigenous people's animism express the belief of caring for the earth, including all creatures. Thus it is the goal of environmental education and biodiversity conservation education to motivate target audiences towards developing an eco-spirituality that moves them into a more meaningful relationship with nature and a greater participation in the biophysical economic processes that make this world a better place to live in.

7. Everything changes. (Ang lahat ay nagbabago.)

Changes in the biophysical world occur naturally. As they say, there is nothing more permanent in this world than change. Consider the following examples. Metamorphosis of caterpillars to butterflies illustrates morphological changes that occur in living forms. The increase of vegetation on earth augmented the amount of oxygen in the atmosphere through time. Seasons are cyclic changes that contribute to the diversity of flowers, fruits, vegetables and other crops during the year. Random changes manifested by natural catastrophe such as typhoons destroy forests, coral reefs and mangroves. Volcanic eruptions annihilate surface flora and submerge rivers.

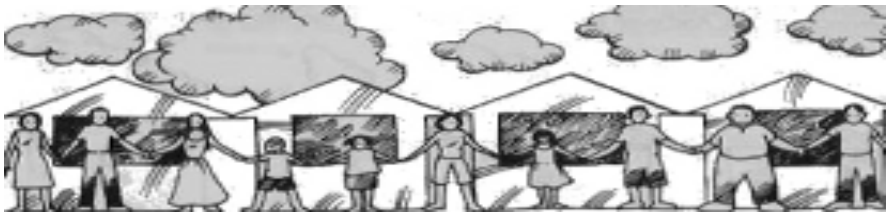
Human-induced alteration such as climate change may cause more massive repercussions. Land use change – from forests to agricultural land to human settlements – change the composition of vegetation and animals. Human-induced changes can be managed so that the negative impacts are minimized and positive changes accentuated. Environmental impact assessment (EIA) provides a tool for the projection, planning and management of change brought about by industrialization and human settlement expansion. Effluents can be managed through policy and pollution control techniques by both industry and government to achieve clean air and water.

Sustainable development presents a paradigm of change for the 21st Century. Sustainable development promotes ecological integrity, equitable sharing of resources and people empowerment as pillars of growth. Biodiversity conservation contributes to ecological integrity, through both in-situ and ex-situ techniques. Biodiversity conservation becomes successful only if coupled with poverty alleviation, improving equity of access to resources and instituting social change. Environmental education facilitates social transformation by modifying attitudes and behavior of people towards an ecological ethic.

** Adapted from Barry Commoner, as compiled by Miriam College.*

Module 03A – Environmental Profile of the Site

Patintero Laban sa Basura



Alituntunin para sa lahat!!!

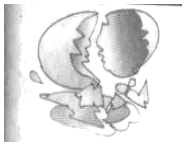
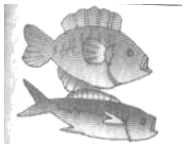
GAWING MALINIS, MAGANDA AT

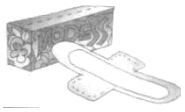
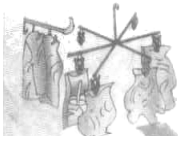
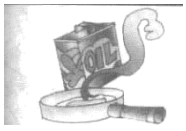
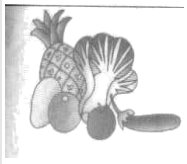
MAY SARIWANG HANGIN ANG PILIPINAS

Papaano?

- Panatalihing malinis at tuyo ang basura upang mapakinabangan pa.
- Kung nasa labas ng pamamahay: Ugaliing iuwi ang sariling basura kung walang tamang pagtatapunan.

Sa pamamahay: iayos ang mga bagay na itatapon sa pamamagitan ng sumusunod na pamamaraan:

URI NG BASURA		TAMANG GAWIN	
	HUGAS BIGAS, SABAW NG NIYOG, TUBIG NA PINAGLUTUAN NG NOODLES	* Pantanggal ng sebo sa pinaglutuan at kinainan * Ibaon o ipandilig * Isama sa kaning-baboy	HUWAG itapon sa lababo o kanal dahil magiging sanhi ito ng pagbaho/pagbara ng lababo at pagbaha.
	TAHONG,HALAAN, ALIMANGO, HIPON	* Ibaon o gawing organic fertilizer * Patuyuin at ihiwalay ng lalagyan kung ibibigay sa trak ng basura	HUWAG ilagay sa basurahan dahil magiging sanhi ito ng pagbaho.
	BALAT NG ITLOG	* Ihalo sa hugas-bigas at gamiting pantanggal ng mga tumigas na pagkain sa mga pinaglutuan *Maaring isama sa kaning-baboy o ibaon at gawing pataba sa lupa.	HUWAG itapon sa basurahan dahil ito'y magiging sanhi ng pagbaho.
	LABI NG ISDA: KALISKIS, BALAT, HASANG, BITUKA	* Maaring pakuluan at ipakin sa pusa *Isama sa kaning-baboy * Ibaon o gawing pataba sa lupa	
	LABI NG HALAMAN: PUTOL NA SANGA, DAHON, BULAKLAK	* layos ang mga sanga at talian o tadtarin at ibaon upang maging pataba sa lupa kasama ng iba pang labi ng halaman	HUWAG isama sa ibang basurang hindi nabubulok
	BUKO, BAO, BUNOT NG NIYOG	* Ilagay sa sako na malinis at tuyo * Maaaring gawing materyal sa iba't-ibang palamuti * Lalagyan ng halaman o pakapitan ng orchids * Tadtarin, ibaon upang maging pataba sa lupa * Uling	HUWAG isama sa tuyong basura HUWAG itapon sa kung saan

URI NG BASURA		TAMANG GAWIN	
	DISPOSABLE DIAPERS	* Itapon ang dumi sa toilet bowl, bago banlawan at ibalot, at saka ibigay sa trak ng basura	HUWAG ilagay agad sa basurahan
	TISSUE PAPERS, BULAK	* Ibaon at gawing pataba sa lupa	HUWAG ihalo sa malinis na papel
	SANITARY NAPKINS	* Ibalot ang bawat napkin sa papel, bago ilagay sa isang lalagyan, at saka ibigay sa trak ng basura	HUWAG itapon nang hindi nakabalot sa papel
URI NG BASURA		TAMANG GAWIN	
	PAPER PLATES, PLASTICS, STYRO, LATA, BOTE, TETRA PACKS, ALUMINUM FOIL	* Tanggalin ang tirang pagkain, banlawan sa hugas-bigas o maligamgam na tubig * Patuyuin sa sampayan o alambre bago ilagay sa lalagyan * Maaaring i-recycle	HUWAG itapon ng basa at may bahid ng pagkain dahil magiging sanhi ito ng pagbaho.
	GAMIT NA MANTIKA AT SEBO	* Ilagay sa lalagyan ng kaning-baboy. * Maaring ihalo sa ibang nabubulok na basura at ibaon sa lupa	HUWAG itapon sa lababo o kanal dahil magiging sanhi ito ng pagbaho at pagbara.
	PINAGTALUPAN AT TIRANG GULAY AT PRUTAS	* Ilagay sa lalagyan ng kaning-baboy * Ibaon o gawing pataba sa lupa * Maaring ihalo sa hugas-bigas at gawing pantanggal ng sebo	HUWAG ilagay sa plastik at ilagay sa basura

URI NG BASURA		TAMANG GAWIN	
	KARNENG BAKA/ MANOK/BABOY/ KAMBING/USA	* Maaring isama sa kaning-baboy, o ibaon para maging pataba sa lupa	HUWAG agad itapon sa basurahan dahil magiging sanhi ito ng pagbaho.
	TUBIG NA GINAMIT SA PAGHUHUGAS	* Salain sa balde * Dagdagan ng tubig * Ipandilig sa halaman * Isama sa kaning-baboy	HUWAG itapon sa lababo, kanal, o drainage dahil magiging sanhi ito ng pagbaho at pagbabara.

KARAGDAGANG ALITUNTUNIN

- Iwasan ang paggamit ng siga upang mawala and mga basura lalo na ang plastik, styrofoam, mga de-kolor na papel at iba pa na nakakapagdagdag sa “Dioxin” isang uri ng kemikal na nakakapagpabago ng klima at nakapagpapainit ng panahon.
- Tirang langis ng makina. Maaring ibalik sa “service station” o gasolinahan.

MGA MALINIS AT TUYONG BAGAY NA MAAARING MAGAMIT MULI O IBENTA SA ECO-AIDE O IBIGAY SA TRAK NG BASURA NA NASA MAAYOS NA LALAGYAN

- ✓ Aluminum foil
- ✓ Bakal
- ✓ Baterya
- ✓ Bote (basag at buo)
- ✓ Balat ng kendi
- ✓ Karton
- ✓ Film ng kamera
- ✓ Damit – luma o sira
- ✓ Electric fans at iba pang appliances
- ✓ Gomang gulong
- ✓ Greeting cards
- ✓ Lata
- ✓ Laruan
- ✓ Papel
- ✓ Plastic na lalagyan, takip atbp.
- ✓ Pens
- ✓ Tansan
- ✓ Tira ng karpintero at sa konstruksyon
- ✓ Sigarilyo
- ✓ Upos
- ✓ Straw
- ✓ Plastic

Manning the Lines of Defense

1. Internalize

Do you know where your garbage goes? Do you care?

Advice straight from the heart of people who play the game everyday and enjoy it.

2. Tao, People. Be Informed.

- Know, understand, realize that you (and I) are the producer, supplier, generator, creator of garbage.
- Good news: You (and I) are also the solution.
- Bottomline: Don't create garbage. Keep waste segregated.
- Make sure the nabubulok is composted and the rest recycled. Keep close watch.

3. Family. Household. Take action!

- Each One, Teach One. Help, check, monitor everyone.
- Invest in segregators, garden tools, pots, etc.
- Allocate space in the garden for composting and storage.
- Know where the nearest junkshop is or who buys recyclables – house to house.
- Learn and do composting in different ways under or above ground. In pots, cans, sacks, etc.
- ***Do it every day until it becomes a habit.***

Source:

"***Doon Po Sa Amin***", *100 Models for Ecological Waste Management (Segregating, Composting, and Recycling) Metro Manila, Luzon, Visayas, Mindanao. Earth Day Network Philippines.*

I. Ecological Waste Management in Communities

A. Solid waste defined; types of solid wastes

Solid wastes are any discarded (abandoned or considered waste-like) materials (Official Gazette, 2001). It can be classified into three (3) types depending on its source: household (municipal waste), industrial (hazardous waste), and biomedical or hospital wastes (infectious waste) as cited by Singh and Ramanathan in 2013.

Household or domestic wastes refer to solid wastes generated by people in their residential or dwelling places as a result of day-to-day living activities (WebLaws.org, 2013). Moreover, industrial wastes are waste produced from business services and manufacturing activities (Toowoomba Regional Council, n.d.) while biomedical or hospital wastes are medicinal products or hospital equipment that are discarded or considered useless produced in the diagnosis, treatment, immunization of humans and/or animals or research (Antimicrobial Resistance Network, 2007) .

Below are the four categories of garbage and examples according to Singh and Ramanathan in 2013:

- *Organic waste: Kitchen waste, vegetables, flowers, leaves, fruits.*
- *Toxic waste: Old medicines, paints, chemicals, bulbs, spray cans, fertilize, pesticide containers, batteries, shoe polish*
- *Recyclable: Paper, glass, metals, plastics*
- *Soiled: Hospital waste such as cloth with body fluids*

B. Facts and Figures on solid waste management at the national and local levels

The Environment Management Bureau- Department of Environment and Natural Resources (EMB-DENR) stated that i*n the Philippines, the solid waste problem is most serious in urban centres, particularly in Metro Manila, because of the high population density, the high consumption rates, and the concentration of packaged goods, some of which are made with raw materials that are toxic and non-biodegradable.* The 2016 data on waste projection shows that NCR Region got the highest waste generation with 9, 212.92projected tons of waste per day (National Solid Waste Management Commission [NSWM], 2016) . With these tons of waste, 52% are biodegradable, 41% are recyclable, 7% residuals (NSWMC, 2016). . At the national level, report shows that in 2008-2013, 56.7% of

solid waste came from residential waste, 27.1% commercial, 16.2% from other sources like industrial and institutional wastes (Environmental Management Bureau and National Solid Waste Management Commission, 2015). From these wastes, 52.31% are bio-degradable, 27.8% are recyclables, 17.8% residuals, and 1.93% special waste (Environmental Management Bureau and National Solid Waste Management Commission, 2015.

These mean that the bulk of solid waste in the country comes from households, followed by commercial or industrial waste which is alarming because these can be toxic and hazardous. On the other hand, recyclable wastes constitute plastics (38%), paper and cardboards (31%), and metal, glass, textile and rubber (31%). These wastes are often improperly handled and just thrown anywhere polluting the environment, especially water bodies.

In Laguna de Bay, there are 8.4 million of people residents living around the lake and an estimated of 60% of this population dump their solid and liquid waste directly through the lake's tributaries which is around 10% of the 4,100 metric tons of wastes produced by the residents in the area (LLDA, 2005 as cited by UP Open University, n.d). This poor solid waste management have negative impacts on health and environment.

II. Impacts of Unmanaged Solid Wastes

Solid wastes, when improperly managed, can put communities at risk of injury and infection. Groups of people living in a place where there is no proper waste disposal method, people living close to a waste dump, children, waste workers, and animals are vulnerable to the adverse effects of solid wastes (Alam and Ahmade, 2013).

A. Health Impacts of unmanaged solid wastes on the community

Solid wastes pollute the water and increase the risk of water-borne diseases. Industrial wastes can be toxic and can contaminate the water bodies with heavy metals that can cause illnesses to humans and other organisms. Furthermore, study shows that exposure to solid wastes can lead to low birth weight, cancer, congenital malformations, neurological disease, nausea and vomiting, and respiratory diseases (Alam and Ahmade, 2013)

B. Impacts of unmanaged solid wastes on the environment (flooding, pollution, etc.)

Aside from the health impacts on people, unmanaged solid wastes have also negative effects on the environment. These solid wastes aggravate other problems such as disasters caused by flooding due to clogged waterways. Garbage obstruct or clog the flow of water on rivers, canals, and other wetlands, worsening the flooding situation in an area. Solid wastes are also major contributors in rendering some wetlands to become biologically dead, such as some portions of the Pasig River.

Moreover, Alam and Ahmade mentioned in 2013, that solid waste causes mercury toxicity of water bodies, plastics in the ocean which are ingested by birds, high algal population in rivers and lakes causing oxygen deprivation of marine organisms and to fish kill, and degradation of water and soil quality.

III. Innovative activities to help manage solid wastes in homes, schools and communities

With the prevalent problems of solid waste management in the Philippines, there is a need for interventions that are multi-sectoral in nature.. Below are some of the examples of the projects and activities that can be done by the youth and other stakeholders to help address such problems.

A. Sachet Recovery Project (SRP)

The SRP aims to empower the youth, and other sectors to take active role in solid waste management. Also, this intervention targets to reduce the amount of sachets being dumped in wetlands.

Post-consumer waste, such as sachets from shampoo, dishwashing liquid, laundry soap, and the likes are being collected and used as one of the materials for paver production or brick-making. In an ongoing partnership between an industry and the SCPW, 170 kilos of sachets can be converted into 1000 pieces of pavers or bricks. The project encourages the participation of different sectors such as local government units, industry and school. The pavers are donated back to the schools that collected the sachets and are being used as flooring in classrooms or walkways in their school campuses.

B. Wetland Clean-up with Information Campaign

Clean-up activities are more effective when it is accompanied with an information campaign. Without the latter, the area will tend to return to its polluted state again because the people will continue

throwing garbages indiscriminately and using more plastics if they are unaware of the consequences of this kind of practice and of proper solid waste management.

The organizers may hold short seminars or forum before the clean-up event, commitment setting activities and short program, or produce IEC materials to raise awareness. This activity should be done at the community level (Barangay or Sitio) and be part of a solid waste management program in order to sustain the interest of the people. Eventually, these activities when done regularly will instill in the community the values of waste management and influence behavior that predispose waste segregation at source. When this happens, clean-ups might not be anymore necessary except when the community needs to show solidarity in their solid waste management program.

C. Composting and Home/School Gardens

Composting is a natural process of decomposition of organic waste that yields compost, which is rich in nutrients and an excellent medium for growing plants (University of Georgia Cooperative Extension, 2013). With composting, the waste will not carelessly be thrown or left rotten, and the amount of disposable garbage will be reduced. It also recycles the nutrients in the soil and is very effective with home and school gardening since the organic fertilizer that will be produced from composting can be used instead of chemical fertilizers. It also increases the soil's ability to hold water and help the soil retain more of the plant nutrients (University of Georgia Cooperative Extension, 2013).

With the bulk of kitchen produced in home and schools, composting can be easily done even by youth.

IV. Field observation of solid waste management in the community and crafting of activity to help manage SW.

Field observation activity is taken to expose the participants to the community surroundings and to personally see and closely observe the lake and the lakeshore communities, and the existing problems and issues thereof.

In this trip, the participants are divided into groups and facilitated by teachers and the organizers on gathering of data. The participants will be asked to observe the community and take note these observations. To substantiate the data, the participants can be tasked also to do interviews to the residents and officials in the barangay.

After the trip, the students will prepare assess the data they have collected and analyse it. Below is sample format of tabulating the data that will be gathered:

How the Community Looks Like Today (Current State)	What can we do? (action points)	How the Community Will Look Like 5 Years from Now (Vision)

The facilitator will then process the data after all the reporting and guide them on crafting their action plans.

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Module 03B – Solid Waste Management in Communities

I. Ecological Waste Management in Communities

A. Solid waste defined; types of solid wastes

Solid wastes are any discarded (abandoned or considered waste-like) materials (Official Gazette, 2001). It can be classified into three (3) types depending on its source: household (municipal waste), industrial (hazardous waste), and biomedical or hospital wastes (infectious waste) as cited by Singh and Ramanathan in 2013.

Household or domestic wastes refer to solid wastes generated by people in their residential or dwelling places as a result of day-to-day living activities (WebLaws.org, 2013). Moreover, industrial wastes are waste produced from business services and manufacturing activities (Toowoomba Regional Council, n.d.) while biomedical or hospital wastes are medicinal products or hospital equipment that are discarded or considered useless produced in the diagnosis, treatment, immunization of humans and/or animals or research (Antimicrobial Resistance Network, 2007) .

Below are the four categories of garbage and examples according to Singh and Ramanathan in 2013:

- *Organic waste: Kitchen waste, vegetables, flowers, leaves, fruits.*
- *Toxic waste: Old medicines, paints, chemicals, bulbs, spray cans, fertilize, pesticide containers, batteries, shoe polish*
- *Recyclable: Paper, glass, metals, plastics*
- *Soiled: Hospital waste such as cloth with body fluids*

B. Facts and Figures on solid waste management at the national and local levels

The Environment Management Bureau- Department of Environment and Natural Resources (EMB-DENR) stated that i*n the Philippines, the solid waste problem is most serious in urban centers, particularly in Metro Manila, because of the high population density, the high consumption rates, and the concentration of packaged goods, some of which are made with raw materials that are toxic and nonbiodegradable.* The 2016 data on waste projection shows that NCR Region got the highest waste generation with 9, 212.92projected tons of waste per day (National Solid Waste Management Commission [NSWM], 2016) . With these tons of waste, 52% are biodegradable, 41% are recyclable, 7% residuals (NSWMC, 2016). . At the national level, report shows that in 2008-2013, 56.7% of

solid waste came from residential waste, 27.1% commercial, 16.2% from other sources like industrial and institutional wastes (Environmental Management Bureau and National Solid Waste Management Commission, 2015). From these wastes, 52.31% are bio-degradable, 27.8% are recyclables, 17.8% residuals, and 1.93% special waste (Environmental Management Bureau and National Solid Waste Management Commission, 2015.

These mean that the bulk of solid waste in the country comes from households, followed by commercial or industrial waste which is alarming because these can be toxic and hazardous. On the other hand, recyclable wastes constitute plastics (38%), paper and cardboards (31%), and metal, glass, textile and rubber (31%). These wastes are often improperly handled and just thrown anywhere polluting the environment, especially water bodies.

In Laguna de Bay, there are 8.4 million of people residents living around the lake and an estimated of 60% of this population dump their solid and liquid waste directly through the lake's tributaries which is around 10% of the 4,100 metric tons of wastes produced by the residents in the area (LLDA, 2005 as cited by UP Open University, n.d). This poor solid waste management have negative impacts on health and environment.

II. Impacts of Unmanaged Solid Wastes

Solid wastes, when improperly managed, can put communities at risk of injury and infection. Groups of people living in a place where there is no proper waste disposal method, people living close to a waste dump, children, waste workers, and animals are vulnerable to the adverse effects of solid wastes (Alam and Ahmade, 2013).

