Serve Our Planet:

A Supplementary Teaching Material on Sustainable Dining for Food Service Industry Tertiary Courses

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Published in the Philippines in 2021 by Kabang Kalikasan ng Pilipinas Foundation, Inc.

ISBN 978-621-95538-3-4

The Serve Our Planet Technical Working Group: UPLB Humein, Inc. and WWF Philippines' The Sustainable Diner Project.

This publication of The Sustainable Diner project is under Kabang Kalikasan ng Pilipinas Foundation, Inc. or WWF Philippines' Sustainable Consumption and Production. This was made possible through the support of The Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU) and the Human Ecology Institute Inc. (HUMEIN).

WWF-Philippines has been working as a national organization of the WWF network since 1997. As the 26th national organization in the network, WWF-Philippines has successfully been implementing various conservation projects to help protect some of the most biologically significant ecosystems in Asia.

WWF-Philippines works to improve Filipino lives by crafting solutions to climate change, providing sustainable livelihood programs, and conserving the country’s richest marine and land habitats.

Suggested Citation:

WWF-Philippines. 2021. WWF-Philippines. The Sustainable Diner: A Key Ingredient for Sustainable Tourism. Serve Our Planet: A Supplementary Teaching Material on Sustainable Dining for Food Service Industry Tertiary Courses.

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Acknowledgements

The development of this publication was supported by:

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

based on a decision of the German Bundestag

Sincere thanks to:

- To the German Environmental Ministry through their international Climate Initiative for their generous support to The Sustainable Diner Project of WWF-Philippines;
- To the contributors and pilot testers from Trinity University Asia (TUA), Polytechnic University of the Philippines (PUP), Olivarez College-Tagaytay Campus (OCT), University of San Carlos (USC), and Cebu Technological University-Main Campus (CTU).

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PREFACE

Knowledge of the environment and food sustainability is deemed important among food service practitioners and professionals since they are the front line and back office of the food service industry. They must be equipped with knowledge and skills on sustainable dining and food preparation practices that can be applied and integrated into the workplace and day to day operations. Unfortunately, research shows that professionals particularly in hospitality management are less interested in environment issues. To address this concern and to promote Sustainable Consumption and Production (SCP) in the Philippines, the World Wide Fund for Nature Philippines (WWF-PH) commissioned some faculty members of the University of the Philippines Los Baños to develop the **Supplementary Teaching Manual on Environmental Sustainability and Sustainable Dining.** The collaborative project was designed to contribute to the Philippines' capacities for integrating and making better use of SCP principles in national policies, private businesses and civil society as a means for living up to the national climate strategies. This manual is designed to hopefully fill in the gap on environmental sustainability and food in the existing curricula at the tertiary level. This will also serve as a good opportunity to train both the educators and students with the knowledge, skills, and motivation to lead the society in a more sustainable path. Furthermore, it will also aid in instilling sustainable dining practices among food service and food-related practitioners.

The manual has four (4) modules. The first module covers the definition, principles, guidelines, policies and acceptable practices on environmental sustainability and sustainable dining. The second module is the heart of the manual which entails actions that promote environmental sustainability and sustainable dining. While Module 3 contains the application of research in environmental sustainability and sustainable dining, Module 4 includes strategies to promote the concepts among different audiences. Lastly, the Annex provides the processes and guidelines on integrating environmental sustainability and sustainable dining in the tertiary curriculum.

Supplementary Course Syllabus

Environmental Sustainability and Sustainable Dining

I. Course Description

This course covers concepts and principles on sustainable food systems, environmental sustainability, and sustainable dining. It highlights the application of sustainable dining principles from food establishment operations to everyday living including menu planning, purchasing, meal preparation, consumption, and resource management. This course is also designed to further the knowledge and skills in research and promotion of environmental sustainability and sustainable dining. The modules can be used separately and incorporated in hospitality, tourism, and other related courses as a supplementary learning resource.

II. Course Outline

Module 1. Understanding Sustainable Food Systems, Environmental Sustainability and Sustainable Dining

Learning Outcomes:

1. Define sustainable food systems, environmental sustainability and sustainable dining and their interrelationships;
2. Discuss the guiding principles of sustainable food systems, environmental sustainability, and sustainable dining; and
3. Explain policies and practices that promote sustainable food systems, environmental sustainability and sustainable dining.

Module 2. Embracing Sustainable Dining

Learning Outcomes:

1. Plan a regional menu according to sustainable dining principles;
2. Discuss cost-effective means for sustainable purchasing;
3. Describe ways on how to manage resources in the context of sustainable dining;
4. Develop sustainable water and waste management systems for the establishment; and
5. Commit to practicing sustainable dining regularly.