A. Health Impacts of unmanaged solid wastes on the community

Solid wastes pollute the water and increase the risk of water-borne diseases. Industrial wastes can be toxic and can contaminate the water bodies with heavy metals that can cause illnesses to humans and other organisms. Furthermore, study shows that exposure to solid wastes can lead to low birth weight, cancer, congenital malformations, neurological disease, nausea and vomiting, and respiratory diseases (Alam and Ahmade, 2013)

B. Impacts of unmanaged solid wastes on the environment (flooding, pollution, etc.)

Aside from the health impacts on people, unmanaged solid wastes have also negative effects on the environment. These solid wastes aggravate other problems such as disasters caused by flooding due to clogged waterways. Garbage obstruct or clog the flow of water on rivers, canals, and other wetlands, worsening the flooding situation in an area. Solid wastes are also major contributors in rendering some wetlands to become biologically dead, such as some portions of the Pasig River.

Moreover, Alam and Ahmade mentioned in 2013, that solid waste causes mercury toxicity of water bodies, plastics in the ocean which are ingested by birds, high algal population in rivers and lakes causing oxygen deprivation of marine organisms and to fish kill, and degradation of water and soil quality.

III. Innovative activities to help manage solid wastes in homes, schools and communities

With the prevalent problems of solid waste management in the Philippines, there is a need for interventions that are multi-sectoral in nature.. Below are some of the examples of the projects and activities that can be done by the youth and other stakeholders to help address such problems.

A. Sachet Recovery Project (SRP)

The SRP aims to empower the youth, and other sectors to take active role in solid waste management. Also, this intervention targets to reduce the amount of sachets being dumped in wetlands.

Post-consumer waste, such as sachets from shampoo, dishwashing liquid, laundry soap, and the likes are being collected and used as one of the materials for paver production or brick-making. In an ongoing partnership between an industry and the SCPW, 170 kilos of sachets can be converted into 1000 pieces of pavers or bricks. The project encourages the participation of different sectors such as local government units, industry and school. The pavers are donated back to the schools that collected the sachets and are being used as flooring in classrooms or walkways in their school campuses.

B. Wetland Clean-up with Information Campaign

Clean-up activities are more effective when it is accompanied with an information campaign. Without the latter, the area will tend to return to its polluted state again because the people will continue

throwing garbage indiscriminately and using more plastics if they are unaware of the consequences of this kind of practice and of proper solid waste management.

The organizers may hold short seminars or forum before the clean-up event, commitment setting activities and short program, or produce IEC materials to raise awareness. This activity should be done at the community level (Barangay or Sitio) and be part of a solid waste management program in order to sustain the interest of the people. Eventually, these activities when done regularly will instill in the community the values of waste management and influence behavior that predispose waste segregation at source. When this happens, clean-ups might not be any more necessary except when the community needs to show solidarity in their solid waste management program.

C. Composting and Home/School Gardens

Composting is a natural process of decomposition of organic waste that yields compost, which is rich in nutrients and an excellent medium for growing plants (University of Georgia Cooperative Extension, 2013). With composting, the waste will not carelessly be thrown or left rotten, and the amount of disposable garbage will be reduced. It also recycles the nutrients in the soil and is very effective with home and school gardening since the organic fertilizer that will be produced from composting can be used instead of chemical fertilizers. It also increases the soil's ability to hold water and help the soil retain more of the plant nutrients (University of Georgia Cooperative Extension, 2013).

With the bulk of kitchen produced in home and schools; composting can be easily done even by youth.

IV. Field observation of solid waste management in the community and crafting of activity to help manage SW.

Field observation activity is taken to expose the participants to the community surroundings and to personally see and closely observe the lake and the lakeshore communities, and the existing problems and issues thereof.

In this trip, the participants are divided into groups and facilitated by teachers and the organizers on gathering of data. The participants will be asked to observe the community and take note these observations. To substantiate the data, the participants can be tasked also to do interviews to the residents and officials in the barangay.

After the trip, the students will prepare assess the data they have collected and analyse it. Below is sample format of tabulating the data that will be gathered:

How the Community Looks Like Today (Current State)	What can we do? (action points)	How the Community Will Look Like 5 Years from Now (Vision)

The facilitator will then process the data after all the reporting and guide them on crafting their action plans.

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Module 04 – Wetlands and Water

Introduction

Wetlands are part of our natural wealth and have been critical to the development and survival of human communities. The advancing technological skills of human communities may seem to have supplanted the role of Nature, but recent environment catastrophes - floods, landslides, storms, many with their roots in unsustainable land use practices - suggest otherwise.

Definition and types of wetlands, their importance and functions

a) The Ramsar Convention's definition of "Wetlands"

The Convention on Wetlands of International Importance or RAMSAR Convention defines wetlands as

"areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres" (Article 1.1).

The Convention text also stipulates that wetlands:

"may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands, especially where these have importance as waterfowl habitat." (Article 2.1).

- Types of wetlands
- Inland wetlands (ie lakes, rivers, marshes)
- Coastal wetlands (ie mangroves, corals, seagrass beds)
- Human-made wetlands (ie rice paddies, fishponds, dams, reservoirs)

b) Status and Prospects of selected wetlands in the Philippines

The Philippines has 6 wetlands which are declared Ramsar sites.

- The Olango Island in Lapu-lapu, Cebu (5,820 hectares) is used by millions of shorebirds as a resting place enroute from Siberia and northern Japan to Southeast Asia and Australia. These

migratory birds come to this waterfowl haven to escape the fierce winters in northern Asia. Each year, Olango sees nearly a hundred different species of birds, a number of which are migratory. Among the frequent guests are Chinese egrets, Asiatic dowitchers, Eastern curlews, plovers, and sandpipers.

Naujan Lake National Park in Oriental Mindoro (14,568 ha) is the fifth largest lake in the Philippines (14km by 7km); it is volcanic in origin and receives water from local run-off with no major effluents. There are large areas of shallow water with an abundant growth of aquatic vegetation. Most of the people in the area depend upon the lake for their livelihood, particularly through fishing.

- Agusan Marsh Wildlife Sanctuary (14,836 ha) includes a vast complex of freshwater marshes and water-courses with numerous shallow lakes and ponds in the upper basin of the Agusan River and its tributaries, which rise in the hills of eastern Mindanao. Some parts of the marsh have been converted into fish ponds and rice paddies. The site acts as storage for rain water and reduces the immediate downstream flow of flood water into Butuan City and other population centers.
- Tubbataha Reefs National Marine Park (33,200 ha), located in the middle of the Central Sulu Sea about 150 kilometers southeast of Puerto Princesa City, is well-known amongst fishermen in the southern Philippines and scuba divers around the world. Some 46 coral genera and more than 300 coral species have been recorded, as well as at least 40 families and 379 species of fish. Sea turtles, sharks, tuna, dolphins, and jackfish are also found in the reefs. The Park was inscribed in UNESCO's World Heritage list in 1993.
- Puerto Princesa Subterranean River National Park in Palawan (22,202 ha) is unique in the biogeographic region because it connects a range of important ecosystems from the mountain-to-the-sea, including a limestone karst landscape with a complex cave system, mangrove forests, lowland evergreen tropical rainforests, and freshwater swamps. It is home to about 800 plant and 233 animal species, including the critically endangered Philippine cockatoo (*Cacatua haematuropygia*) and Hawksbill turtle (*Eretmochelys imbricate*), as well as the endangered Green sea turtle (*Chelonia mydas*) and Nordmann's greenshank (*Tringa guttifer*).
- The Las Piñas-Parañaque Critical Habitat and Ecotourism Area (LPPCHEA) is a 175-hectare coastal urban wetland and bird sanctuary situated within the metropolis of Metro Manila, comprising two interconnected, mangrove-covered islands, shallow lagoons and coastline. A Presidential Proclamation in 2007 designated the site as a 'Critical Habitat' for the survival of threatened, restricted-range and congregatory species. At least 5,000 individuals of migratory and resident birds have been recorded at the site, including the vulnerable resident bird species Philippine Duck (*Anas luzonica*) which breeds at the site.

Other major wetlands in the Philippines are described in http://www.psdn.org.ph/wetlands/philwetlands.htm.

c) Ecosystem services provided by wetlands

- Provisioning services

  Wetland Products - Wetlands provide a variety of other benefits in the form of products that can be exploited for human use. The range is enormous: fruit, fish, shellfish, crocodile and other meats, timber for building, rice, fuelwood, fodder for animals, etc. Water is primarily sourced from wetlands. Exploitation is carried out in all levels - subsistence level, cottage industry, and the larger commercial scale - in all parts of the world.

- Regulating services

  Flood Control - Wetlands often play a crucial role in flood control. Loss of floodplains to agriculture and human habitation has reduced this capacity. Construction of levees and dams on rivers to improve flood control have often had the reverse effect. Floodplain restoration and removal of structures in providing a partial solution in many countries.

  Groundwater replenishment - An aquifer is a layer of rock containing water. Underground aquifers store 97% of the world's unfrozen freshwater, and they provide drinking water to almost a third of the world's population. Many wetlands help recharge these underground aquifers. Groundwater is the only source of water for many irrigation programs - 17% of the world's cropland is irrigated.

  Water Purification - Plants and soil in wetlands play a significant role in purifying water. High levels of nutrients such as phosphorous and nitrogen, commonly associated with agricultural run-off, are effectively removed by wetlands. This is important in preventing eutrophication further downstream, a process that leads to rapid plant and algal growth followed by depleted oxygen levels that affect other species. It can also be important in preventing high concentrations of these nutrients reaching groundwater supplies or other water sources that may be used for drinking water

  Sediment and nutrient transport - Wetlands tend to slow down the force of water, encouraging the deposition of sediments carried in the water. This is beneficial further downstream where deposition of sediments may block waterways. Nutrients are often

associated with sediments and can be deposited at the same time. Nutrient retention in wetlands makes them among the most productive recorded, rivaling even intensive agricultural systems. Coastal deltas are dependent on riverine sediments and nutrients for their survival; engineered structures that interfere with the natural movement of sediments and nutrients can degrade deltas.

Shoreline stabilization/storm protection - Storm surges and other coastal weather disturbances can cause immense damage through flooding and direct destruction of property, not to mention the loss of human life. Mangroves, marshes, and other coastal wetlands act as the frontline defense against incoming storms. They help minimize the impact of storms by reducing wind action, wave action and currents, while the roots of the plants help to hold the sediment in place.

Climate Change Mitigation and Adaptation - Wetlands may store as much as 40% of global terrestrial carbon; peatlands and other forested wetlands are particularly important carbon sinks. Conversion to agricultural use and destruction of wetlands will release large quantities of carbon dioxide, the gas that accounts 60% of the global warming effect.

- Cultural services
  Recreation and Tourism - Many wetlands are prime locations for tourism, and some these sites generate considerable income locally and nationally. Recreational activities such as fishing, hunting and boating, involve millions of people who spend money for these activities. Wetlands offer ideal locations for involving the general public and schoolchildren in hands-on learning experiences, in an essentially recreational atmosphere, to raise awareness of environmental issues
  Cultural Values - Although largely an unexplored, poorly documented subject, wetlands are frequently of religious, historical, archaeological or other cultural significance at the local or national level. In a preliminary survey of Ramsar sites, over 30% of a sample of 603 Ramsar sites recorded some archaeological, historical, religious mythological or cultural significance

d) Threats to wetlands

- Conversion of wetlands to other land/water uses (housing subdivisions)
- Reclamation, dredging and filling (commercial centers, shopping malls)
- Siltation and sedimentation (from deforestation and indiscriminate land-clearing)
- Pollution (from industry, households and poor agricultural practices)
- Introduction of Invasive Alien Species

- Loss of biodiversity
- Climate Change (coral bleaching, eutrophication, sea level rise, severe storms)

These threats are caused by human and natural actions such as drainage, dredging and stream channelization, damming, poor agricultural practices, introduction of alien invasive species, subsidence, drought, and severe storms, among others. These actions often result to siltation and sedimentation, release of toxic chemicals, air and water pollution, runoff, changing nutrient levels, subsidence, sea level rise and loss of biodiversity.

Major threats to marine ecosystems and resources include: 1) human-induced and direct stresses on species and ecosystems such as deforestation, expanding human settlements, water pollution, overfishing and the use of destructive fishing methods; 2) those that can be attributed to climate change such as coral bleaching, eutrophication, dredging, siltation and sedimentation, nutrient loading, and sea level rise.

One of the major driving forces behind the unprecedented loss of biodiversity on Earth can be attributed to climate change. This was made clear in the report on impacts, adaptation, and vulnerability to climate change of the International Panel on Climate Change. Species extinction rates increased by a factor of 1,000 over the last century, paving the way to the greatest wave of mass extinction of animal species in 65 million years. Unless action is taken now, two thirds of the Earth's remaining species are likely to be extinct by 2100. Thus, climate change clearly poses a major security to the very foundation of life on earth.

Climate change is likely to have a severe impact and compromise the wetlands ability to provide these benefits. Sea-level rise, coral bleaching, changes in hydrology and in the temperature of water bodies will lead to reduction in the goods and services provided by these wetlands. On the other hand, efforts to respond to climate change may have equally negative, and compounding, effects on freshwater and coastal zone ecosystems.

The goals of wetland conservation and wise use are unlikely to be achieved without taking climate change into account. It is generally understood and accepted that removing the existing pressures on wetlands, and improving their resiliency is the most effective method of coping with the adverse effects of climate change.

Further, wetlands are known to play an important role in the global carbon cycle, and are a significant storehouse of carbon. When wetlands are converted, they emit large quantities of carbon

dioxide and other greenhouse gases. Conserving, maintaining, or rehabilitating wetland ecosystems, therefore, can be a viable element to an overall climate change mitigation and adaptation strategy.

e) Some initiatives to conserve and manage wetlands

- The Ramsar Convention - The Convention on Wetlands, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. To date, the treaty has 169 Contracting Parties and 2,241 designated Ramsar Sites which are also called "wetlands of international importance" with a total surface area of 215, 247, 631 hectares. It is the only treaty that deals with a specific ecosystem. For more information about the Ramsar Convention, please visit www.ramsar.org.
- National Wetlands Action Plan for the Philippines (2011-2016) – The Philippines has no overarching policy on wetlands but it has come up with a National Wetlands Action Plan that serves as a guide for wetland advocates and workers. The first document was crafted in 1993 and later on was updated in 2011. Although the document is not officially endorsed yet by the DENR, many agencies and organizations refer to it to guide their work towards the wise use of wetlands. The full version of the NWAPP 2011-2016 can be downloaded from this link http://www.psdn.org.ph/wetlands/national_wetlands_action_plan.htm. The Action Plan is currently being updated again this year.

The link between wetlands, water security and disaster preparedness

All life on the planet depends on water. Water is critical for sustainable development and for human health and well-being. This recognition is not new - Leonardo da Vinci captured the importance of the issue when he proclaimed that 'Water is the driving force of all nature'.

The rise of the earliest great civilisations such as in the river valleys of the Nile, Tigris-Euphrates, Indus-Ganges and Yellow Rivers was dependent on the management of water and the benefits it provided. Yet human history is littered with examples of once thriving civilisations that are now no more than archaeological treasures buried in desert sands. In some cases the demise of these civilisations has resulted from a failure to manage water or to appreciate the delicate balance between wise use and exploitation. And human societies today continue to attempt to conquer and command water. However, water cannot be commanded.

As with the early great river civilisations, integrating the management of water, land and people remains a major challenge for the 21st century. Water is a critical natural resource upon which all

socio-economic and environmental activities depend. International organisations such as the United Nations all highlight the importance of understanding the pressing need to resolve water management issues in an integrated, cooperative and holistic manner.
Water fundamentally connects. From source to sea and through the never ending water cycle, water connects all corners of planet earth. Wetlands occupy a key position in this interconnectivity and that the wise use of wetlands is essential for the delivery of sustainable water management.

The nexus of water, people and wetlands is at the core of water management. Wetlands constitute a resource of great socio-economic, cultural and scientific value, and their loss would be irreparable. Wetlands deliver essential ecosystem services, or the benefits people obtain from nature, including acting as regulators and providers of water. Thus water management and the “wise use of wetlands” are inextricably linked. It is important to raise people’s awareness of the interdependence between water and wetlands, to highlight ways to ensure the equitable sharing of water between different stakeholder groups and to understand that without wetlands there will be no water.

	Access to a clean and adequate supply of water is a basic requirement for human survival.	Wetlands are fundamental regulators of water regimes.	Without the appropriate management of wetlands there is no water of the right quality and quantity, where and when it is needed.
Wetlands are the primary resource from which humans derive water and they are a major and critical component of the water cycle that keeps us supplied with water.	We need to reconsider our view of wetlands within water management and recognise that the water resource requirements of human society are delivered by and through wetlands.	We are all water managers, not just the water companies or government regulators. every time we turn on a tap or buy food we are responsible for a small element of the much larger water management cycle.	Human society is responsible for the management of water and, de facto, the management of wetlands.

Wetlands should not be viewed as competitors for water but rather as essential elements of water infrastructure within water management.	Wetlands should not be viewed as competitors for water but rather as essential elements of water infrastructure within water management.	Sustainable water management is a key global concern - and a matter of life and death for a huge number of people.	To deliver successful water management it is important to understand both direct and indirect water use from the perspectives of both consumers and producers of goods and products.
By 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under water stress conditions.	Wetlands are the earth's natural water infrastructure, providing a clean source and store of freshwater. Their loss and degradation directly intensifies water supply issues and compromises human well-being.	The role of wetlands in ensuring the security of water supply is also a matter of societal choice.	

The role of wetlands in ensuring the security of water supply is also a matter of societal choice.

What can we do?

GLOBAL	REGIONAL	LOCAL
Local to national governments should recognise wetlands as the primary sources from which humans derive water and that they are a major and critical component of the water cycle that keeps us supplied with water. There are available materials that provide a substantial range of guidance	Many river basin authorities and water agencies have insufficient appreciation of the socio-economic values and benefits provided by wetlands, such as the provision of fisheries, the regulation of flooding or their wider socio-economic importance. Successful water management	Managing water is the responsibility of all of us. Local actions to recycle, reuse and conserve water are the basis of sustainable water management and should not be underestimated. Local stakeholders have a direct role to play in the delivery of broader water management

GLOBAL	REGIONAL	LOCAL
on understanding how wetlands can be integrated into water management processes for the benefit of all elements of society. The key challenge is to ensure that these guidance is integrated into national and local policies and that the management of water across all social, economic and environmental activities is truly addressed.	remains an integrated, holistic and cooperative activity. The appropriate governance structures and integrated policies, including initiatives such as IWRM, need to be established to ensure that sound water management decisions are made which do not compromise the livelihoods and well-being of current and future generation	initiatives, through domestic initiatives such as rainwater harvesting and water-friendly garden design or simply reducing water usage or enhancing local wetlands. Similarly stakeholders are encouraged to ensure that their experiences and concerns are integrated into water management decision-making. The power to change through grass roots advocacy and ac

WATER MANAGEMENT STARTS AT HOME: WHAT CAN CONSUMERS DO?

Consumers can reduce the amount of water through direct action - by installing water saving toilets, applying a water-saving showerhead, shutting off the tap during teeth brushing, using less water in the garden, by not disposing of medicines, paints or other pollutants down the sink etc. They can also support the protection and restoration of wetland ecosystems.

But consumers also have an indirect water footprint and this is usually much larger than the direct one. To reduce their indirect water footprint consumers are faced with two basic options. The first option is to move from purchasing products with a large water footprint to an alternative product with a smaller water footprint. A second option is to continue with the same consumption pattern but to select a product that has a relatively low water footprint or that has its footprint in an area that does not have high water scarcity. Such choices require access to information

It is important that consumers challenge manufacturers and ask for product transparency from businesses and governments alike. only when information is available on the impacts of products on the water cycle system will consumers be able to make conscious choices about what they buy.

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http://www.waterfootprint.org/?page=files/YourWaterFootprint

Module 04 – Coastal Wetlands Ecosystems

Coastal Wetland Ecosystems

I. Overview on Coastal Wetlands Ecosystems

Coastal environment is the area where the land meets the sea or ocean including nearby coastal waters and shoreline ecosystems (Deguit, Smith, Jatulan, and White 2004). The Philippine coastal environments are reach in diverse ecologically and economically important coastal resources comprising of coral reefs, sea grass beds, beach, mangroves, lagoons and estuaries (DENR et al., 2001).

Home of diverse of species of plants and animals, coastal environment especially coastal wetlands, are significant to the production and survival of variety of fishes, migratory birds and fowls, and other wildlife. Coastal Wetlands, according to Deguit et al. in 2004, play a key role in the hydrologic cycle by managing the run-offs even from a heavy rainfall, reducing flooding, controlling the shoreline erosion and the flow of water to streams and rivers.

A. Corals Reefs

Often mistaken as plants or rocks because of characteristics resemblance, corals are actually small animals called polyps which belong to phylum Cnidaria and class Anthozoa and are relatives of jellyfish and anemones (National Oceanic and Atmospheric Administration [NOAD], 2015 and Deguit et al., 2004).