Module 3. Research and Promotion of Sustainable Dining

Learning Outcomes:

1. Identify possible researches on sustainable dining; and
2. Implement activities that promote sustainable dining.

Module	Topics	Learning Outcomes	Teaching Learning Activities	Assessment Methods
1	1.1. Concepts and Principles of Sustainable Food Systems, Environmental Sustainability and Sustainable Dining	Appreciate and understand the concepts and principles related to sustainable food systems, environmental sustainability, and sustainable dining	**Listen:** Lecture-discussion on "Understanding Sustainable Food Systems, Environmental Sustainability, and Sustainable Dining" **Reflect:** Am I a sustainable diner?	**Respond:** ♦ Answer the checklist on sustainable dining ♦ Develop a Reflection paper/ Commitment statement/ action points to uphold environmental sustainability.
	1.2. Policies and practices that promote Sustainable Food Systems, Environmental Sustainabi-lity and Sustainable Dining		**Listen:** Lecture-discussion on policies and practices that promote sustainable food systems, environmental sustainability and sustainable dining. **Reflect:** Do I understand the laws related to environmental sustainability and sustainable dining?	**Respond:** Identify difficulties or problems related to the implementation of laws on environmental sustainability and sustainable dining.

Module	Topics	Learning Outcomes	Teaching Learning Activities	Assessment Methods
2	2.1. Planning the menu	Develop a regional menu following the principles of sustainable dining	**Listen:** Lecture-discussion on concepts in sustainable dining. **Reflect:** How can I apply the principles of sustainable dining in developing menus at home? In a food and/ or a food-related establishment?	**Respond:** Create a regional menu for the household or for a food and/or a food-related establishment.
	2.2. Choosing the resources and ingredients	♦ Explain the environmen-tal, economic, and health impacts of different consumer food purchases and practices; and ♦ Apply cost-effective means for sustainable purchasing.	**Listen:** Lecture-discussion on the importance and factors that need to be considered when choosing resources and ingredients **Reflect:** How do I choose the resources and ingredients according to sustainable dining principles? How can I support local producers?	**Respond:** Get to know local suppliers through market visits and/ or online or phone interviews with key persons, e.g., suppliers, managers, restaurant owners

Module	Topics	Learning Outcomes	Teaching Learning Activities	Assessment Methods
2	2.3. Managing Resources	Develop ways on how to manage resources in the context of sustainable dining.	**Listen:** Lecture-discussion on managing resources such as energy and water. Introduce the cost-benefit monitoring tool. **Reflect:** How can I help conserve resources such as energy and water?	**Respond:** List all equipment by workstation, or based on what is available in food laboratories, with energy and water requirements
	2.4. Managing Waste	Develop a sustainable waste management system for the establishment	**Listen:** Lecture-discussion on strategies in managing waste **Reflect:** How can I minimize food and food-related waste at home?	**Respond:** Create a waste management system based on sustainable dining principles
	2.5. Adopting Sustainable Dining as a Way of Life	Develop a personal statement of commitment and establishment policy on sustainable dining; and	**Listen:** Lecture-discussion on recommended approaches, solutions, and promotions to sustainable dining	**Respond:** Create a personal statement of commitment and an establishment policy on sustainable dining; and

Module	Topics	Learning Outcomes	Teaching Learning Activities	Assessment Methods
		Apply sustainable dining practices regularly.	**Reflect:** Am I ready to practice sustainable dining? How can I be more sustainable?	Document day-to-day activities to showcase applied sustainable dining principles and to suggest for improvement.
3	Conducting research on sustainable dining	Do research and implement activities that promote sustainable dining.	**Read:** Resource materials provided including the uploaded PowerPoint presentation **Reflect:** What are the essential elements and requirements in developing a research proposal?	**Respond:** Develop a research proposal to promote sustainable dining
4	Promoting sustainable dining	Identify strategies on how to promote sustainable dining	**Read:** Resource materials provided including the uploaded PowerPoint presentation **Reflect:** What are the essential elements and requirements in developing an extension proposal?	**Respond:** Develop a proposal of activities to promote sustainable dining

MODULE 01

UNDERSTANDING SUSTAINABLE FOOD SYSTEMS, ENVIRONMENTAL SUSTAINABILITY & SUSTAINABLE DINING

This module covers key terminologies, concepts and principles on sustainable food systems, environmental sustainability, and sustainable dining. Knowledge on these concepts will help the students understand the importance of integrating concepts of sustainability into the curriculum. It is expected that after this module, students will have a common understanding on the concepts and principles of Sustainable Food Systems, Environmental Sustainability and Sustainable dining.

This module has the following sessions:

Topic 1.1. Concepts and Principles of Sustainable Food Systems, Environmental Sustainability and Sustainable Dining

Topic 1.2. Policies and practices that promote Sustainable Food Systems, Environmental Sustainability and Sustainable Dining

DURATION: 45 minutes per topic, 1.5 hours for the entire module.