Home of the more than one quarter of ocean's biodiversity, the coral reef ecosystem is dubbed as the "rainforest of the sea" (NOAD, 2015). It was researched that coral reefs host nearly a million of marine species in wider life forms (Deguit et al., 2004). In the Philippines, it was stated by Deguit et al. in 2004 that the coral reefs in the country harbors more than 2,000 species of fish; 5,00 species of clams, snails and other mollusks; 488 species of corals; 981 algae species; and thousands of other marine organisms.

Sadly, coastal reefs are suffering from degradation. One of the main reasons seen is the impacts of climate change. The increase in global temperature results to frequent mass bleaching of corals and ocean acidification due to changing sea water pH and pollution (NOAD, 2015). Illegal fishing activities such as dynamite fishing, using of cyanides, and the likes threaten coral reefs. Such phenomenon and activities are alarming and contribute to the destruction of corals which take 10-15 to recover, and worst, some cannot recover anymore (Deguit et al., 2004).

B. Mangroves

Stated by OneOcean (2011), mangroves are *salt-tolerant trees that have adapted to living in salt and brackish water conditions. They vary in size from shrubs to tall trees and are found along sheltered tropical mudflats or wetlands or in association with estuaries and lagoons and may extend inland along rivers, streams and their*

tributaries. They require slow currents and plenty of fine sediment in which to set their roots. Worldwide, there are 54 species of true mangroves and 60 mangroves associates; 47 of these true mangroves and associates are found in the Philippines (Tomlison, 1996). True mangroves are said to be species that *strictly grow in the mangrove environment while associated species may thrive on other habitat types such as beach forest and lowland areas* (Melana and Gonzales, 1996).

Mangroves are home and breeding grounds of huge variety of fishes, crustaceans and other wildlife. About 75% of fish species can be supported by these mangroves serving as habitat and source of food (OneOcean, 2011).

According to Schatz in 1991 as cited by OneOcean in 2011, a hectare of good mangrove ecosystem inhibits 1.08 fish production in a year. Aside from aquatic organisms, mangroves also shelter terrestrial organisms such as shore birds, monkeys, rats, reptiles, and insects (OneOcean, 2011)

Despite the big role of mangroves to the environment, it was reported that 60% of mangrove area in the Philippines were already deforested from 1918 to 1900 for an estimated cover of 450,000 hectares to 120,000 hectares (OneOcean, 2011). This have been aggravated by continuous expansion of aquaculture, specifically fishponds, firewood and charcoal making, mangrove land conversation into commercial industries, ports, unsustainable tourism, and human settlements (OneOcean, 2011).

C. Seagrass Beds

Seagrasses are marine plants that have seed, flowers, and roots and can thrive on saline waters (Teach Ocean Science, undated). Seagrasses live in shallow waters where sunlight can easily penetrate, using the energy through photosynthesis (Teach Ocean Science, undated).

Like coral reefs and mangroves, seagrasses support the production of marine organisms: seagrasses help in survival of at least 172 species of fish, 46 species of invertebrates, 51 species of seaweeds, 45 species of algal epiphytes, 1 species of sea turtle, 1 species of Dugong; small aquatic animals like fishes hide in the seagrass beds to protect themselves from the predators; and when the leaves of the seagrasses litter, the marine organisms fed on these decomposed materials (OneOcean, 2011 and Teach Science, undated).

In the Philippines, there are about 16 species of seagrasses that are distributed mostly in the north western, western, and southern portions of the country, which is totalling for about 978 square kilometres of seagrass beds (Fortes, 1986 as cited by OneOcean, 2011). Today, it is being frightened upon that this coastal organism will have a significant loss for the next decade; there are already about a half of seagrass beds that were severely damaged and lost for past 56 years (Fortes and Santos, 2004 as cited by OneOcean, 2011) due to the following causes according to OneOcean (2011):

- *land use activities, such as encroachment in the habitat through reclamation and improper shoreline development including the construction of structures that impede natural water movement;*
- *increased human settlements along coastal areas fringed by seagrass beds;*
- *use of destructive destructive fishing gears that scour and scrape the seagrass beds;*
- *sedimentation and siltation from upland areas; and*
- *introduction of water borne pollutants as well as nutrient loading along the coasts from domestic; agricultural and industrial wastes.*

D. Lagoons and Estuaries

Lagoons are part of the coastal water that are separated and partially enclosed with a barrier (Miththapala, 2013). On the other hand, estuaries are the areas of intersections of freshwater and seawater and like lagoons, it is also semi-close area in the coast (Miththapala, 2013).

These lagoons and estuaries have roles in transportation of organic materials and nutrients and are essential to the lifecycle of the crustaceans and other marine organisms (Deguit et al., 2004). Furthermore, they are a good site for economic activities such as fishing, mariculture, recreation, etc. (Deguit et al., 2004).

Due to activities that can be done in these ecosystems, lagoons and estuaries *may rank now among the most heavily impacted aquatic ecosystems on Earth* (Kennish and Paerl, 2010 as cited by Miththapala, 2013). This is due to human induced activities such as point and non-point pollution, unplanned and uncontrolled development in these areas, especially on watersheds of rivers, aggravated by overpopulation, worsening the impacts of extreme weather events (Miththapala, 2013).

E. Beaches and foreshore areas

According to Cartwright and Wilson (2016), foreshore and beaches are valuable ecosystem for storage and transporting sediments, serving as buffering zone against extreme weather disturbances, enabling nutrient mineralization and recycling, and maintaining the biodiversity and genetic resources, and many others. Furthermore, these ecosystems are support systems and breeding ground for aquatic and terrestrial organisms like fishes, turtles, and birds, which depends on the interrelationship and linking functions of this ecosystem to other coastal ecosystems.

Like other coastal wetland ecosystems, beaches and foreshore areas are not given much importance and ecological value. Foreshore areas and beaches are just appreciated for physical and recreational functions or tourism opportunities, but their environmental and ecological essence is often underestimated (Cartwright and Wilson, 2016). These can result to the poor coastal management plans and degradation of these environments.

III. Coastal Wetlands Roles on Disasters and Climate Change

Wetlands provide a variety of services ranging from provisional services (i.e. water, food, biodiversity, and hydroelectricity), supporting services (i.e. soil formation, nutrient cycling), regulating services (i.e. regulation of floods and drought), and cultural services (i.e. recreation, spiritual, education).

Coastal wetlands also give other benefits in the form of products that can be exploited for human use. The range is enormous: fruit, fish, shellfish, crocodile and other meats, timber for building, rice, fuelwood, fodder for animals, etc. Exploitation is carried out in all levels - subsistence level, cottage industry, and the larger commercial scale - in all parts of the world (Ramsar Convention Secretariat).

In addition, wetlands also help on lessening the effects and impacts of disasters and climate change through ensuring food security, serving as natural infrastructure, becoming a source of livelihood, and enabling habitat for biodiversity.

A. Food Security

Coastal wetlands can offer a large array of food resources for consumption of humans and also other living organisms. As mentioned earlier, coastal wetlands ecosystem supports and harbours diverse terrestrial and aquatic organisms. According to Ramsar Convention on Wetlands in 2014, there is an average 19kg of fish which a human can consume a year. Furthermore, Ramsar Convention on Wetlands (2014) also stated that rice is a common wetland plant and the staple diet for over almost 3 billion people in the world, and accounts 20% of the world's nutritional intake.

In the study conducted by Turyahabwe et al. (2013) about the contribution of wetland resources to the household food of Uganda, it was found out that there are nearly 1.4 million people who are currently food insecure and those over 80% of the household respondents with limited options generally rely on products and services provided by wetlands for their food.

With continuous degradation of coastal wetland ecosystem, there is a greater chance of food insecurity, given the increasing demands of goods today due to increasing population. With healthy coastal wetlands, and other types of wetlands ecosystem, food stability can be achieved.

B. Natural Infrastructure

Natural infrastructures cater multiple benefits in the community. Coastal Wetlands as natural infrastructure is more cost effective and efficient compared to usual infrastructure built through rocks, metals, and cements.

According to World Wide Fund for Nature (WWF) in 2016, different countries benefited from the coastal ecosystems and saved a lot of their budget for the services that wetlands have provided, like in Caribbean, the coral reefs shoreline protection services estimated value reached up to $2.2 billion annually. Furthermore, in the United States, a study of the role of coastal wetlands in reducing the severity of impacts from hurricanes showed that there is an estimated value of US$23.2 billion per year the coastal wetlands can accommodate on storm protection services (WWF, 2016).

Storm surges and other coastal weather disturbances can cause immense damage through flooding and direct destruction of property, not to mention the loss of human life but coastal wetlands are also shock absorbers during disasters. Mangroves, marshes, and other coastal wetlands act as the frontline defense against incoming storms. They help minimize the impact of storms by reducing wind action, wave action and currents, while the roots of the plants help to hold the sediment in place. They also serve as the first line of defense against storm surges by reducing its the speed and height (Ramsar Convention on Wetlands, 2014). According to UNEP in 2006 (as cited by OneOcean, 2011), scientists say that at least 70-90% of wind generated waves is absorbed by Mangroves (given assumptions of good status, health, and ecological characteristics of these Mangroves). In the Philippines, specifically in the towns of General MacArthur in Samar, Molocaboc in Negros Oriental, and Pampolon in Leyte, there were stories that mangroves saved their lives from the devastation of Typhoon Yolanda. These communities have sustained enough number of mangroves in their areas. The experts and community people insisted that the mangroves shielded them on the storm surges and huge coastal flooding. In fact, it was emphasized in General Macarthur in Samar that the island between their community and the Pacific Ocean where huge amounts of mangroves are planted really helped them achieving zero casualties during typhoon Yolanda (Holtz,2013).

C. Source of Livelihood

Wetlands support a vast range of livelihoods - from fishing, farming, tourism and even industries. They provide more than a billion livelihoods in the world (Ramsar, 2016).

On the average, 660 million people earn their living from fishing. Forty percent (40%) of fish for consumption are from aquaculture and most of the commercially produced fishes are being grown in coastal wetlands (Ramsar Convention on Wetlands, 2014). In the tourism sector, the recreational activities of an estimated half of international tourist took place majorly in coastal zones. Tourism and travel sectors on the other hand, provide 266 million jobs composing the 8.9% of the world's employment (Ramsar Convention on Wetlands, 2014). Wetlands have also roles on transportation industry where millions of goods and people are being transported through its water bodies. Medicinal plants, fruits, and leaves and other medicinal ingredients are also being produced by wetlands providing many jobs all over the world.

D. Habitat for biodiversity

As stated by Ramsar Convention on Wetlands (2004) wetlands are critical for biodiversity and are habitat to more than 100,000 known freshwater species alone. Aside from these aquatic organisms, wetlands also harbour and cater survival for amphibians, reptiles, endemic species, and are breeding ground for birds and other terrestrial organisms (Ramsar Convention on Wetlands, 2004).

Wetlands, in general are home to a great diversity of species. Although freshwater wetlands cover only 1% of the Earth's surface, they hold more than 40% of the world's species and 12% of all animal species. On the marine front, coral reefs are among the most biologically diverse of the land ecosystems. Although they cover only 0.2% of the ocean floor, coral reefs may contain 25% of all marine species. The biodiversity in wetlands is also valuable as a reservoir of genes. Some wetlands contain significant numbers of endemic species.

IV. Introduction to Coastal Resource Management

A. Importance

Coastal Resource Management (CRM) is a holistic approach on intervening the prevalent and interconnected issues and problems affecting coastal environment, through the use of different participatory tools, aiming at slowing down, if not reversing the negative impacts of those problems and issues, and enabling sound decision making for sustainable and wise use of this coastal ecosystems and resources (Deguit et al., 2001).

Listed by Deguit et al., in 2001, below are the key issues addressed by CRM:

- Degradation of coastal habitats
- Open access to fishery resources
- Increased fishing pressure to unsustainable levels
- Destructive/illegal fishing practices
- Coastal law enforcement
- Loss of marine biodiversity
- Inappropriate tourism and coastal/shoreline development practice; and
- Resource use conflicts

CRM tools and methods necessitate multi-stakeholders participation, especially when assessing the coastal environment status, enabling the stakeholders to become more aware of their own resources, and its issues and problems; educating them and developing their analytical and critical thinking skills on the stages of their coastal resources that may lead to informed decision-making and action; and imbibing the sense of responsibility to take care of their resources and mobilizing them to act collectively (Deguit et al., 2004).

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Module 05 – Introduction to Disaster Risk Reduction and Management and Climate Change

Chapter 1: Disasters and Ecosystems

Geographical Context

- One of the most disaster-prone countries in the world
- Divided into 7,107 islands with low-lying coasts
- Ranks 3rd in the UNU's list of countries most vulnerable to disaster risks and natural hazards
- Within the Pacific Ring of Fire
- Within the Pacific Typhoon Belt
- Average of 20 typhoons yearly, 5-7 are destructive

Social Context

- Widespread poverty
- Coastal Livelihood
- Settlement pressure leading to deforestation
- Population shifts combined with underdevelopment

Chapter 2: Introduction to disasters, risk reduction, and climate change

Concepts and Definitions

Ecosystem, Ecosystem Services, Livelihoods, Disaster, Risk, Disaster Risk, Hazard, Vulnerability, Exposure, Capacity / Resilience

$$\text{RISK} = \text{HAZARD} \times \frac{\text{VULNERABILITY}}{\text{CAPACITY}} \times \text{EXPOSURE}$$

$$\text{ECOSYSTEM}$$

Ecosystem: An ecosystem is a community of organisms interacting with each other and with their environment such that energy is exchanged and system-level processes, such as the cycling of elements, emerge.

Ecosystem Services: The benefits that people and communities obtain from ecosystems:

- "regulating services" such as regulation of floods, drought, land degradation and disease, along with
- "provisioning services" such as food and water,
- "supporting services" such as soil formation and nutrient cycling, and

- "cultural services" such as recreational, spiritual, religious and other non-material benefits.

Livelihoods: A livelihood is a means of making a living. It encompasses people's capabilities, assets, income and activities required to secure the necessities of life.

Disaster: "A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which
Exceeds the ability of the affected community or society to cope using its own resources."

Risk: The combination of the probability of an event and its negative consequences.

Disaster Risk: The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Hazards: Natural (Physical) hazards: can be classified in several ways but are usually broken down into the two broad categories: (1) geophysical and (2) biological hazards.

Vulnerability: The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Exposure: People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Capacity: The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Resilience: The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions

Why does taking care of the ecosystem help human well-being?

- Life cannot be sustained without ecosystem services
- The quality of man's life is directly linked to the quality of the ecosystem

Natural Resources Management

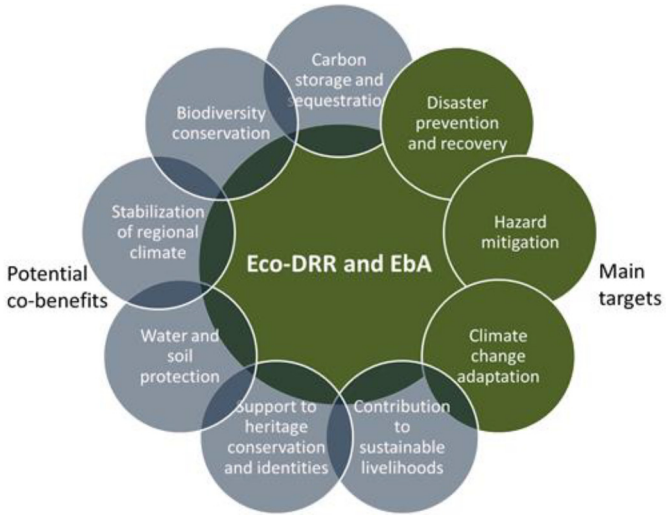
- Managing the resource provisions of ecosystems
  - Ensuring that you harvest sustainably
  - Looking after the amount you consume (eliminating waste)
  - Respecting the processes and order of nature
- Maintaining the regulating and supporting services of the ecosystem
  - Ensuring that you do no pollute (reduce, reuse, and recycle)
  - Avoiding destruction of natural habitat
  - Respecting the natural cycles of nature
- Ensuring the cultural capital of ecosystems
  - Making yourselves stewards of God's creation

- Respecting nature and all its forms
- Spreading awareness about how taking care of ecosystems such as wetlands help our communities

Natural Resources Management Approaches

- Managing natural resources by conserving and protecting ecosystems provides several **co-benefits** aside from disaster prevention and recovery, hazard mitigation, and climate change adaptation.
- The approach is therefore to benefit from both the DRR benefits and the **poverty reduction** support that conserving and protecting ecosystems can provide.

What is Ecosystem Based Disaster Risk Reduction (ECO-DRR)?



- "Ecosystem-based disaster risk reduction (Eco-DRR) is the sustainable management, conservation and restoration of ecosystems to reduce disaster risk, with the aim to achieve sustainable and resilient development" (Estrella and Saalismaa, 2013)
- Well-managed ecosystems, such as wetlands, forests and coastal systems, act as **natural infrastructure, reducing physical exposure** to many hazards and **increasing socio-economic resilience** of people and communities by sustaining local livelihoods and providing essential natural resources such as food, water and building materials (Sudmeier-Rieux and Ash, 2009, Nehren et al. 2014a).
- Ecosystem Management allows:
  - ✓ Strengthening of natural infrastructure and human resilience
  - ✓ Generates many different social, economic, and environmental benefits for many different groups of people.

Traditional vs Ecosystem Based DRR

Mangroves used as natural 'infrastructure' to protect against tidal surges, but they:

- Can be used as a resource for food
  - Mangroves are breeding grounds for small fish, where they grow and mature, providing

a steady and reliable source of mature fish for consumption – both domestic and for livelihood use.

- Can be used as recreation
  - Mangroves are the habitat of a tremendous variety of plants and animals which becomes a natural scenic spot for education, relaxation, and tourism.
- Mangroves depend on people's willingness to maintain these ecosystems instead of man-made infrastructure.
  - Because protection forests are easier to maintain, last longer, and are beautiful to look at they are preferred over structurally engineered solutions to reduce physical risk (Das and Vincent 2009; Renaud et al., 2013). In some cases they are complemented with structurally engineered solutions.

What is Ecosystem Based Adaptation (EbA)?

- The use of *sustainable management* and *conservation and restoration of ecosystems*, **focusing on ecosystem services and biodiversity**, as a means to help people adapt to the adverse effects of climate change.
- EbA focuses on the environment as a means for adaptation that leads to people's resilience
- Eco-DRR focuses directly on people's inherent capacity as a means to increase resilience
- Both approaches are means to increase resilience of people to disasters

DRRM Cycle

MITIGATION

The lessening or limitation of the adverse impacts of hazards and related disasters.

Usually long-term, expensive and difficult to implement

Preparedness

Knowledge and capacities developed to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Usually short term and relatively cheap compared to mitigation

RESPONSE

The provision of emergency services and public assistance during or immediately after a disaster in order to: save lives, reduce health impacts, ensure public safety, meet the basic subsistence, needs of the people affected

RECOVERY

The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Disaster Town Watching

- Developed by Japanese urban planners from the 1970s, has become popular as a participatory tool in machizukuri
- Involves: Community or neighbourhood planning, Participatory, Residents recognize problems, Residents put forward solutions together, Guided by at least one expert or professional trained in one or more aspects of planning.

Preparations for Disaster Town Watching

- Schedule
- Participants and Their Roles
- Organizing Information
- Informing Local Residents
- Materials and Handouts

Steps:

Learn About Disasters > Field Survey / Know our Town (identify hazards, vulnerabilities and capacities) **> Develop a Map** (don't forget to place: title, date, author, legends, north arrow) **> Conduct Group Discussion and Make a Presentation** (Think of: ""What are the potential problems? "What are the possible solutions?" "Who should be responsible for implementing the countermeasures?").

Module 05A – Climate Change 101

Climate Change 101

1.0 Climate Change defined

Climate Change refers to a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

Source: United Nations Framework Convention on Climate Change

2.0 What Causes Climate Change

What Is Global Warming?

There are many signs that point to humans as the major cause of the increase in temperature during the past one hundred years by releasing gases that trap heat in the course of powering our modern lifestyles. These heat-trapping gases are called greenhouse gases (GHG) and it has been shown to have higher levels now than in the last 650,000 years. The most potent of these GHGs are Methane, Carbon Dioxide and Chlorofluorocarbons (CFCs). This has resulted to what is called global warming.

Global warming is causing a set of changes to the Earth's climate, or on long-term weather patterns. When the earth spins on its axis, the heat in the atmosphere moves with it picking up moisture from the oceans and redistributing it causing the heat budget if the earth to be in balance. However, excessive heating of the oceans have caused disruptions in the rhythms of climate impacting on all living things. Manifestations of these include the melting of glaciers, rising of sea levels, drying up of cloud forests, and wildlife being drive from their habitats.

The question now that one should as is, "what will we do to slow down climate change? How will we cope with the changes we've already set into motion? While we struggle to figure it all out,

the face of the Earth as we know it—coasts, forests, farms and snow-capped mountains—hangs in the balance. Source: http: / / environment.nationalgeograhic.com

3.0 How does Greenhouse Effect happen?

When certain gases in the Earth's atmosphere trap heat, it causes warming that is known as the "greenhouse effect". Like the walls if a greenhouse, these gases allows light to enter the atmosphere but keep the heat from escaping.

This is how it works:

1) When sunlight hits the Earth's surface, it is absorbed and then radiates back into the atmosphere as heat.

2) Some of those radiated back to the atmosphere are trapped by "greenhouse" gases while the rest escapes into space. The more greenhouse gases are in the atmosphere; the more heat gets trapped.

As early as 1824, the greenhouse effect has been known by scientists when Joseph Fourier calculated that the Earth would be much colder if it had no atmosphere. Actually, this greenhouse effect is what keeps the Earth's climate liveable and without it, the Earth's surface would be an average of about 60 degrees Fahrenheit cooler. Later in 1895, the Swedish chemist Svante Arrhenius discovered that humans could enhance the greenhouse effect by making carbon dioxide, a greenhouse gas. This was the onset of 100 years of climate research that has given us a sophisticated understanding of global warming.

Over the Earth's history, the levels of greenhouse gases (GHGs) have gone up and down but they have been fairly constant for the past few thousand years. It has also been observed that global average temperatures have stayed fairly constant over that time as well, until recently. Humans are enhancing the greenhouse effect and subsequently warming the earth mainly because of burning of fossil fuels and other GHG emissions.

This phenomenon is referred to by scientists as "climate change" instead of global warming. This is because as the Earth's average temperature increases, winds and ocean currents move heat around the globe in ways that can cool some areas, warm others, and change the amount of rain and snow falling. Thus, climate changes differently in different areas.

4.0 Temperature changes and Carbon Dioxide in the atmosphere

The Earth's position relative to the sun varies, and this has impacted on the average global temperature and concentrations of carbon dioxide (one of the major GHG) in the atmosphere. The average global temperature and carbon dioxide concentration has fluctuated on a cycle of hundreds of thousands of years, and a result ice ages have come and gone. But these emissions have been balanced out for thousands of years now because GHGs that are naturally absorbed. This resulted to GHG concentrations and temperatures that have been fairly stable. This is the condition that has allowed human civilization to develop within a climate that is consistent.

Global temperatures are occasionally influenced by other factors albeit briefly. Volcanic eruptions like that of Mt. Pinatubo for example, emit particles that temporarily cool the Earth's surface. But these have no lasting effect beyond a few years which is also true of El Niño that work on fairly short and predictable cycles.

It is said that humans have increased the amount of carbon dioxide in the atmosphere by more than a third since the industrial revolution. What is alarming is that changes this large have historically taken thousands of years, but are now happening in the course of decades.

5.0 So why should people be concerned about CC?

The rapid increase in GHGs is alarming because it is changing the climate faster than some living things may be able to adapt. Moreover, a new and more unpredictable climate poses unique challenges to all life on the planet.

Throughout history, the Earth's climate has been known to regularly shift back and forth between temperatures like those we experience today and temperatures cold enough for North America and Europe to be covered with large sheets of ice. It is said that the average global temperatures today and during those ice ages is only about 5 degrees Celsius (9 degrees Fahrenheit). Additionally, these temperature swings happen slowly, over hundreds of thousands of years.

Today, with concentrations of greenhouse gases rising, Earth's remaining ice sheets (such as Greenland and Antarctica) are starting to melt, with the extra water potentially raising sea levels significantly.

As temperature increases, climate can change in unexpected ways. Aside from sea levels rising, weather can become more extreme. This translates to more intense major storms, more rain followed by longer and drier droughts (a challenge for growing crops), changes in the ranges in which plants and animals can live, and loss of water supplies that have historically come from glaciers.

Some of these changes have been occurring more quickly than Scientists have expected. In fact, according to the Intergovernmental Panel on Climate Change, eleven of the twelve hottest years since thermometer readings became available occurred between 1995 and 2006. However, according to NASA and the National Oceanic and Atmospheric Administration, the first six months of 2016 has been the world's hottest on record. So far, this year has been 2 degrees warmer than the 20th century. (http://www.rawstory.com/2016/07/2016-the-hottest-year-so-far/)

6.0 How can we help address climate change?

Some tips that ordinary people can do to help address CC:

- Change a light – replacing a regular light bulb with a compact fluorescent light bulb will save 300pounds of carbon dioxide a year.
- Drive less – walk, bike, carpool or take mass transit more often. One pound of carbon dioxide is saved for every mile that you don't drive.
- Recycle more - You can save 2,400 pounds of carbon dioxide a year by recycling just half of your household waste
- Check your tires – keeping your tires inflated properly can improve gas mileage by more than 3%. Every gallon of gasoline saved keeps 20 pounds of carbon dioxide out of the atmosphere.
- Use less hot water – it takes a lot of energy to heat water. Use less hot water by installing a low-flow showerhead (350 pounds of CO2 saved per year) and washing your clothes in cold or warm water (500 pounds saved per year)

Avoid products with a lot of packaging – you can save 1,200 pounds of carbon dioxide if you cut down your garbage by 10%.

- Adjust your air-conditioning – an adjustment of just 2 degrees higher in your thermostat could save about 2,000 pounds of carbon dioxide a year.

- Plant a tree – one tree absorbs one ton of carbon dioxide in its lifetime
- Turn off electrical devices when not using them – saves thousands of pounds of carbon dioxide per year
- Try skipping meat one day per week – this saves 35,000 gallons of water. Getting into an entirely meatless diet help save 5,000 pounds of carbon emission per year.
- Unplug – hair dryers, phone chargers, toaster oven and power cords should be unplugged when not in use to save up to 20% on home energy use.

Source:

Adapted from www.climatecrisis.net and
http://earthethicsinstitute.org/facultycurriculum_pdf/Fundora_EAP_ClimateChangeHandout.pdf

Annex B

All materials in the Annexes are available in electronic format in the enclosed compact disc.

Annex B – Activity Design

- Water Quality Monitoring
- Disaster Town Watching
- Action Planning
- Commitment Setting
- Group Dynamics
- Team Building
- Talents Night
- Community Meeting
- Water Quality Monitoring
- Coastal Wetlands

Activity Design 01 – Human Activities and the Environment

Title of Activity: *Ako, ang aking Kapaligiran, at ang aking Komunidad:*

A Group Activity

1. Objectives:

To illustrate the interrelationship of human activities with their environment, specifically rivers and lakes.

Campers will:

- Recognize that everyone contributes to and is responsible for a river or lake's water quality
- Identify best management practices to reduce pollution

2. Total activity time:

Preparation time – 30 minutes
Activity time – 20-30 minutes

3. Mode of delivery:

Group activity in a classroom setting

4. Participants/Prerequisites:

All campers

5. Materials and Equipment:

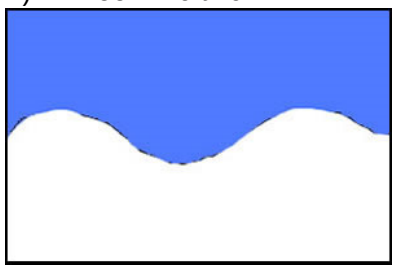
Microphone or megaphone/mini AP amplifier
used bond/copy papers (unprinted on the other side)
colored papers (blue)
used colored papers
pencil
pair of scissors

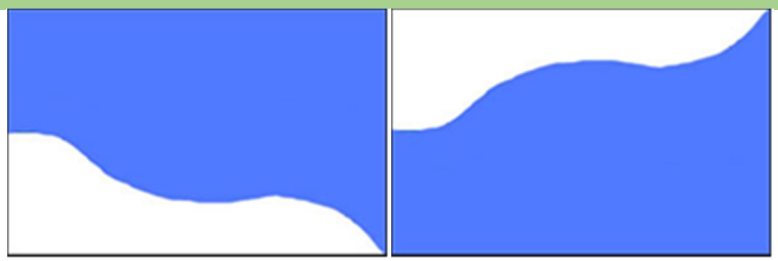
glue
crayons

6. References:

Sum of the Parts, Project WET Curriculum and Activity Guide

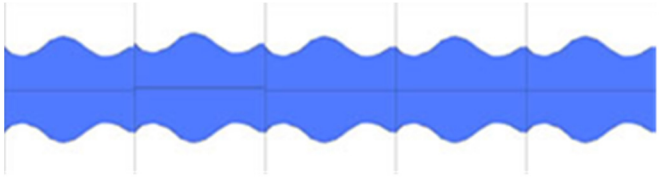
7. Procedure

Steps	Details
1. Preparation of materials	a) Fold a blue colored paper lengthwise to get the center points in each side. From the center point on one end, draw a wave that ends at the other center point in the other end. Cut out through the drawn line. b) Paste the cut blue colored paper to the unprinted side of the used bond/colored paper. The finished product (material no. 1) will look like this –  The number of pieces needed for the session corresponds to the number of campers in the session. c) Fold another blue colored paper lengthwise to get the center point in one side. From the center point in one end, draw a wave that ends at the upper end point of the other side. Cut out through the drawn line. Paste the bigger portion of the cut blue colored paper to the unprinted side of the used bond/colored paper. d) The finished products (material no. 2) will look like these -

Steps	Details
	
	e) Cut the used colored papers randomly into pieces, about 1 square inch area. Two handful of these (material no. 3) will be needed in each session.
2. Activity implementation	
a) Distribution of pieces of property	The campers are given one sheet each of Material No. 1. The script for distribution may vary from one facilitator to another. It could be this way – "A rich resident of Barangay X (the barangay where the camping is held) has recently returned home from a long stay in a foreign land. He decided to share his blessings to his town mates - he subdivided his land into one (1) hectare units and distributed these to them. They are free to develop them as they see fit."
b) Planning and land development	Each camper is free to plan the development of his/her lot. In the given sheet of paper (Material No. 1) and crayons, the camper illustrates ways he/she could use the land. Explain that the blue portion of the property is water and the blank space is the land they own. *(They can farm; build resorts, homes, factories, or parks; plant forests - whatever they like.)* The campers are given five (5) minutes for this exercise.

Steps	Details

When campers have completed their drawings, have them lay down all papers with drawings on the floor following the illustration below. Observe that the figure now corresponds to a river with its adjacent riparian zone or river bank and its adjacent areas. Make sure that the blue portion should face each other.)



Ask the campers to describe how they developed their land and how they used water. In the interest of time, 5-6 examples are enough to illustrate the point. Choose the ones that will relay the message of development that are appropriate or non-appropriate for this specific scenario. Then, each of the participants should identify activities that generate waste that could pollute the waterway. Each camper should also take some of the pieces of colored papers that were randomly cut to represent the amount of garbage or waste that his/her activities generate, the amount of waste should correspond to the type of activities in the specific property. Put these scraps on the land portion of each property. (material no. 3).

Put the two pieces of material no. 2 at the end of the river. Put four more sheets of blue colored papers after it signifying the waterbody where the river drains.

Steps	Details

Tell campers to put their “waste” to the blue part of their “property”. Ask them to identify what type of waste they have generated. Then starting from the most inland part of the river, push the “waste” towards the downstream. (The first two “properties” facing each other will pass their “waste” to the next two “properties”, and so on and so forth until the last two “properties” are now holding all the “waste” generated by all the campers from their “properties”.

Let the last two campers push all the “waste” generated into the blue sheets representing the mouth of the river, and eventually to the water body where the river drains.

c) Processing

Ask the Campers the following questions:

- How did those Campers with “properties” located in the middle or towards the end of the river feel with regard to the “waste” being dumped in their part of the river?
- Could the camper downstream be affected by the actions of the camper upstream?
- Could upstream users alter the water quality of those downstream?
- Can the waterbody (where the river drains) be affected by the actions of the campers?
- Take one (1) piece of the waste that was thrown to the receiving body and as the Campers if they can identify whose waste is that particular piece of cut-paper?
- Ask 3-4 Campers about how their individual contributions to the overall waste dumped in the river and eventually to the

Steps	Details
	receiving water has affected the water quality of these waterways.
d) Wrap-up	Discuss briefly the following: ▪ Consider what type and volume of waste can be generated by your activities.. ▪ Learn ecological waste management ▪ It is difficult to identify which waste was generated by whom especially when these are dumped indiscriminately on the streets or in waterways. ▪ Use environment-friendly design concepts.

Activity Design 02 – Disaster Town Watching

Title of Activity: Disaster Town Watching

1. **Objectives:**
   - To assess the disaster risks in the community by identifying the hazards, vulnerability, exposure, and capacity of the community in the most vulnerable Barangay of the municipality.
   - To prepare risk maps using "rich picture" method overlaid on maps provided by the municipality.

2. **Total activity time:**

   Total activity time is from 1-2 hours (not including travel to the designated Barangay)

3. **Mode of delivery:**

   Walk-through like that of a procession or parade during town fiesta.

4. **Participants/Pre-requisites:**

All Campers and teacher-coordinators, Camp Masters and Camp Aides

5. Materials and equipment:

Maps of the assigned Barangay
Notebooks or paper to write-on
Pens or pencils
Camera
Smart phone (optional) to be used as GPS

6. References:

See Part 2: Module 05 references.

7. Procedure:

Step	Activity
Step 1: Learn About Disasters	1. Lectures on disasters and climate change 2. Introduction to Town-Watching Concept
Step 2: Field Survey – Know your Town	1. Divide yourself into groups 2. Do a disaster town watching walk-through (barangay or group of streets) 3. Map the "positives and negatives" (H, V, C) in terms of "disaster risk reduction
Step 3: Develop a Map	1. Start organizing your data during the field survey and then create a community based hazard map by manually integrating their observations and findings on the map. 2. Do not forget your title, legends, scale (if necessary), northing, authors, and date and time of map creation.
Step 4: Group Reflection and Discussion	1. Reflect upon your work and have a lively and critical discussion to determine if the group needs to add or clarify anything on the map 2. From the map, find answers to the following questions and write them on Manila paper (table format):

Step	Activity
	a. What are the potential problems of your town? b. What are the possible counter measures? c. Who should be responsible for implementing these counter measures? d. What specific actions can you – the youth – take to contribute to these counter measures?
Step 5: Presentation	1. The Facilitator calls the groups to share their presentations to the campers 2. The Facilitator and Resource Persons can take turns in giving their comments, suggestions, and guidance after each presentation. 3. After all groups have presented and have been given comments, a summary is provided of all the specific actions to be taken by each group or the campers as a whole.

Reference: EU-ISDR-KU, 2009. *Town Watching handbook for Disaster Education: Enhancing Experiential Learning,* Kyoto: European Union, International Strategy for Disaster Reduction, Kyoto University.

Activity Design 03 – Action Planning

Title of Activity: Visioning and Action Planning Workshop

1. Objectives:

For Theme 1:

At the end of the workshop, the participants are able to:

- Observe and illustrate the current state of the environment, especially the wetlands in the locality / community including the ecosystem services derived from them;

- Identify the issues/problems that wetlands are facing;
- Design and present their action plan/special project to help address specific environmental issues and problems in their locality.

For Theme 2:

At the end of the workshop, the participants are able to:

- Identify and reflect in a map the risks, hazards, vulnerability, exposure and capacity in the community;
- Identify the ecosystems services and the pressures of their wetland in a map (when a wetland is near or within the field exposure site);
- Design and present their action plan/special project to help address disaster risk management, preparedness and CCAM based on the data they gathered during the Disaster Town Watching and the lectures at the Eco-Camp.

2. Total Training Time

From activity briefing to project presentation, the total training time is 2-3 hours.

3. Mode of delivery:

Workshop

4. Participants/Prerequisites:

All of the EcoCamp participants (around 30-35) are required to join and do the activity. Group them accordingly by per school, year level, or any classification that is deemed fit for the Eco-Campers.

5. Materials and Equipment:

For giving instructions and templates:

- Laptop computer
- LCD projector
- Microphone/Loud speaker

For the participants:

- Manila papers/cartolina
- Crayons
- Markers and Pens

6. Procedure

For Theme 1: Wetland Conservation

The workshop consists of a step-by-step planning process. The groups are given ample time to work on their action/project plans which are designed to manage environmental problems that the campers themselves have identified and will implement with the help of either their schools or communities.

Facilitation Team and Panel Members

The organizers will facilitate the whole activity. The participating teachers are also asked to help and guide the Eco-campers throughout the activity. The organizers can also invite guests from the LGU as panel (i.e. MENRO, MPDC, MDRRMO, etc.) members, who along with the Resource Persons can act as a Panel in commenting and refining the action plans.

Participants and Groupings

The Eco-Campers are grouped accordingly, usually per school. If there's a large portion of participants coming from the same school, they should be divided into more than one (1) group. If participants of the ecological camp are all from the same school, they can be grouped according to year level or any other logical classification. If possible, each group must have an equal number of members.

Visioning

Each group is given a set of materials (Manila paper, cartolina, markers, and crayons). Templates used as a guide for the workshop are shown and the process is explained by the Facilitators:

STATUS	INTERVENTION	VISION
(Current state of the environment)	(What can the youth do?)	(What the youth want it to be in 5 - 10 years?)

In the first column, the participants are asked to list and draw the current state of the environment based on the results of their field exposure trip. Issues and problems are included in the drawing. This method is called "Rich Picture[1]" and is used in planning exercises in many wetland workshops. Fifteen to twenty (15-20) minutes is given to the participants to finish this column.

Next, the third column is filled up, also through a drawing. The participants should draw what they want the environment to be in five to ten (5-10) years. Fifteen to twenty (15-20) minutes is allocated to fill up this column.

Lastly, based on the issues and problems identified in the first column, the Eco-campers identify at most three (3) possible activities or actions to address these issues and problems; thus helping achieve the state indicated in the third column. Therefore, they end up with a list of the strategies and activities that they can do as students and youth of the community. This column will serve as the bridge connecting the current state and the state they have envisioned.

[1] Steve Howard (1998). The Rich Picture: A Tool for Reasoning About Work Context. Department of Psychology University of York. Retrieved on 9 July 2016. Available online: http://www.ics.uci.edu/~wscacchi/Software-Process/Readings/RichPicture.pdf

Figure 1. Sample output of the Visioning workshop

Action-planning

After the Visioning exercise, the campers are now able to realize that they can do simple things for the environment. In this part of the workshop, they are taught to make simple action plans that they will implement with support from the school, LGU, and community.

Another set of Manila paper or cartolina is given to each group. The template for the action planning is shown and explained by Facilitators.

Name of school:			
Project title:			
Objective/s:			
Activities	**Timeframe**	**Tasking**	**Resources needed**

The Facilitator asks the groups to choose an issue or problem they have identified as indicated in the previous exercise (Visioning).

First, each group decides on their own project title. They are encouraged to have titles which are catchy and creative but reflects the essence of the project.

The group then sets the Objectives that are SMART or **S**pecific, **M**easurable, **A**chievable, **R**elevant, and **T**ime-Oriented. This states the end-result that the campers want to achieve after the implementation of the project. The Facilitator should explain this in simple terms. There are numerous references on the Internet about this topic.

After setting the objectives, the campers list down specific activities that are needed to achieve them (column 1). Activities should be those that the campers themselves can implement with support from parents, schools, the local government LGU) or Barangay. For example, if the project objective is to practice waste segregation in the school, an activity could be to conduct room-to-room campaign about waste segregation in Grades 8 to 9.

Each activity should also have a specific timeframe and this is indicated in the second column. It is important that Eco-Campers strive to set an exact date so that planning for preparations can be made properly. The next step is to identify who will do the task. The names of the persons or organizations assigned for this activity is listed in column 3. Usually, a majority of tasks are done by the Eco-Campers themselves, together with their respective school organizations. Assistance from the school administration, teachers, LGU and other organized groups should also be solicited. Lastly, all resources needed (i.e. budget, materials and kits, resource person, venue, etc.) are listed per activity (column 4) and plans to procure them are discussed and agreed on. For example, if there is a need to raise funds, the amount and mode of fund-raising activities should be included in the activities and discussion.

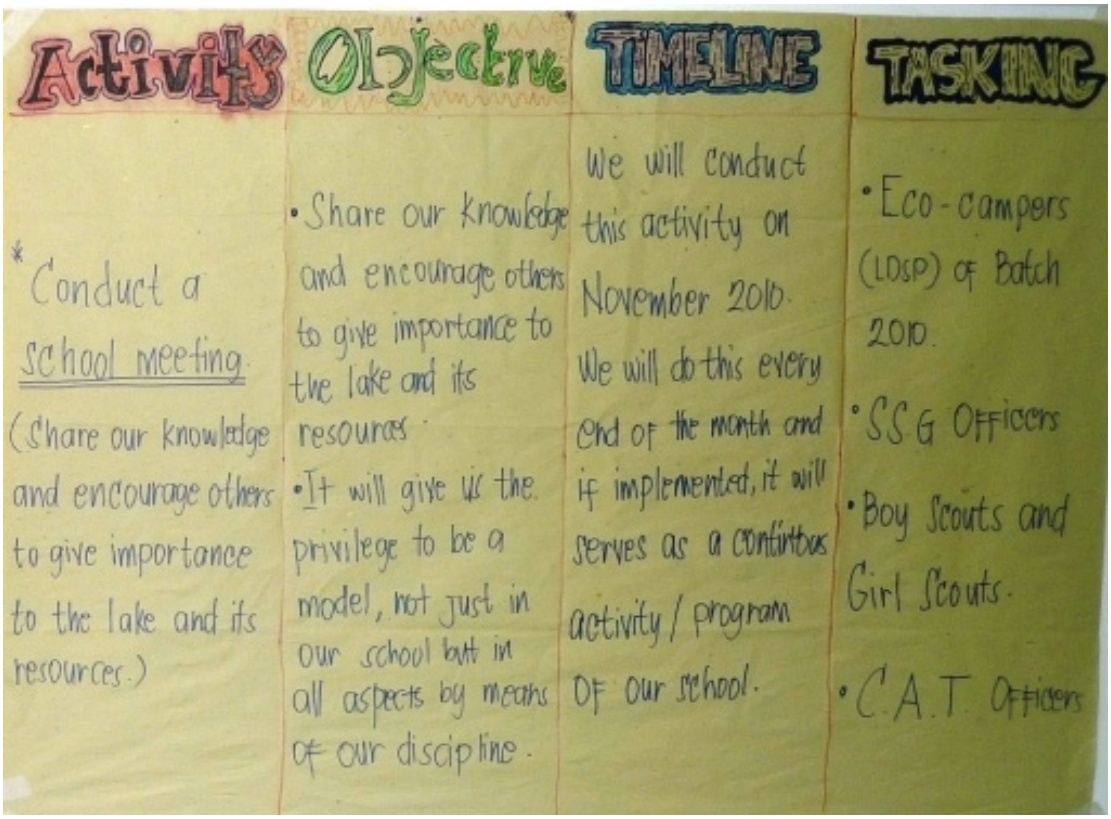


Figure 2. Sample output of the Action Planning workshop

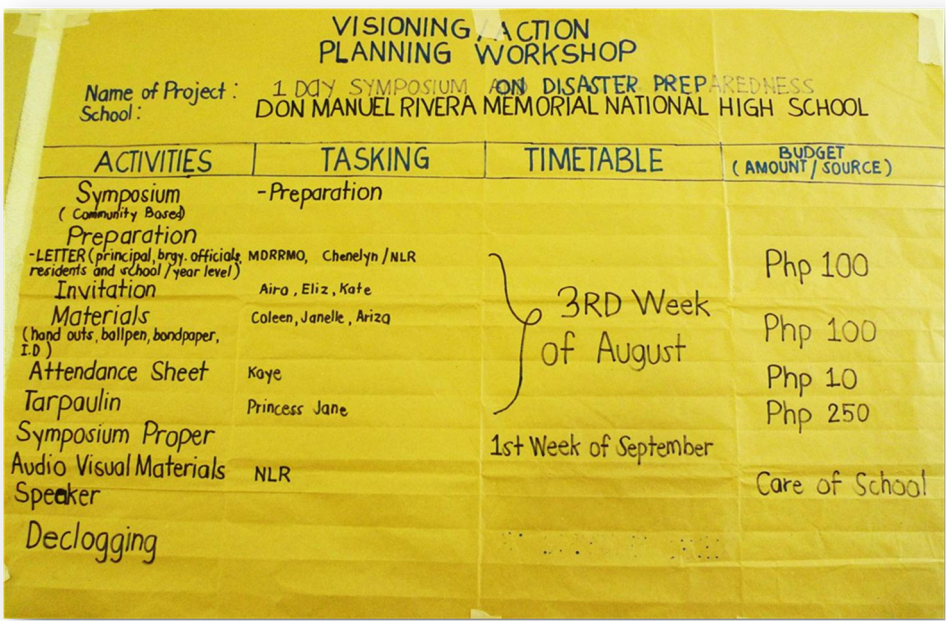


Figure 3. Sample output of the Action Planning workshop

Plate 1. Actual conduct of workshop

Presentation and Reporting of Outputs

After filling up the workshop templates, the campers present their outputs to the rest of the campers and to the facilitators or panel. Each group is given fifteen (15) minutes to discuss their vision and action plans. After each presentation, the facilitator (or panel if available) gives their comments and recommendations regarding the project. The audience (in this case, the rest of the participants) is also asked to give their recommendations, questions or clarifications. These suggestions are considered for the revision of the project plans before its actual implementation.

Plate 2. Actual presentation and reporting

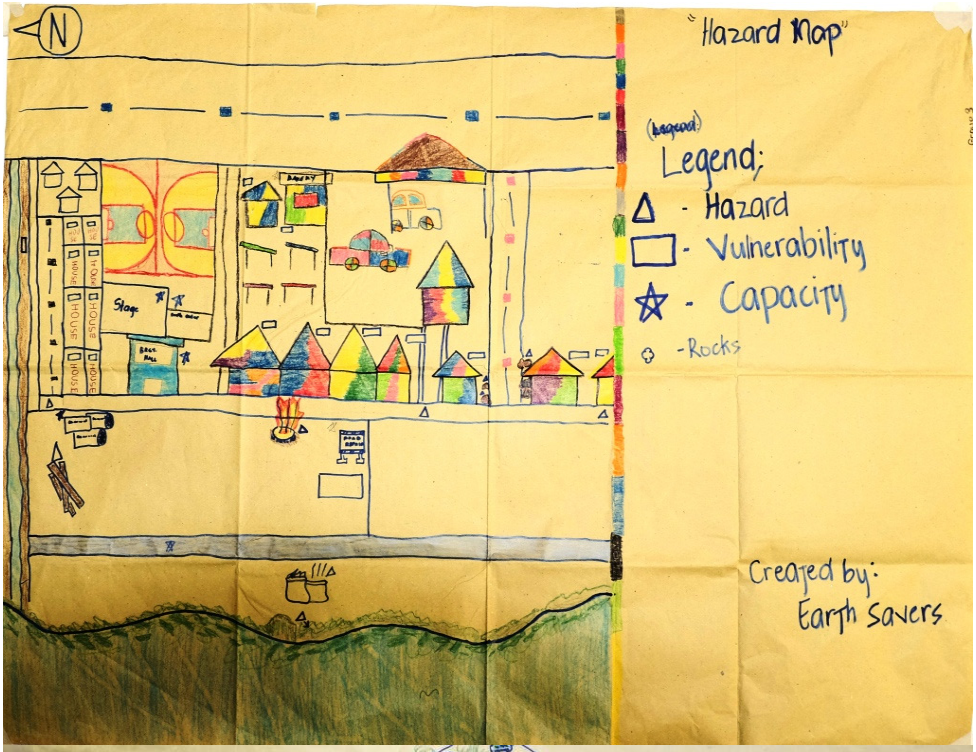
Turnover of Project Plans

A copy of the outputs of the workshop (i.e. vision and action plans) is turned-over to the LGU (MENRO, MPDC or MDRRMO) and to the participating school to solicit their support.

For Theme 2: Disaster Risk Reduction and Management and Climate Change Mitigation and Adaptation

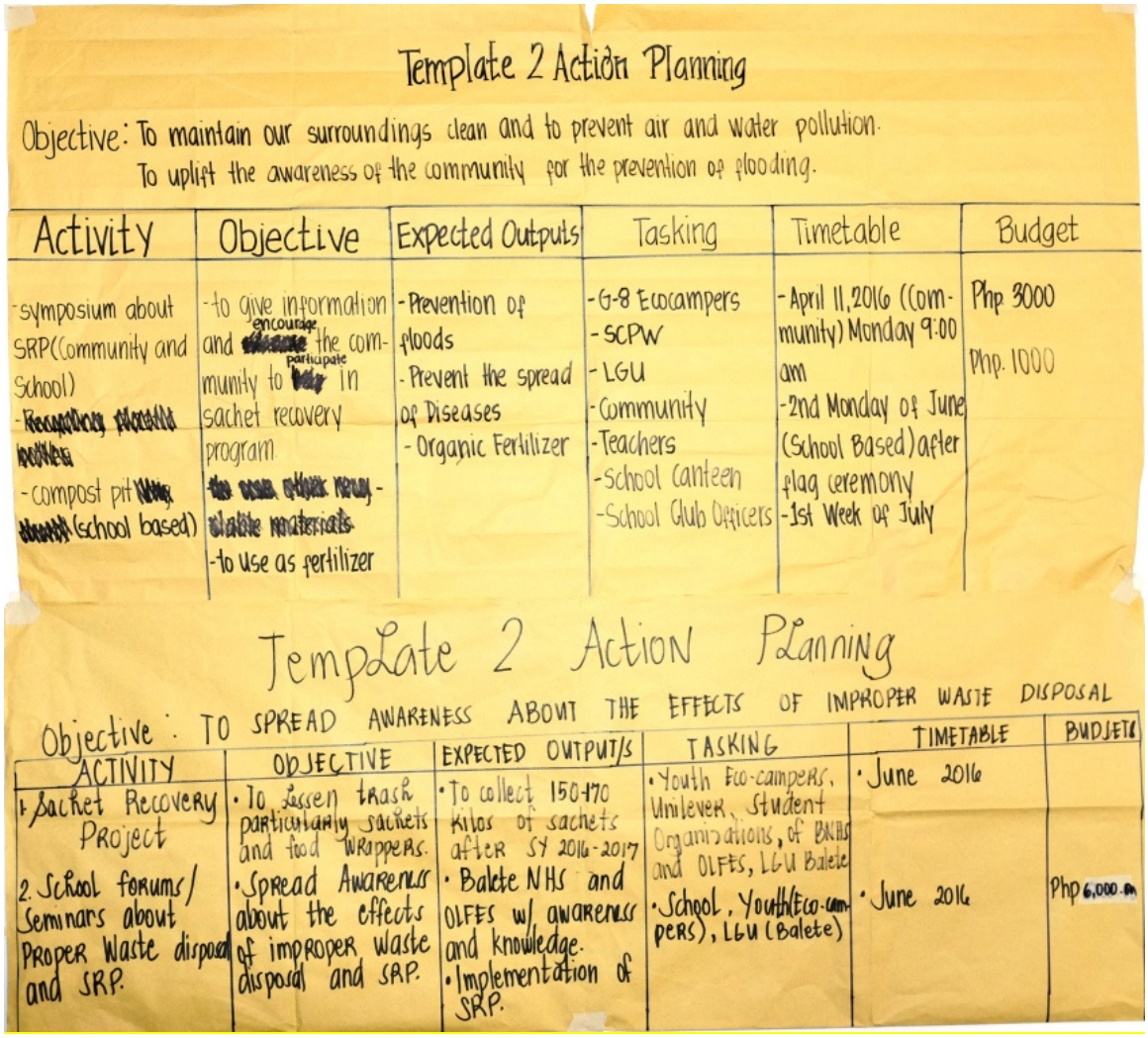
Basically, the steps that are taken to plan the Campers action for Theme 2 are the same. The only difference is that the basis for identifying their actions will come from the results of the Disaster Town Watching activity, which is the field exposure exercise for Theme 2. The same steps are taken to plan for their actions such as:

- Determining the current state of the most vulnerable Barangay through a Risk Map depicting hazards, vulnerability, exposure and capacity. This is also a form of "Rich Picture".
- Agreeing on a "vision" for the future where the community will be "resilient" which should also be depicted on a "Rich Picture"
- Identifying actions or interventions that the Campers can implement complete with objectives, tasking, timetable and resources needed.
- Presenting the Action Plan to the Campers and to the schools, LGUs, parents and fellow-campers at the last session of the Eco-Camp.
- Turn-over of the Action Plans to the schools, LGUs/Barangay to solicit support for the project.


N
"Hazard Map"
(legend)
Legend;
- Hazard
- Vulnerability
- Capacity
- Rocks
Created by:
Earth Savers


HOSPITAL
TITLE:
HAZARD MAP
BRGY. 13 & 14
AUTHOR:
SHINGSHANGFU 2.0 (UPGRADED)
DATE:
30, JUNE 2016
LEGENDS:
→ CAPACITY
→ HAZARD
→ VULNERABILITY

Figure 4. Sample of hazard maps



Template 2 Action Planning

Objective: To maintain our surroundings clean and to prevent air and water pollution.
To uplift the awareness of the community for the prevention of flooding.

Activity	Objective	Expected Outputs	Tasking	Timetable	Budget
-symposium about SRP(Community and School) -[illegible] -compost pit [illegible] (school based)	-to give information and encourage the community to participate in sachet recovery program [illegible] -to use as fertilizer	-Prevention of floods -Prevent the spread of Diseases -Organic Fertilizer	-G-8 Ecocampers -SCPW -LGU -Community -Teachers -School Canteen -School Club Officers	-April 11, 2016 ((Community) Monday 9:00 am -2nd Monday of June (School Based) after flag ceremony -1st Week of July	Php 3000 Php. 1000

Template 2 Action Planning

Objective: TO SPREAD AWARENESS ABOUT THE EFFECTS OF IMPROPER WASTE DISPOSAL

ACTIVITY	OBJECTIVE	EXPECTED OUTPUTS	TASKING	TIMETABLE	BUDJETS
1. Sachet Recovery Project 2. School forums/ Seminars about Proper Waste disposal and SRP.	• To lessen trash particularly sachets and food wrappers. • Spread Awareness about the effects of improper waste disposal and SRP.	• To collect 150-170 kilos of sachets after SY 2016-2017 • Balete NHS and OLFES w/ awareness and knowledge. • Implementation of SRP.	• Youth Eco-campers, Unilever, Student Organizations, of BNHS and OLFES, LGU Balete • School, Youth(Eco-campers), LGU (Balete)	• June 2016 • June 2016	Php 6,000.00

Figure 5. Sample outputs of the Action Planning Workshops

Plate 3. Actual conduct of workshops

Pictures 4. Actual reporting of outputs

Activity Design 04 – Commitment Setting

Title of Activity: Commitment Setting

1. Introduction

Commitment setting activity is where the participants give their pledges and oath to be wetlands and environmental stewards. It also serves as an avenue for the participants to internalize and synthesize their learning and what they can do after the camp.

Some of the commitments are done in a solemn way for the students to feel the urgency of doing action for the wetlands and environment, and to help in disaster preparedness, and climate change mitigation and adaptation. Commitment setting activities can vary according to the time and resources available. It can be in a form of a song, *writeshop* activity, signature campaign, and other activities where the participants can state or commit on the agreed goals.

2. Objectives:

- To internalize and synthesize the learnings in the eco-camp;
- To make a pledge to support and implement projects and activities planned in the Eco-Camp.

3. Total Activity Time:

Total activity time will be 30 minutes to be conducted in one session.

4. Mode of delivery:

Various

45. Participants/Prerequisites:

All Eco-Campers

6. Materials and Equipment:

Check out list for each activity.

7. References:

SDS 30 Class (2014). Heco-Camp 2014. *Design and Management of Training Program Course.* Department of Social Development Services, College of Human Ecology, University of the Philippines.

8. Procedure

A. Ladder and Tree

- Method/Duration: 30 minutes;
- Materials Needed: Improvised life size tree, yarn, cut papers (1/4 sheet), ball pens, background music
- Procedure

1. The organizers will have to make an improvised life size tree using cartolinas, illustration board, etc. On the top of the tree (in the leaves), write wetlands and environmental conservation.
2. Have two (2) yarns for at least 1 meter in length each. Tie the knots forming loops with at least 1 inch apart from the next hole (see figure 1 for the example). A ¼ sheet of paper when rolled must fit in the loop. These yarns will serve as the ladder of the improvised tree. Hang the yarns in the tree with 2 inches space.
3. Distribute ¼ sheets of paper to the participants. In the ¼ sheet, tell them to write what they will do to conserve wetlands and environment and what they will not do anymore to save wetlands/environment. Play background music while doing the activity.
4. After writing, instruct the participants to roll their papers and put it in the holes in the yarn hanging in the tree.
5. Tell the participants the following and add further realizations on the following key points:

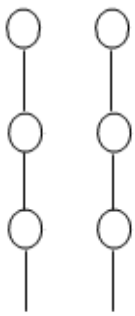


Figure 1. Yarn with loops diagram.

- The papers represent the actions that the youth will do for the environment
- The ladder symbolizes steps of success on achieving the top or the goal for the environment, but the ladder will be formed only if all will act for achieving the goal.

Source: SDS 30 Students (2014). Heco-Camp 2014. Design and Management of Training Program Course. Department of Social Development Services, College of Human Ecology, University of the Philippines.

B. Commitment Tree

- Method/Duration: 30 minutes
- Materials Needed: Drawing of a big tree, cut out leaves, ball pens, double sided tape
- Procedure

1. Draw a big tree on a manila paper, cartolina, or other similar materials. Cut out the drawing of the big tree.
2. Cut out small leaves (preferably 3-4 inches in length) enough for all Campers and other guests present. Make sure that the color of the leaves is different from the color of the tree for emphasis. At the back of each leaves, put double sided tape.
3. Place the cut-out tree in the front of the venue.
4. Distribute the leaves to the participants. Ask them to write what they commit to do for wetlands and the environment; for disaster preparedness and climate change adaptation and mitigation.
5. After writing the commitments, tell the participants to put the leaves on the tree branches.
6. When processing, mention that the leaves are important for the tree to live as their commitments turning into action can make an impact to save wetlands and the environment, and help in disaster preparedness and climate change mitigation and adaptation

Source: Unattributed

C. Candle-Lighting Commitment Ceremony

- Method/Duration: 30 minutes
- Materials Needed: small candles, a big candle, lighter, LCD projector, and laptop
- Procedure

1. Ask the participants to stand in a U-shape formation. Distribute the candles to them.
2. Place the big candle in the center. Turn off all the lights in the venue and light the big candle.
3. Ask the participants from each end of the formation to go to the center and light their candles. Tell them to spread the light to other participants.
4. After all of the candles are lit, flash the oath of commitment. Tell them to raise their right hands, and read the commitment.
5. After the oath taking, tell the participants that the lighted candles symbolize their hopes and passion for wetlands and environment, and they must keep the fire burning until a better

environment can be achieved (or whatever their goals may be). Turn on the lights and ask the participants to blow the candle and clap their hands.

Source: Unattributed

D. Hand marks Commitment Board
▪ Method / Duration: 30 minutes
▪ Materials Needed: Coco cloth (preferably 8x3), textile paints of different colors
▪ Procedure
1. Paint the center of the coco cloth with the theme or name of the event (i.e. Youth Ecological Camp 2016, Kilos Kabataan para sa Lawa, etc.) 2. Ask the participants to brush their hands with the textile paint and press their painted hands on the coco cloth. 3. The hand paint marks in the cloth represents the commitment of the participants to act for saving the lake, wetlands, or environment, being prepared for disasters and to do actions to mitigate of adapt to climate change.
Source: Unknown

E. Flower Commitment Activity
▪ Method / Duration: 30 minutes
▪ Materials Needed: Barbecue sticks, flower cut outs, used Styrofoam, brown paint,
▪ Procedure
1. Attach the barbeque sticks to the flower cut outs as if these are stems. The pointed side of the barbeque stick must be the base of the flowers. 2. Paint the used Styrofoam with brown paint. This will serve as the “land.” (usually Styrofoam used in new appliances, etc). 3. Distribute the flowers and place the Styrofoam in the center of the room or in the stage. 4. Ask the participants to write their commitments on the flower. 5. After writing, ask the participants to stick-in the flowers in the Styrofoam forming a garden. 6. Tell the participants that these flowers symbolize their promise to do the actions they agreed on to help conserve wetlands, be prepared for disasters and do actions to mitigate and adapt to climate change.
Source: SDS 30 Students (2014). Heco-Camp 2014. Design and Management of Training Program Course. Department of Social Development Services, College of Human Ecology, University of the Philippines.

F. Signature Commitment Board
▪ Method/Duration: 20 minutes
▪ Materials Needed: Markers and tarpaulin
▪ Procedure
1. Print a tarpaulin with the theme or name of the event at the center. The slogan "I commit on saving the wetlands/environment" or something that will convey the theme of the Camp may also be printed in attractive colors and font on the tarpaulin. 2. At the event, post the tarpaulin on a wall and ask the participants to sign the tarpaulin to symbolize their commitments.
Source: Unattributed

Activity Design 05 – Group Dynamics

Title of Activity: Group Dynamics and Ice breakers

1. Objectives:

This activity is designed to allow the Campers to:

- Be relaxed and energized after breaks and long learning sessions in the eco-camp; and
- Be involved and interact with other participants as the eco-camp progresses.

2. Total activity time:

15-30 minutes depending on the need

3. Mode of delivery:

Games, narrative-story telling, claps, songs and dance

4. Participants/Prerequisites:

This module is suitable for use of 15 participants and above.

5. Materials and Equipment:

Materials listed below per activity

6. References:

ReproLine Plus (2015). The Source of Technical Expertise in Global Health Practice. Trainer and Educator Resources: Ice breakers. Retrieved November 16, 2015 from http://reprolineplus.org/resources/trainer-educator/icebreakers

7. Sample Group Dynamics and Icebreakers

G. Apple Shake, Orange Punch

- Method/Duration: 3-5 minutes; Song and Dance
- Materials Needed: None
- Procedure

1. This ice breaker requires actions from the participants. The facilitator in this activity have commands corresponding to actions, below are the following:

   "A" - raise the right hand diagonally

   "pple" - left hand stretched down in a diagonal position

   "O" - raise the left hand diagonally

   "range" - right hand stretched down in a diagonal position

   Punch - both hands on the chest level with close fists facing forward, then chest in and out dance movement

   Shake - hips rotation

2. When the facilitator says any of the commands, the participants will have to do the corresponding actions. The facilitator can say the commands randomly and by a rapping beat making the participants do the action like that of dance-steps.

Source: Unattributed

H. Atootyta

- Method/Duration: 5 minutes; Song and Dance

- Materials Needed: None
- Procedure

1. Start with singing “Attootyta, attootyta, attootytata” twice. Ask the participants to sing after you.

2. Add dance steps while singing “attootyta”. Move the hips and shoulder side by side with palms in a thumbs-up sign moving through the rhthym of the song. Ask again the participants to dance with you.

3. After every “Attootyta, attootyta, attootytata” a command will be added. Below is the example:

   Facilitator: (dance and sing) Attootyta, attootyta, attootytata

   Participants: (dance and sing) Attootyta, attootyta, attootytata

   Facilitator: Thumbs up! (do the gesture)

   Participants: Thumbs up! (do also the gesture)

   All: Attootyta, attootyta, attootytata (2x)

4. Add a new command, aside from the older one. Repeat first the old command, before saying the new one. Example:

   Facilitator: Attootyta, attootyta, attootytata

   Participants: Attootyta, attootyta, attootytata

   Facilitator: Thumbs up!

   Participants: Thumbs up!

   Facilitator: Elbows down!

Participants: Elbows down!

All: Attootyta, attootyta, attootytata (2x)

5. New commands will be added with the older ones as the song progresses. Repeat first the old commands, before saying the new ones. Example:

Facilitator: Attootyta, attootyta, attootytata

Participants: Attootyta, attootyta, attootytata

Facilitator: Thumbs up!

Participants: Thumbs up!

Facilitator: Elbows down!

Participants: Elbows down!

Facilitator: Knees bent!

Participants: Knees bent!

All: Attootyta, attootyta, attootytata (2x)

6. Additional commands that can be said are feet apart, tongues out, and roll around. To hear the song and for visual example visit TheManiacDancer user account in YouTube in this URL: https://www.youtube.com/watch?v=zGNvVsho-d8

Source: Unattributed

I. Ulat Panahon (Weather Forecast)

- Method/Duration: 3-5 minutes; Role Play
- Materials Needed: None

- Procedure

1. Ask the participants to stand up and face to the right.
2. Give them commands that correspond into actions. Below are the following:

    - Ambon (Drizzle) - continuously touch the back of the person in the front using your two pointer fingers.
    - Ulan (Rain) - continuously touch the back of the person in the front using all your fingers.
    - Bagyo (Typhoon) - continuously hit the back of the person in the front using the sides of hands. (Caution: ask the participants to do it lightly as if giving a massage)

3. Tell them that there are areas in the Philippines that correspond to the back of participants standing in front of them. Luzon is the upper back, Visayas is the middle back, and Mindanao is the lower back.

4. Instruct the participants to do actions when the commands will be mentioned during the weather forecasting that will be announced. For example, when the statement in the weather forecast is "Ang ulat panahon dito sa Luzon ay umuulan," the participants is expected to do the "ulan" action in Luzon area which is at upper back of the participants in front of them.

5. Make sure to say the weather forecast slowly for the participants to have more time to do the actions and to have fun. Below is the sample weather forecast script that can be modified as necessary:

    "Magandang umaga sa inyong lahat. Ako si Darry, nag-uulat live dito sa Luzon kung saan panaka-nakang umuulan, samantalang may bagyo sa visayas at ambon lang sa Mindanao. Sa mga susunod na araw ay uulanin din ng malakas sa Mindanao, dahil sa pagbagyo sa visayas. Sa Luzon naman ay patuloy pa din ang pag-ulan dahil sa habagat. Inaasahan na titigil ang pagbagyo sa visayas sa

darating na sabado, at mababawasan ang tubig na dulot ng ulan sa Mindanao at sa Luzon at magiging ambon-ambon na lamang. Back to studio."

6. Tell the participants to face to their left, and read the weather forecast again.

Source: Unattributed

J. Pasamoves
- Method/Duration: 3-5 minutes; Song and Dance
- Materials Needed: None
- Procedure

1. Divide the participants into groups. You may opt to have 4-5 groups or more.

2. Give certain movements per group. You can choose from celebrity iconic movements, famous dance steps, sports action, and others. Example:

❖ Celebrity Iconic Movement
   1. Nora Aunor's Walang Himala Move
   2. Vilma Santos' wailing
   3. FPJ's head nods and hands on the pockets
   4. Vice Ganda's Horsey move
   5. Ariana Grande's cute poses

❖ Famous dance step
   1. Gentleman dance step
   2. Oppa Gangnam Style dance step
   3. What me whip (watch me nae nae)
   4. Spaghetti dance step
   5. Otso-otso dance step

❖ Sports action

1. Volleyball spike
2. basketball shoot
3. football kick
4. swimming freestyle

3. Select the group who will start doing their respective movement. Instruct them to agree among themselves who is the next group they are targeting to pass the move. They have to do their movements while saying it two (2) times, and then the next group's move for two (2) times also. For example, the facilitator chose the group A which is the volleyball spike group. The group A then secretly agreed that they will pass the move to Group B, the basketball shoot group. The group A will say and do "Volley ball spike! Volley spike!, basketball shoot, basketball shoot!" then Group B, the basketball shoot then pass the move to others. They will start for example with "Basketball shoot! Basketball shoot!, swimming freestyle!, swimming freestyle" and so on.
4. Passing of moves must be fast and all the group members must shout and do the act also uniformly. Any member of the group that will commit mistake will be automatically out of the game.
5. For difficult level, it can be instructed that the group will have to shout and do the moves faster and also reshuffle each given moves

Source: Unattributed

K. Footprints in the Sand

- Method/Duration: 20 minutes; Game
- Materials Needed: None
- Procedure

1. Group the participants with 6-10 members.

2. Announce how many feet you want to see that touch the floor for each group by saying "I saw __(number)__ footprints in the sand"

3. When the facilitator announces the required number of feet in the ground, the group will have to strategize how to lift their feet or group members. For example, the facilitator said "I saw 6 foot prints in the sand," each group of 10 members will have to lift other group members just to comply on the only required number of feet that touches the ground for each group.

4. Count for 10 seconds for the group to strategize. Count another 10 seconds for the group to settle the number of feet in the ground.

5. Check each group if the number required is being met. Count for five (5) seconds to see if each group can withstand the number of feet required.

6. The group that cannot meet the number of feet required per round and cannot withstand in five (5) seconds will be out of the game.

Source: Unattributed

L. Paint me a Picture

- Method/Duration: 20 minutes; Game/Role Play
- Materials Needed: None
- Procedure

1. List down different themes that can be related to the topics discussed in eco-camp such as wetlands conservation, waste management, climate change adaptation, and disaster preparedness.

2. Divide the participants into 2-4 groups. Tell them that they must pose or picture out the topics that will be given to them. They should be creative and the picture they will form must be related to the topic. For example, the topic given is "storm", a group member could possibly pose to swim in the flood, some are packing their things, some repair houses. They can also put some movements and twists like: 1). they will form a house using their bodies and eventually the roof will be washed away, 2.) some participants will form their hands like the branches of the trees and these are moving faster because of the storm, 3.) others can act as the storm winds or fallen trees.

3. Give them 30 seconds for each category to form their picture. After 30 seconds, all the groups should be in their position.

4. Go to each group and ask each member of the group what role they portray in their picture.

5. Judge each group's picture according to relevance and creativity. The group with highest number of winning rounds will be the grand winner in this activity.

Source: Unattributed

M. Paramihan ng Alam

- Method/Duration: 10 minutes; Game
- Materials Needed: None
- Procedure

1. Divide the participants into group.

2. Prepare for topics related in the eco-camp with wide range of examples like wetlands, environmental issues/problems and the likes.

3. Give 10 minutes for the participants to list all the possible examples, items or words that fall into the given category (i.e. example of wetlands: Laguna De Bay, Agusan Marsh, Amazon River, etc)

4. Each group will have to recite one by one the examples or items they have without repeating the examples that are already recited by them or by the other groups.

5. The group that will repeat the already given example will be out of the game. Also, the group that cannot give example or items in 5 seconds will also lose the chance to win in the game. Consequently, the group that will be left will be the winner.

Source: Unattributed

N. Hot Pepper

- Method/Duration: 10-15 minutes; Game
- Materials Needed: Small Ball
- Procedure

1. Ask the participants to form a circle, sit, and close their eyes.

2. Give a small ball to a participant and ask him or her to pass the ball next to the person beside him or her and say "hot!" The participants will continue to pass the ball and the person who will pass the ball will say "hot!"

3. As the ball is passed continuously, look away and decide when to shout "pepper!"

4. The participant who is holding the ball when "pepper!" is shouted is removed from the circle. The ball continues to be passed until only one person is left.

Source: *ReproLine Plus, 2015 adopted to Pfeiffer & Company 1983*

O. Use Something Differently

- Method/Duration: 10-15 minutes; Game
- Materials Needed: Any object available in the venue
- Procedure

1. Let the participants form a circle.

2. Get an object of your choice in the venue. It can be a ball pen, envelop, bag, etc.

3. Instruct the participants to be creative and use the object differently as it is supposed to be (i.e. ball pen use as earbuds, lipstick, magic wand, etc).

4. Give the object to a participant and ask him or her to start the activity. The participant will have to demonstrate the new use of the given object and have to pass it on the next person in the circle. The next participant will do the same.

5. The person, who cannot give a new use of the given object or repeat what is already given, will be moved out of the circle.

6. When the time is over, the participants will vote who among them is the most creative on using the given object and will be proclaimed as the winner of the game.

Source: Unattributed

P. Basketball Shoot

- Method/Duration: 10-15 minutes; Game
- Materials Needed: Jelly Ace
- Procedure

1. Group the participants into two (2) and ask them to form a line facing the other members of the group.

2. Count the members of each group loudly. Their number will also be their assigned number in this game.

3. The jelly ace will serve as the ball in the game basketball and facilitator will dictate what to do in the jelly ace/ball.

4. Think of a number in the line and give jelly ace for the members of each group assigned to that number.

5. Dictate what to do in the ball and what the members will act as if they are really playing basketball. For example:

"Number 1 is dribbling the ball (Number 1 member will mimic as if dribbling the jelly ace). Dribbling the ball, he passed it to number 5 (Number 1 pass the jelly ace). Number 5 turn around and pass it to Number 8 (Number 5 turn around and pass the jelly ace). Number 8 lays up but missed the basket (Number 8 jump, as if shooting the jelly ace in the air)"

The members assigned to those numbers will have to do what is dictated by the facilitator.

6. Shout "Shoot!" for the member who's holding the jelly ace to "shoot the ball." "Shoot the ball" means the member from each group who's holding the jelly ace when the "Shoot" was shouted have to come in front of the line, open the jelly ace and eat it (i.e. Shout Number 11 "shoot!" then the Number 11 participants from each group will have to shoot the ball). The first group member who finishes eating the jelly ace will get a point for his or her group in that round.

7. Have more rounds, and vary the number of members who will be called in order to accommodate all of the members. The first group who can get three (3) points will win the game.

Source: Unattributed

Q. Claps

- Procedure

Three claps, three stomps, say "I love it" then sway hair

Stand up and clap hands above the head while shouting "whooooh"

Clap by the beat 1-2 1-2-3 1-2-3-4 1-2 then shout “whoooooh” with hands open, facing forward from chest level then down to stomach level.

Shout “G-Double O-D-J-O-B good job!” Then clap two times, then shout

“good job” and clap two (2) times again.

1. Clap two (2) times then say “woop, woop” while flapping the hands as if they are wings.
2. Clap two (2) times then say again “woop, woop” while tracing a halo above the head two (2) times with pointing finger.
3. Clap two (2) times then say “wooooooooooop” while touching hands as if doing a prayer.

Source: Unattributed

R. Chant

- Procedure

❖ Boom Takalitaka

The facilitator will shout “Boom takali takali taka!” then the participants will respond with “ooh ah! ooh ah!” It will be done two times. Then at the last shout, the facilitator will smoothen and slowed down the shouting of the “Boom takali takali taka.” Then, it is expected the participants to mimic how the facilitator said the chant.

Source: Unattributed

Activity Design 06 – Team Building

Title of Activity: Team Building – Getting to Know You

1. Introduction

Team building is a significant starter activity in trainings, workshops, and other events. It is the first opportunity for the participants to get the chance to know each other and interact. In the eco-camp, team building activities are designed to facilitate communication and creativity, break barriers between participants, and motivate them for the next activities in the eco-camp.

2. Objectives:

At the end of the activity, the participants will be able to:

- Communicate and get to know other participants in the eco-camp;
- Integrate themselves in the group and interact with co-participants; and
- Build camaraderie among each other.

3. Total activity time:

Various, depending on the activity.

4. Mode of delivery:

Games or narrative-story telling

5. Participants/Prerequisites:

This module is suitable for use of 15 participants and above.

6. Materials and Equipment:

Materials per activity are listed below.

7. Sample team building activities and getting-to-know-you activities

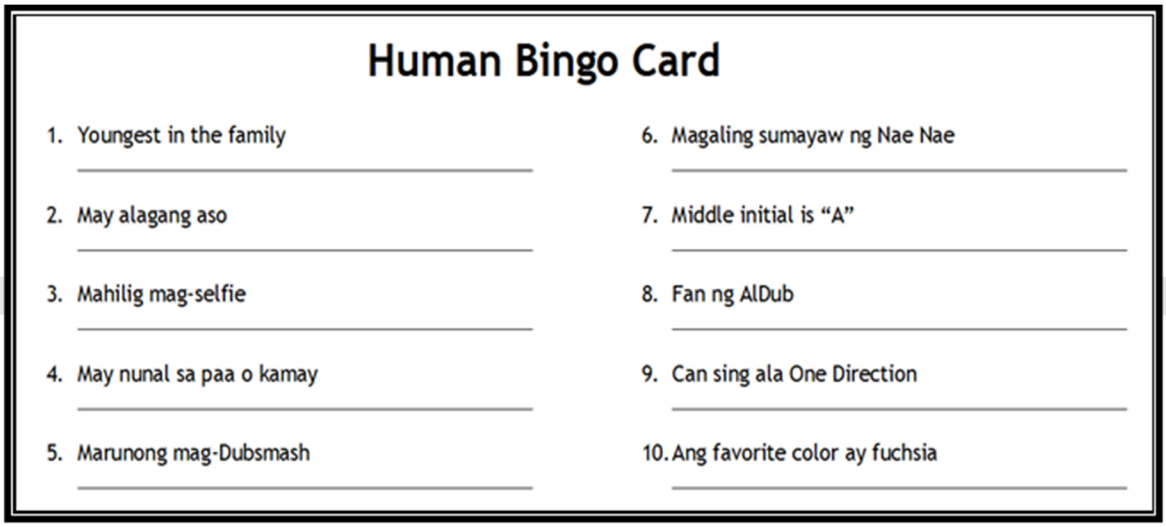
S. Human Bingo

- Method/Duration: 25-30 minutes; Game
- Materials Needed: Human Bingo Card or form, and pens
- Procedure

1. Prepare enough human bingo cards for each of the Campers and show it to them. The Human Bingo Card contains list of characteristics, description, and abilities such as youngest in the family, favorite color is red, can sing and dance, etc. (see Figure 1 below for an example).

2. Ask the Campers to interview each other until they find the persons that fit all the categories listed in their human bingo card. The person that fits a specific category should indicate his/her name and sign the space that is allocated in that category. The Camper will continue to interview fellow Campers until he/she fills out all the categories in his/her human bingo card. The first three participants that will accomplish the human bingo card will win the game.

3. Before officially announcing the winners, validate the human bingo cards of the top three (3) participants. Randomly call persons written in their cards who signed into a certain talents or a unique characteristic and ask for a sample, to validate if they really possess those characteristics and also for fun.



Human Bingo Card

1. Youngest in the family _____
2. May alagang aso _____
3. Mahilig mag-selfie _____
4. May nunal sa paa o kamay _____
5. Marunong mag-Dubsmash _____
6. Magaling sumayaw ng Nae Nae _____
7. Middle initial is "A" _____
8. Fan ng AlDub _____
9. Can sing ala One Direction _____
10. Ang favorite color ay fuchsia _____

Figure 1. Human Bingo Card Sample

T. Two Truths and a Lie

- Method / Duration: 30minutes; storytelling
- Materials Needed: None
- Procedure

Ask the participants to prepare three (3) statements describing unique characteristics, information, talents among themselves, where two (2) are true and the other one is a lie. The participants will then tell these statements to the whole group. The facilitator will call for volunteers who would want to guess which of the statements is a lie. At the end of guesses, the truths and lie will be revealed by each of the participants.

Variation: If the group is more than 15, it can be subdivided into smaller groups so that the activity does not consume too much training time.

Source: Unattributed

U. Introduce yourself with an adjective

- Method / Duration: 15 minutes; narrative
- Materials Needed: None
- Procedure

1. The participants will be asked to think of an adjective that describes them. The twist is, the first letter of the adjective must be the same as the first letter of the participant's name.

2. Let each participant introduce himself or herself with the following template:

"Hi! I am ___(name)____, and I'm from _____(school)_____ and I am ___(adjective)___"

Examples:

1. Hi! I am Anna, from Mabitac National High School, and I am adorable.
2. Hi! I am Clyde, from Tingloy National High School, and I am courageous.

Source: Unattributed

V. Your Favorite Things

- Method/Duration: 30-45 minutes; narrative
- Materials Needed: None
- Procedure

The trainer divides the group into pairs and ask participants to tell each other their favorite food or name the animal they feel best describes them and why. This information is shared with the group when participants introduce their partners.

Source: ReproLine Plus, 2015

W. Zip Zap Zoom

- Method/Duration: 20-30 minutes; Game
- Materials Needed: None
- Procedure

1. Let the participants form a circle. Tell them to interview the person on their left and right about some information about them such as their name, favorite food, special talent etc.

2. Play as the "center." The center will repeatedly shout "zip zap" as fast as he or she can, pointing each person inside the circle. If the "center" stopped and pointed at a participant with a "zip" that participant will recite the information he or she gathered to the person on his or her right, otherwise on his or her left when it is a "zap."

3. The "center" may opt to stop with a "zoom." In this case, all the participants will reshuffle in the circle making sure that the persons on his or her two sides are different from the former ones. The participants will have to gather information again.

4. The participant who cannot properly recite or forget the information gathered in 3 seconds, he or she will be the new "center." If he or she becomes the "center" twice, he or she will receive a punishment other participants will request him or her to do.

Source: Unattributed

X. Humanay Ayon Sa…

- Method / Duration: 20-30 minutes; Game
- Materials Needed: None
- Procedure

1. Divide the participants into groups. Ask them to fall in line in ascending order based on the category. Categories may vary into age, height, birthdays, etc. For difficult level, the facilitator can demand the group to fall in line in descending order. Moreover, the facilitator can also think of creative categories such as shoe size, number of crushes, or average hours of sleep, to add more fun.

2. Shout the phrase "Humanay ayon sa…" plus the chosen category as the go signal for the group to start each game. For example, say "humanay ayon sa… age" (fall in line according to age), the participants will ask each other how old they are, and will line according to youngest to the oldest.

3. Instruct also the groups to sit down and shout "finish" after rearranging their positions. Check if the order according to the category is really ascending or descending by

interviewing each member of the group. The first group to finish in a round and with correct order will get the point. Moreover, the first group who will win three (3) rounds will be announced as the grand winner for this activity.

Source: Unattributed

Activity Design 07 – Talents Night

Title of Activity: Socials / Talents night

1. **Objectives:**

   - To provide a venue and an opportunity for the campers, camp masters and resource persons to interact socially.
   - To provide a venue and an opportunity for the campers to express in a creative manner what they have learned in the Eco-Camp, ie to showcase their talents in acting, singing, or dancing while expressing their concerns for people, nature and the environment.

2. **Total Activity Time:**

   Total activity time will be three hours to be conducted in one session.

3. **Mode of delivery:**

   Creative performances and fellowship

4. **Participants/Prerequisites:**

   All campers/participants with teacher-chaperones and organizers

5. **Materials and Equipment:**

   Sound system
   Tally sheets and pens for the judges
   Prizes

6. **References:**

None

7. **Procedure**

Grouping

Grouping the campers is usually done on the first day of the camp. It could be by school or at random. The ideal number of members per group is seven considering that the ideal number of Campers is 35.

Venue Arrangement

The seats should be arranged in u-shape (see figure 1). This is to encourage everyone to participate; nobody is left out. Staying at the back should be discouraged. Center seats are given to the judges.

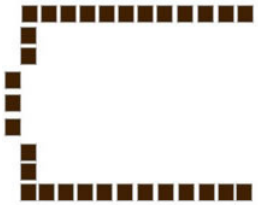


Figure 1. U-shaped seating

Group Performances

- On the first day of the camp, the campers are given theme for their group performance. The theme is usually taken from the current environmental issue in the area where the camping is held *(example: basura, baha, landslide, etc.).*
- The presentation could be a skit, song, dance or literary piece, and should not exceed 3 minutes. The use of projector is not allowed.
- Group practice is allowed only during free time or when announced.

Calling of Volunteers/Performers

- To give the campers the chance to show off their talents, volunteers are called out to perform individually or in group. This also serves as intermission in-between group performances.

Selection and Awarding of Winners

- Best Group Performance is chosen from the group performers using the following criteria – content 30%, performance 30%, creativity 30%, audience impact 10% *(a more creative name should be given, such as "Grupong Talentado", "Grupong Super-Galing", etc)*
- Best Female Performer and Best Male Performer are chosen from the group performers (not necessarily from the winning group) who gave stand out performance.
- Batang EcoCamp is the Camper who shows leadership among the campers. The chosen Camper is expected to take on the leadership in sustaining the network of the camp participants and to serve as a catalyst in pursuing wetland conservation projects, disaster preparedness and activities in their schools and/or communities.

Other awards may be given to individual campers and to those who voluntarily performed during the night. *(Face of the Night, Batang Bibo, Camp Diva, Hataw Galaw Dancers, etc.)*

Guests from the local government usually act as the judges for the night.

Snacks after the activity is optional.

Activity Design 08 – Community Meeting

Title of Activity: Community Meeting

1. Introduction

The Community Meeting is first post-Camp activity implemented by the Campers themselves. This is where the ecological camp graduates present their action plans and pilot projects crafted during the Youth Ecological Camp, to solicit the support of the school, local government and the community. Further, the event also showcases the learnings of the Campers since they are tasked to give simple lectures about certain topics that were discusses in the Camp. It also provides a venue for the stakeholders to come together to make sure that the Action Plan of the Campers complement activities being undertaken by the LGUs, specifically the Barangay.

2. **Objectives**
   - To present the Action Plan and solicit the support of the schools, LGU and community;
   - To share the learnings, activities and experiences at the Eco-Camp

3. **Total Activity Time**:

   Two and a half (2.5) hours

4. **Mode of Delivery:**

   Community Meeting or Forum

5. **Target Audience and Number**

   LGU Officials, teachers, Principal, parents, Campers, community members (encourage a multi-sectoral audience); usually there are more or less fifty (50) participants.

6. **Materials and Equipment**

   Venue for at least 50 people, Flip-Chart or manila paper with the Action Plan, lecture aides such as manila paper with illustrations of the lecture, or if available, laptop, projector and PowerPoint presentation with script.

7. **Procedure**

   Below is a typical program of the Community Meeting.

Time	Activities	Resource Persons
	Registration	
9:30 – 9:45	Opening Programme	
	Invocation	Eco-camp graduates
	National Anthem	Eco-camp graduates
	Welcome Remarks	LGU or School
9:45-9:50	Audio-visual presentation on wetlands and/or Ramsar convention	
9:50-10:10	Snacks	
10:10-10:30	Discussion of *Seven Environmental Principles*	Eco-camp graduates
10:30-10:40	Sharing of Experiences and Learning from the Youth Ecological Camp	Eco-camp graduates
10:40-11:10	Presentation of Action Plans and Projects	Eco-camp graduates
11:10-11:30	Open Forum and Next Steps	Project Officer/Teacher-trainor/Eco-camper graduates
11:30am	Closing Remarks	LGU or School

Activity Design 09 – Water Quality Monitoring

Title of Activity: Lake Water Quality Monitoring

1. Introduction

Water transparency is one of the parameters that tells about the quality of a water body. It is easily measured and is a commonly used in lake monitoring. Transparency indicates the amount of light penetration into a lake and provides a direct measure of the amount of suspended material in the water, which is in usual cases is an indication of the number of algae in water.

2. Objectives

- To learn how to use a multi-parameter analyzer and a Secchi disc in determining the water quality of a lake;
- To characterize the water quality of a lake.

3. Total Activity Time

About 10-20 minutes per sampling station

4. Mode of Delivery

Field Work

5. Participants/Pre-requisites

Eco-Campers and teachers with supervision from a Resource Person and Camp Masters

6. Materials and Equipment

Multi-parameter analyzer (if and when available)
Secchi Disc
Notebook and pen

GPS
Life vests
(note: a boat will be needed to bring the participants to the various sampling points in the lake)

7. Procedure

A. In Situ Measurement of Water Quality Using a Multi-Parameter Analyzer
Purpose: Temperature, pH, dissolved oxygen, electrical conductivity should be taken as field or in situ measurements using multi-parameter testers or analyzers.
Procedure: Read the operating Manual and conduct trial readings before using for field measurements.
Helpful Tip: Make sure that the instrument is properly calibrated prior to use.
B. Measuring water transparency using a Secchi Disc
Procedure
1.Drop the Secchi disk slowly into the water on the shady side of the boat. Keep lowering the disk slowly until it disappears. Record the depth on the cord.
2. Slowly pull the disk up until you see it again. Again, record the depth on the cord.
3. Average the 2 depths to the nearest half-foot mark on the cord.
4. Record the average depth on the Secchi data sheet along with the date and time of the reading.
5. Process the data and analyze the results using the trophic index below.
Reference: How to use a Secchi Disc. http: / / rmbel.info / how-to-use-a-secchi-disk / retrieved 06 April 2016.

Field Monitoring Form

Sampling Station	Reading *a* (in cm)	Reading *b* (in cm)	Reading *a* minus Reading *b*	Physical Condition	Color of Lake Water
1					
2					
3					
4					
5					

8. Data Processing and Analysis

The term "trophic status" refers to the level of productivity in a lake. Carlson's Trophic State Index (TSI, Carlson 1977) is a method to examine the relationship between phosphorous, chlorophyll a, and Secchi disk readings in a lake and its trophic status (overall health). The table below shows how the index values translate into trophic classes. Using the Secchi Disc readings in the various monitoring stations, refer to the table below to determine the trophic classification of your lake.

Relationships between Trophic Index (TI), chlorophyll (Chl), phosphorus (P, both micrograms per litre), Secchi depth (SD, metres), and Trophic Class (after Carlson 1996)

TI (Trophic Index)	Chl (Chlorophyll)	P Phosphorous)	SD (Secchi Depth)	Trophic Class
< 30—40	0—2.6	0—12	> 8—4	Oligotrophic
40—50	2.6—20	12—24	4—2	Mesotrophic
50—70	20—56	24—96	2—0.5	Eutrophic
70—100+	56—155+	96—384+	0.5— < 0.25	Hypereutrophic

Trophic State Index

Eutrophication is the process by which lakes are enriched with nutrients, resulting to the increase in rooted aquatic plants and algae. The extent to which this process has occurred is shown in a lake's trophic classification or state:

- oligotrophic - nutrient poor and low productivity; high transparency (deep Secchi depth), low chlorophyll-a, low phosphorus
- mesotrophic - moderately productive; intermediate clarity, chlorophyll and phosphorus concentration

- eutrophic - very productive and fertile; low clarity / shallow Secchi; high chlorophyll and phosphorus concentrations.
- hypereutrophic - extremely productive with noxious surface scums of algae

Measuring Lake Turbidity Using Secchi Disc. Retrieved 15 December 2016 from http: / / serc.carleton.edu / microbelife / research_methods / environ_sampling / turbidity.html

Trophic State Index. Retrieved 15 December 2016 from http: / / www.lakeaccess.org / lakedata / datainfotsi.html

Activity Design 10 – Marine and Coastal Wetlands

Title of Activity: Participatory Activities on Learning about Coastal Wetlands

1. Introduction

Three activities are described in this document that are participatory and may be used to teach students about coastal wetlands including the benefits derived from them, the issues that are affecting these fragile ecosystems, and what they can do to help conserve them. These activities were taken from a book entitled "Participatory Coastal Resource Assessment (PCRA) Training Guide by Deguit et al."

Activity 1. Facilitated Workshop on the Status of Coastal Resources in your Locality

a) Objectives

- To acquire the student's initial observations and perceptions on the present condition of locality's coastal environment;
- To obtain participants' perceptions regarding the causes of such conditions; and
- To establish consensus that something needs to be done to improve the state of the coastal environment.

b) Total Activity Time

20-30 minutes

c) Mode of Delivery

Facilitated workshop

d) Materials and equipment

Manila paper, Pentel pens, meta cards

e) Procedure

1. Post a large-sized manila paper on the board or wall with the following process question and the matrix below. Ask each participant to answer the process question and to come to the board to put a check mark on their chosen answer.
Process Questions: How would you rate the present condition of your coastal environment?

2. Process the responses. Which habitat had the most fair / poor answers?

3. Ask a few participants to explain their answers. Their responses will generate a list of problems / issues / causes of the decline.

4. Note their responses on idea cards one issue / problem per card. Post the idea cards of issues / causes / problems on the board.
5. Ask participants to take a look at the list of issues / problems and how they feel about these. Generate consensus about the need to address these.

6. Tell participants you will review these responses again at the end of the training.

7. During the Action Planning, encourage the Eco-Campers to identify activities that they can implement to help conserve coastal wetlands.

Status of Local Coastal Wetland

Habitat	Very Good	Good	Fair	Poor	Issues and Causes
Coral reefs					
Mangroves					
Seagrasses					
Beaches					
Rivers					

Activity 2: Transect Walk

a) Objectives

- To do actual observation of a coastal wetland in the municipality or city;
- To identify benefits from coastal resources and the issues affecting them;
- To come up with simple projects or activities that the Youth can implement to help conserve coastal wetlands in the locality.

b) Total Activity Time

30 minutes to one hour depending on the locality

c) Mode of Delivery

Field work

d) Materials and Equipment

Map, field notebook, pencils and ball pens, field work gears

e) Procedure

1. Procure a map of the locality. Draw a “transect line” through a map of the community to reflect various elements or components of the coastal zone. The line goes through or

transects all elements of the coastal zone providing a geographic representation or "cross-section" view of the community.
The line should go through or transect all elements of the coastal zone providing a geographic representation or "cross-section" view of the community

2. Take a transect walk by following the line on the map in order to observe the various habitats, characteristics, uses, problems / issues and opportunities as illustrated in a matrix below. It is strongly recommended that the villagers (as sources of information) join students in the walk and that they maximize the time spent with community members to generate information about the locality's coastal and fisheries resources.

3. From the data gathered during the transect walk, prepare a transect diagram. Observations gathered from the transect walks provide the information recorded in the transect diagrams. The transect diagram allows the advantage of studying several parameters along two dimensions. Arranged in succeeding rows are resources, their uses, related problems, and or issues and related opportunities defined along certain geographic divisions (e.g terrestrial, beach, mangroves, seagrass, reef, deep sea) found in the vertical axis. All these together with the inclusion of the terrestrial part help show the interplay of factors that manifests itself in the current status of the various resources along several gradients.

4. Note that it may be necessary that in addition to the transect walk, a boat tide is taken by the team to get a broader perspective of the coastal and fisheries resources. The need for a boat ride should have been identified and arranged prior to the actual conduct.

5. Instruct the students to return to the Camp site after completing the transect walk. When everyone has returned, ask each one to share their observations. Review the transect matrix as filled up by the participants. Discuss differences and similarities with each group.

6. During the Action Planning, encourage the Eco-Campers to identify activities that they can implement to help conserve coastal wetlands.

Transect Information

Habitat Management Parameter	Lowland / settlement area	Bakawan (mangrove)	Aplaya (beach)	Hunasan (tidal flat)	Damuhan (seagrass bed)	Bahura (reef / shoal)	Ilalim (deep water)
Mga likas na kayamanan (natural resources)							
Mga uri ng hanapbuhay, mga pagkakataon (types of livelihoods, opportunities)							
Mga suliranin (problems / issues)							

Activity 3: Workshop and Group Discussion on Human Impacts on Coastal Wetlands

a) **Objectives:**

- To enhance participants' awareness of the range of human activities impacting on the coastal zone; and
- To make participants start thinking of the need to address issues / problems affecting the coastal zone and coastal environment

b) **Total Activity Time**
15 minutes

c) **Mode of Delivery**
Workshop and Group Discussion

d) **Materials and Equipment**
Manila paper, Markers

e) **Procedure**

1. Prepare the matrix below in Manila paper, corresponding to the desired number of participant groups.

2. Using the groups, ask the Eco-Campers to discuss and check the appropriate boxes in the matrix. When completed, each group post their respective manila papers on the board or wall provided for the purpose.

Process Question: To what extent are the following activities / situations happening in your locality?

3. As the facilitator briefly go through each group's responses at plenary and time permitting ask the participants to expound on their responses.

4. During the Action Planning, encourage the Eco-Campers to identify activities that they can implement to help conserve coastal wetlands.

Human Impacts on Coastal Wetlands

Activity	Often	Sometimes	Not happening
Smaller-sized fishes being caught			
Increasing conflicts and discussions between fishing sectors over resource use			
Use of illegal fishing methods / gears			
Fishers traveling longer distances to catch fish			
Cutting of mangroves for firewood, house construction and other domestic uses			
Intrusion of commercial fishing in municipal waters			
Disappearance of once-abundant fish ponds			

Activity	Often	Sometimes	Not happening
Presence of seawalls / coastal construction on foreshore and beach areas			
Siltation			
Domestic wastes in coastal areas			
Agricultural runoffs in coastal areas			
Marine sand mining / quarrying			

Reference:

Deguit, E., Smith, R., Jatulan, W., and White, A. (2004). *Participatory Coastal Resource Assessment Training Guide*. Coastal Resource Management Project of the Department of Environment and Natural Resources. Cebu, City Philippines. Retrieved January 6, 2016 from http://oneocean.org/download/db_files/pcra_training_guide.pdf

Annex C

All materials in the Annexes are available in electronic format in the enclosed compact disc.

Annex C - Sample Letters

- Inception Letter
- EcoCamp and TOT
- Student Waiver
- Certificates

Sample Letters – Inception Letter

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of Philippine wetlands

20 November 2015

_____
Mayor
Municipality

Attention: _____ (MDRRMO)

Dear Mayor _____:

We are pleased to inform you that _____ (name of municipality) has been selected as one of the project sites for "Youth-in-Action for Disaster Risk Preparedness and Reduction: Resilience and Adaptation Strategies by the Youth". The project is being implemented by The Society for the Conservation of Philippine Wetlands, Inc. (SCPW) with funding support from the United Nations – World Food Programme (UN-WFP).

Said project aims to reduce the disaster risks faced by the municipalities through increased community participation and youth involvement. This is to help address *the limited opportunities for the youth sector to actively participate in disaster response and preparedness initiatives*. The objectives of the project are to: a) Create a venue where the provincial and municipal government can delegate DPR and CCA actions to the youth sector and to other actors at the community-level; b) Involve the local governments, schools or other actors in selected municipalities in effectively engaging the youth in CCA, DRR and other initiatives; c) Educate the youth on climate change and how this phenomenon may affect the province of ___, specifically the municipalities of _____ and its wetlands, and how these problems can be avoided/mitigated, and; d) Empower the youth to take a more active role in disaster risk reduction and climate change adaptation.

The project will also be implemented in two other municipalities namely _____. To jumpstart the project, our Project Officer, Mr. Jose Carlo Quintos will be visiting your office on 1-2 December 2015 to coordinate the planned activities particularly the Inception Meeting which will be held on 12 December 2015 from 9:00 AM – 3:00PM at a venue in _____. Attached are the Concept Note for the project and the Agenda for the Inception Meeting.

Should you have questions or clarifications, you may contact us at (02) 637-2409 or (0936)-935-3363. You may also email us at wetlands@psdn.org.ph/wetlands or amy_lecciones@yahoo.com. Thank you and we look forward to your support to this project.

Sincerely yours,

(sgd)

Amy M. Lecciones

Vice-President and Executive Officer

Sample Letters – EcoCamp and ToT

13 June 2016

_____
Mayor
Municipality

Dear Mayor _____:

The Society for the Conservation of Philippine Wetlands, Inc. (SCPW), in partnership with the United Nations – World Food Programme (UN-WFP), is currently implementing the project entitled **"Youth-in-Action for Disaster Risk Preparedness and Reduction: Resilience and Adaptation Strategies by the Youth"**.

The project involves the conduct of Youth Ecological Camps among high school students through an experiential learning curriculum that focuses on wetland conservation and disaster risk reduction and preparedness. The Youth Eco-Camp will be conducted for three days following a curriculum consisting of lectures, workshops, and experiential learning through field visits/trips. The output of the youth camp will be an action plan designed to help address Climate Change Adaptation and Disaster Risk Reduction and Management issues in the area.

There will also be a Trainor's Training for teachers on how to conduct the Eco-Camp to ensure that the youth will continuously have a pool of trainers who can pass on the learnings to other sectors of the community. The Trainor's Training will be held to develop the skills of people and institutions in engaging youth towards actions and initiatives relevant to DRR and CCAM in the project sites. It will be held two days before the actual eco-camp and will use the actual ecological camp as their practicum. These new trainers will then be involved in the actual implementation of the youth camp in _____(name of municipality). With the experience that they will get from the ToT and the Youth Camp itself, they can already organize and hold similar Youth Eco-Camps in the future for other schools in the province.

In line with this, we would like to request for your support in the conduct of these activities, particularly in nominating ten (10) high school teachers from your municipality to join the **Training of Trainers** on **June 27 to**

July 1, 2016. These teachers will learn innovative means of teaching in both in an out of classroom environments on various topics including ecology, DRR and CCA, among others. We would also like to invite thirty five (35) high school participants from your municipality to join the **Eco-Camp on June 29 – July 1, 2016**. The nominees should be 2nd and 3rd year students (Grades 8 to 9) from your local public and private high schools with strong leadership potentials.

It will also be appreciated if you or your representative could give the Welcome Remarks during the first day of the ToT, June 27, and during the first day of the EcoCamp, June 29. We would also like to invite _____ (DRRMO or MPDC) to give a lecture about the profile of the municipality and its DRRM programmes during the first day of the EcoCamp.

On the second day, June 30, the EcoCamp participants will be conducting a field activity entitled "Disaster Town Watching". In this connection, we would like to request if you could provide vehicles to transport the Eco-Campers to the most disaster prone Barangay in the municipality and back to the venue. We would also appreciate it if you can provide us a copy of the maps of the most disaster prone Barangay in the municipality, which will be used for the said activity. Lastly, we would like to ask for your assistance in finding a suitable venue for the event. We will be informing you of the progress of this activity and we hope that you will extend to us your support.

Attached are the Activity Design, Brochure, and Program for your perusal. Should you have questions or clarifications, you may contact us at (02) 637-2409 or (0936)-935-3363. You may also email us at wetlands@psdn.org.ph/wetlands or amy_lecciones@yahoo.com. Thank you and we look forward to your support to this project.

Sincerely yours,

Amy M. Lecciones

Vice-President and Executive Officer

Sample Letters – Student Waiver

Youth-in-Action for Disaster Risk Preparedness and Reduction:
Resilience and Adaptation Strategies by the Youth
Youth Ecological Camp
Emilio's Farm and Resort, Balete, Batangas
9-11 March 2016

PERMISSION SLIP AND WAIVER FORM

I am allowing my son/daughter/ward, _____, to participate in the Youth Ecological Camp on 9-11 March 2016 at Emilio's Farm and Resort, Balete, Batangas. I understand that she/he will join all the associated activities including the field trips in the course curriculum in order to fully appreciate the intent of the Ecological Camp. I certify that she/he does not have any medical condition that would prevent his/her participation in this activity.

In this connection, I am releasing the organizer (Society for the Conservation of Philippine Wetlands, Inc.) from any liability that may result from my daughter's/son's/ ward's participation in the activities which results from causes beyond the control of, or without the fault or negligence of the organizer or its staff/officers.

I am signing this Agreement on behalf of a minor Participant. I acknowledge that I am the Guardian/Parent of the Participant and that I understand the terms of this Agreement.

_____	_____	_____
Name of Legal Guardian and/or Parent of Participant	*Signature of Legal Guardian and/or Parent of Participant*	*Date*
_____	_____	_____
Name of Student/Participant	*Signature of Student/Participant*	*Date*

PROFILE OF PARTICIPANT

Name of Participant: _____

Nickname: _____ Birthday: _____

Age: _____ Gender: _____

Address: _____

_____

Contact No.: Landline: _____ Mobile: _____

Email Address: _____

Name of School: _____ Year Level: _____

Organisation/s: (If any) _____

Sample Letters – Certificates

The United Nations World Food Programme
Disaster Preparedness and Response/Climate Change Adaptation (DPR/CCA) Programme
awards this

Certificate of Participation

to

_____

for participating in the

Ecological Camp for the Youth of Balete
Youth-In-Action for Disaster Risk Preparedness and Reduction:
Resilience and Adaptation Strategies by the Youth
held on 09- 11 March 2016
in Emilio's Farm and Resort in Balete, Batangas.

AMY M. LECCIONES
Executive Officer
Society for the Conservation of Philippine Wetlands, Inc.

The United Nations World Food Programme
Disaster Preparedness and Response/Climate Change Adaptation (DPR/CCA) Programme
awards this

Certificate of Completion

to

_____

for completing the

Training of Trainers
for the Conduct of Youth Ecological Camp
Youth-In-Action for Disaster Risk Preparedness and Reduction:
Resilience and Adaptation Strategies by the Youth
held on 27 June 2016 to 01 July 2016 at JDM Transient and Restaurant in Tingloy, Batangas.

Amy M. Lecciones
Project Coordinator
Society for the Conservation of Philippine Wetlands, Inc.

Candido A. Cabrido, Jr.
President
Society for the Conservation of Philippine Wetlands, Inc.

Annex D

All materials in the Annexes are available in electronic format in the enclosed compact disc.

Annex D - Media and Collateral

- Banners
- Brochures
- Other Collateral

Activity Banners

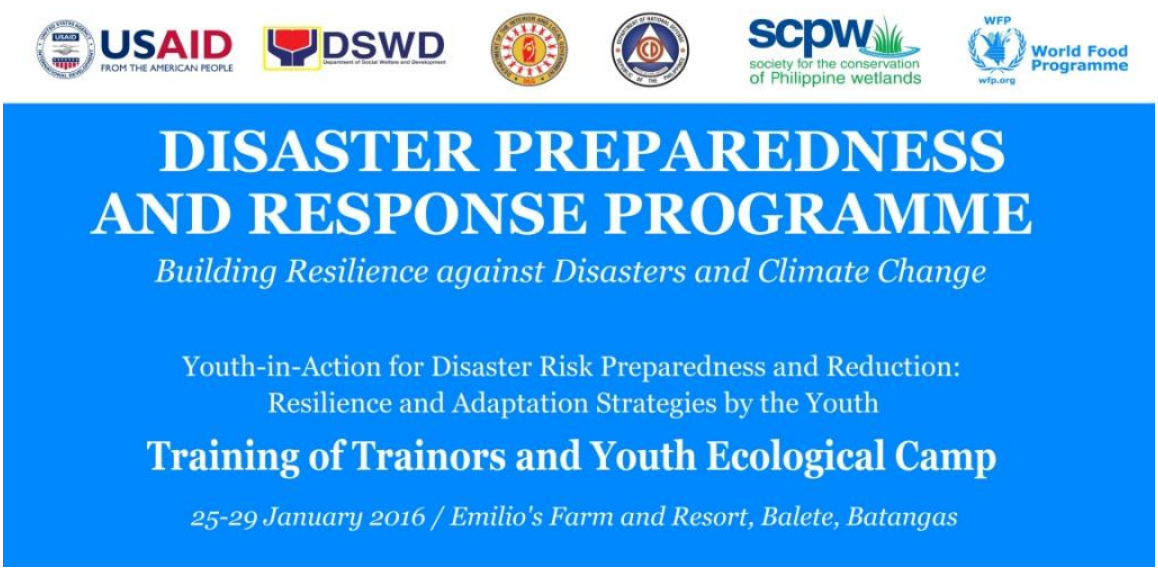

Figure 1. Sample banner design

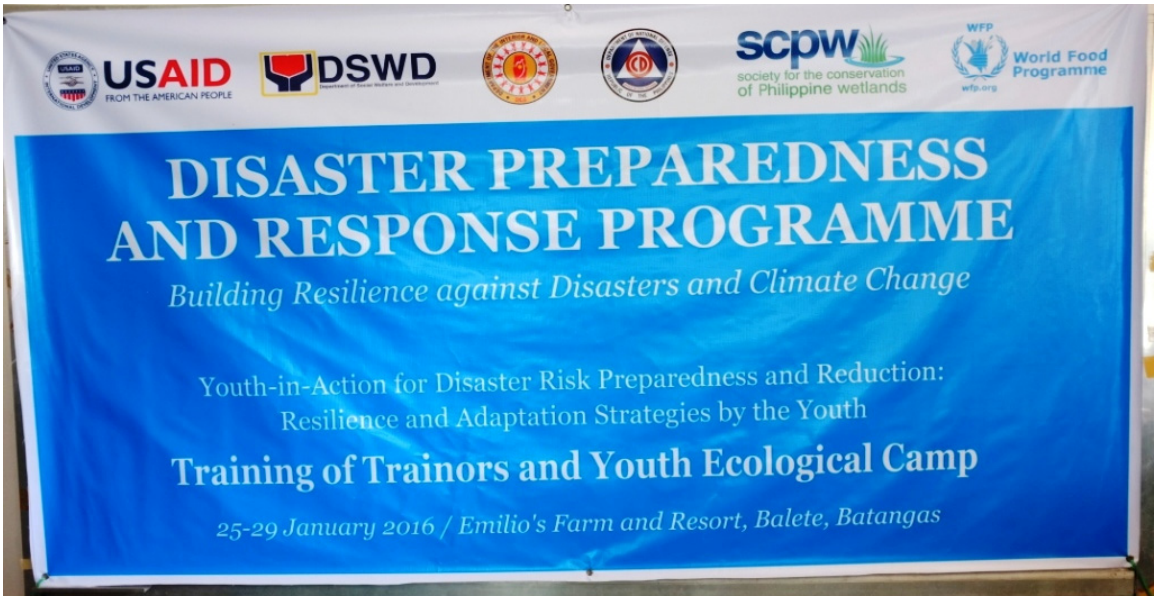

Plate 1. Actual banners displayed during the ToT and Youth Ecocamp

Plate 2. Actual banners displayed during the ToT and Youth Ecocamp

Project Brochures

INCEPTION MEETING

Provisional Programme

Registration, Refreshments, Meet and Greet

Presentation:

Project Brief of Youth-in-Action for Disaster Risk Preparedness and Reduction:
Resilience and Adaptation Strategies by the Youth

Open Forum/Adjournment

Lunch

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society for the conservation of Philippine wetlands

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Project Team

Amy M. Lecciones, Project Coordinator
Jose Carlo H. Quintos, Project Officer
Zenaida M. Ugat, Admin Officer
Darry Shel M. Estorba, Project Assistant
Shirley G. Cuevas, Admin Support

Contact Details

Unit 208 Grand Emerald Tower
F. Ortigas, Jr. Road corner Garnet Street
Ortigas Center, Pasig City
Telefax (63-2) 637-2409
wetlands@psdn.org.ph
www.psdn.org.ph/wetlands

DISASTER RISK PREPAREDNESS AND RESPONSE PROGRAMME

Building Resilience against Disasters and Climate Change

Youth-In-Action for Disaster Risk Preparedness and Reduction: Resilience and Adaptation Strategies by the Youth

USAID FROM THE AMERICAN PEOPLE | DSWD | scpw society for the conservation of Philippine wetlands | WFP World Food Programme

Our Goal ...

Disaster risks faced by the municipalities of Balete, Mataasnakahoy, and Tingloy, Batangas are reduced through increased community participation and youth involvement.

Objectives

- Create a venue where the provincial and municipal government can delegate DPR and CCA actions to the youth sector and to other actors at the community-level;
- Involve the local governments, schools or other actors in Batangas in effectively engaging the youth in CCA, DRR and other initiatives;
- Educate the youth on climate change and how this phenomenon may affect the province of Batangas, specifically the aforementioned municipalities and their wetlands, and how these problems can be avoided/mitigated;
- Empower the youth to take a more active role in disaster risk reduction and climate change adaptation.

Beneficiaries

The project employs transparent, inclusive, multi-sectoral and participatory approaches and will focus on the youth as the direct beneficiaries, with latent beneficiaries extending to the families, schools, and the Local Government Units.

Project Sites

The project is implemented through the WFP Disaster Preparedness and Response Programme in three (3) municipalities namely, Balete, Mataasnakahoy, and Tingloy in the province of Batangas.

Components and Activities

Component 1
Team mobilization
and other preparatory activities

Component 2
Production of Replication Package for the Project

Component 3
Conduct of the Training of Trainors (ToT)

Component 4
Conduct of the Youth Ecological Camp

Component 5
Implementation
of Pilot Projects/Activities

Component 6
Attendance of Selected Campers to the 2016 CLEAR Youth Congress

Plate 1. Sample project brochures (back-to-back)

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Telefax (63-2) 637-2409
wetlands@psdn.org.ph
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DISASTER PREPAREDNESS AND RESPONSE PROGRAMME

Building Resilience against Disasters and Climate Change

Youth-in-Action for Disaster Risk Preparedness and Reduction: *Resilience and Adaptation Strategies by the Youth*

Training of Trainors

The purpose of conducting the Training of Trainors (ToT) is to ensure that the youth will continuously have a pool of trainors who can pass on the learnings to other sectors of the community and to develop the skills of people and institutions in engaging youth towards actions and initiatives relevant to DRR and CCAM in the project sites.

These new trainors are then involved in the actual implementation of a youth camp.

Further, with the guidance and the experience they get from the ToT and the Youth Camp itself, they can already organize and hold similar Youth Eco-Camps in the future for other schools in the province.

Training of Trainors

PROVISIONAL PROGRAMME

	Day 1
8:00 – 9:00	Registration
9:00 – 9:30	***Opening Ceremonies***
	Invocation
	National Anthem
	Welcome Remarks
	Opening Remarks
	Messages
	Photo Opportunity
9:30 – 11:00	***Opening Preliminaries***
	Getting to Know Each Other
	Levelling Off
	Presentation: The Wetlands Caravan
	- Youth Ecological Camp of the SCPW/CLEAR
	- Community Forum
	- Wetland Watch Projects
11:00 – 12:00	Module 1: ***Learning Sessions***
	- Basic Ecological Principles
12:00 – 1:30	Lunch Break and Check-in
1:30 – 3:00	Module 1 (Con't): ***Learning Sessions***
	- Wetlands, Functions and Services
	- Climate Change 101
3:00 – 3:30	PM Break
3:30 – 4:30	Con't of Module 1: Community-Based Disaster Risk Reduction Management Concepts
4:30 – 5:30	Module 2: ***Making Learning for the Youth a Fun and Exciting Experience***
	- communication techniques
	- communication with a focus on visitor centres
5:30 – 7:00	Free Time and Dinner

	Day 2
7:00	Breakfast
8:00	Recap of Day 1 and Group Dynamics
8:30 – 10:00	Module 3: ***Experiential Learning Concept and Tools***
	- Youth Ecological Camp
	- Field Exposure Visits
	- School/Community Projects
	- Design Competition for Wetland Centers
	- Viaje Kalikasan
10:00 – 10:30	Morning Break
10:30 - 12:00	Module 4: ***Keeping the Interest of the Youth while Learning***
	- Group Dynamics
	- Ecological Games, etc.
12:00 – 1:00	Lunch Break
1:00-3:00	Module 5: ***Tools and Methods for Participatory Planning***
	Visioning Exercise
	Action Planning
	Conducting a Community forum
	Disaster Town Watching
	Community Mapping Exercises
3:00 – 3:30	PM Break
3:30 – 5:00	Con't of Module 5 (Workshops and Reporting)
5:00 – 6:00	Briefing for the Eco-Camp
6:00 – 7:00	Free Time and Dinner

Plate 2. Sample ToT brochure (back-to-back)

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DISASTER PREPAREDNESS AND RESPONSE PROGRAMME

Building Resilience against Disasters and Climate Change

Youth-in-Action for Disaster Risk Preparedness and Reduction:
Resilience and Adaptation Strategies by the Youth

Youth Ecological Camp

The project involves the conduct of Youth Ecological Camps among high school students through an experiential curriculum that focuses on wetland conservation and disaster risk preparedness and reduction. The Youth Eco-Camp is conducted for three days following a curriculum consisting of lectures, workshops, and experiential learning through field visits/trips, that was already pre-tested in the Laguna de Bay area as well as in other lake regions in the Philippines. The output of the youth camp is an action plan designed to help address Climate Change Mitigation and Adaptation and Disaster Risk Reduction and Preparedness issues in the area.

Youth Ecological Camp

PROVISIONAL PROGRAMME

Day 1

9:00 AM	Arrival at the Campsite
	Registration
	Refreshments / AM Snacks
9:00	Opening Ceremonies
	- Invocation
	- National Anthem
	- Welcome Remarks
	- Opening Remarks
	- Messages
	Group Photo
10:30	Team Building – Getting to Know You (Human Bingo)
11:00	What the Eco-Camp is All About
11:30	Lecture 1: Environmental Profile of the Municipality
12:00	Lunch / Check-in
Afternoon Session	
1:00	AVP – Conserving Our Wetlands
1:30	Lecture 2: The Seven Environmental Principles
2:15	PM Snacks
2:30	GROUP ACTIVITY:
	Ako, ang Aking Kapaligiran at ang Aking Komunidad
3:00	DISCOVERY SESSION: Wetlands in the Municipality
4:00	LECTURE 3: Climate Change 101
5:00	LECTURE 4: Disaster Risk Reduction and Management
6:00	Orientation for the Field Visit and DRRM Activity
7:00	Dinner
8:00	Bonding Session
10:00	Lights Out

Day 2

6:00 AM	Rise and Shine
7:30	Breakfast
8:00	Start of Session
	Recap of Day 1
	AM Snack (Takeout)
8:30	Field Trip
	- Field Observation and DRRM Activity: Disaster Town Watching
11:00	Travel Back to Campsite
12:00	Lunch
Afternoon Session	
1:30	Processing, Analysis and Presentation of Data
3:00	Visioning/Action Planning Workshop
5:00	Freshen-up and Prepare for Talents' Night
7:00	Dinner
8:00	Talents Night
11:00	Lights Out

Day 3

6:30 AM	Rise and Shine
7:30	Breakfast
8:30	Visioning/Action Planning Workshop
9:30	AM Snacks
10:00	Presentation of Outputs/Sharing of Experiences
11:00	Closing Program
	Turn-over of Action Plans and Commitments:
	Awarding of Certificates and Tokens
	Commitment Setting
	Awarding of Special Awards and Group Prizes
	Closing Remarks
12:30	Lunch / Homeward Bound

Plate 3. Sample Youth Ecological Camp brochure (back-to-back)

Other Collaterals

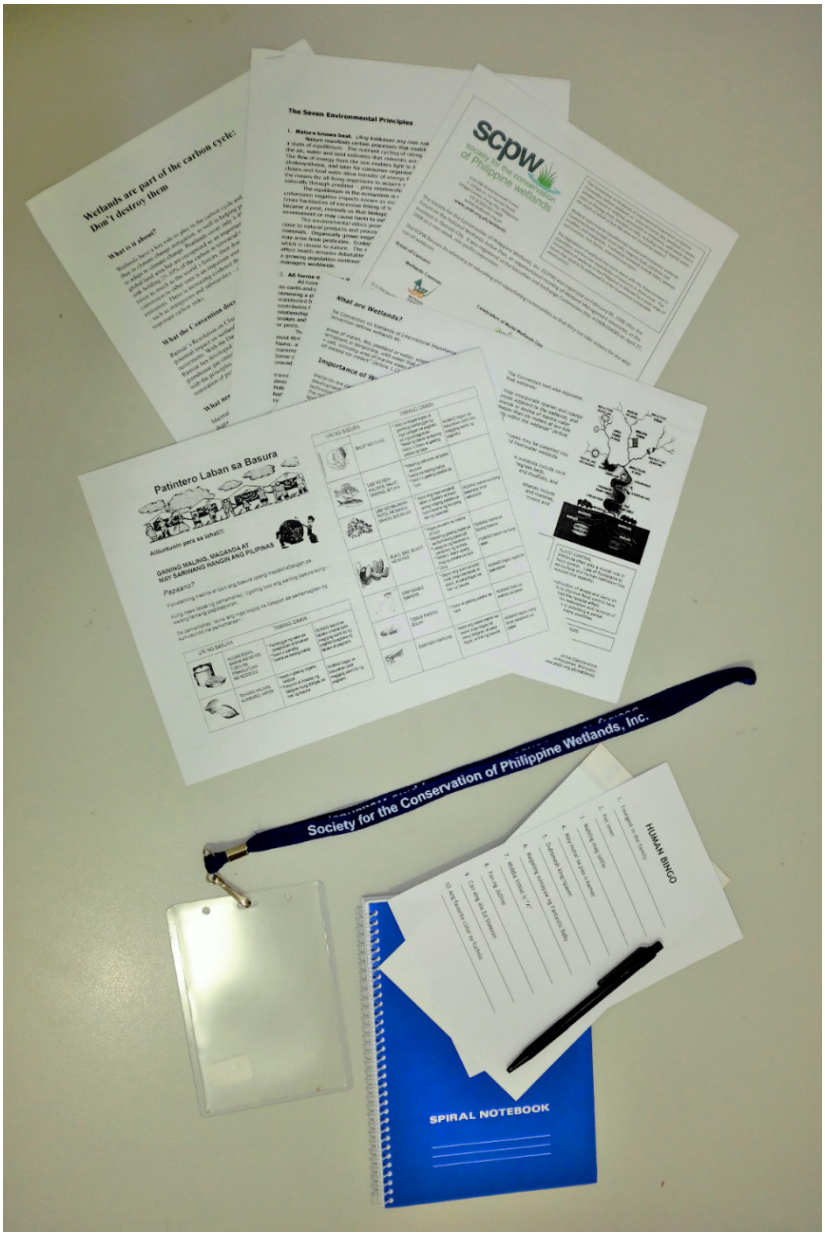

Plate 1. Content of Youth Eco-Camp Kits

Plate 2. Other Collateral (orange life vest, blue kit bag, white Eco-Camp t-shirt)

Annex E

All materials in the Annexes are available in electronic format in the enclosed compact disc.

Annex E - Supplies

- Equipment and Kits

Equipment, Kits and other Items for Eco-Camp

A. Participants
    1. Kit
        a. Envelope with Eco-Camp logo
        b. Pens
        c. Reference
            - Welcome Letter
            - Camp Rules
            - Profile of the organizer/s
            - Profile of the Municipality/City
            - 'Seven Environmental Principles'
            - 'What are Wetlands?'
            - Profile of major wetland in the city/municipality
            - Wetland Water Quality Monitoring
            - 'Solid Waste Management'
            - Eco-Camp Provisional Programme
            -
    2. T-shirt (optional)

    3. Identification
        a. ID Jackets
        b. ID Laces
        c. ID
B. Registration
    1. Registration Forms (for Day 1)
    2. Attendance Sheets (for succeeding days)
    3. pens
B. Field Exposure Activity
    1. Life vests (when there is a visit of wetland)
    2. Hats
    3. drinking water
    4. packed snacks (optional)
C. Workshop
    1. Markers
    2. Manila papers
    3. Crayons

D. Certificates

1. Certificate of Appreciation for the Municipal/City Government
2. Certificate of Appreciation for the (Municipal/City Planning) coordinator assigned by the local government for the activity
3. Certificate of Participation for the teachers/chaperon
4. Certificate of Participation for the Eco-Campers

Sample designs of the Certificates are in Annex C.

E. Prizes

Talents' Night

a. Best Group Performance
b. Best Performer (male and female)
c. Batang EcoCamp
d. other categories (optional)

F. Equipment

1. Camera for photo-documentation
2. Computer and LCD projector for the presentation of resource speakers
3. loud speaker or mini PA amplifier for the field lectures/instructions
4. printer (optional)
5. flashlight

G. Others

1. Papers for ID and Certificate
2. Materials for the lecture on the 'Interrelationship of Human Activities with the Quality of the Environment'
3. Batteries
   a. Loud speaker
   b. Flashlight
   c. Camera
4. Ink
   a. Black
   b. Colored
5. Streamers/Banners
   a. 1 pc. inside the function room
   b. 1 pc. outside the venue
   c. String/pins for the streamers

Sample designs for banners are in Annex D

7. Medical Supplies
    a. first-aid kit
    b. medical adhesive tape
    c. alcohol
    d. cotton
    e. (over-the-counter) medicines
8. Supplies
    a. pair of scissors
    b. Masking tape
    c. Scotch tape
    d. Glue
    e. colored paper
    d. bond paper

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Youth EcoCamp Training Manual

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How to cite this training manual:

The Society for the Conservation of Philippine Wetlands, Inc 2016, Youth EcoCamp Training Manual - A guide for conducting the SCPW Ecological Camps, Society for the Conservation of Philippine Wetlands, Inc., Pasig City, Philippines.

WFP wfp.org World Food Programme

scpw society for the conservation of Philippine wetlands

Published in Ortigas Center, Pasig City, Philippines