LEARNING OBJECTIVES

At the end of the session, the students should be able to:

1. Define sustainable food systems, environmental sustainability and sustainable dining and their interrelationships;
2. Discuss the guiding principles of sustainable food systems, environmental sustainability, and sustainable dining; and
3. Explain policies and practices that promote sustainable food systems, environmental sustainability and sustainable dining.

COMPETENCIES TO BE DEVELOPED

The students should be able to develop appreciation and understanding of basic terminologies, principles, policies, and practices relevant to sustainable food systems, environmental sustainability, and sustainable dining.

TOPIC INPUTS AND REFLECTIONS FOR STUDENTS

What is sustainable food systems, environmental sustainability, and sustainable dining?

MATERIALS

- Soft copy of PowerPoint Presentation
- Handouts on Sustainable Food Systems, Environmental Sustainability, Sustainable Dining

PREPARATORY ACTIVITIES FOR THE FACULTY

- Review this guide for a detailed instruction of activities.
- Prepare and upload the PowerPoint/Slide presentation in the course site.
- Review the quiz for this module.

METHODOLOGY

- Lecture-Discussion
- Quiz: Food Print Quiz
- Individual Activity

PROCESS

1. Discuss using the PowerPoint presentation.
2. Start lecture-discussion per topic using the PowerPoint presentations.
3. Assess student's learning through a quiz and/or reflection paper.

EXPECTED OUTPUTS

- Individual reflection paper
- Accomplished quiz

Topic 1.1. Concepts and Principles of Sustainable Food Systems, Environmental Sustainability and Sustainable Dining

Duration

45 minutes

Learning Objectives

At the end of this topic, the students should be able to define sustainable food systems, environmental sustainability, and sustainable dining and their interrelationship.

Topic Inputs and Reflections

1. What is a sustainable food system?
2. What is sustainable dining and environmental sustainability?

Materials

1. PowerPoint Slide Deck for Topic 1.1
2. Link for the Food Quiz: https://foodprint.org/quiz

Preparatory Activities

- Prepare and review the slide deck.
- Read the discussion on environmental sustainability and sustainable dining.
- Prepare "Am I a Sustainable Diner?" form.
- Instruct the students to:
    1. **Listen**: to the lecture on "Understanding Sustainable Food Systems, Environmental Sustainability, and Sustainable Dining."
    2. **Reflect**: "Am I a Sustainable Diner?" by answering this form.
    3. **Respond**: Develop a Reflection paper/Commitment statement/ action points to uphold environmental sustainability. Answer the question: How should I uphold environmental sustainability in my everyday life?

Methodology

1. Lecture-Discussion
2. Answer “Am I a Sustainable Diner?” form.
3. Develop a reflection paper/commitment statement/action points.

Process

1. **Lecture-Discussion**: The faculty-in-charge will discuss concepts on sustainable food systems, environmental sustainability, and sustainable dining.
2. **“Am I a Sustainable Diner?” Form:** The faculty-in-charge will provide a copy of the form to the students. The students, on the other hand, should accomplish the form.
3. **Reflection Paper:** The faculty-in-charge will instruct the students to make a reflection paper, commitment statement, and/or action points regarding the topic discussed.

1. AM I A SUSTAINABLE DINER?

Evaluate yourself on how frequently you apply the following sustainable practices. Check the cell that best corresponds to your answer.

PRACTICES	Always	Sometimes	Never	Do not know	Not applicable. Why?
1. I use energy-efficient equipment in the kitchen.					
2. I use water-saving equipment and devices.					
3. I buy food and ingredients from local sources.					
4. I buy food and ingredients from sustainable sources.					
5. I buy food and ingredients that are in season.					

PRACTICES	Always	Sometimes	Never	Do not know	Not applicable. Why?
6. I share my excess food.					
7. I buy just enough food items and ingredients.					
8. I compost organic waste.					
9. I practice waste segregation.					
10. I avoid the use of single-use plastics.					
11. I prepare home-cooked meals.					
12. I eat more plant-based food.					
13. I reduce meat consumption.					
14. I eat left-over food first, if any.					
15. I prepare just enough food for the family.					
16. I track monthly energy usage.					
17. I track monthly water usage.					
18. I use water-efficient/saving equipment and devices.					
19. I adjust our menu to include seasonal food products.					
20. I grow some of our food.					
21. I patronize establishments that practice/promote sustainability.					
22. I promote sustainable production and consumption.					
23. I join the cause for actions towards sustainable production and consumption.					

2. IS MY FAMILY UPHOLDING SUSTAINABLE DINING PRINCIPLES?

Evaluate your family practices based on the following. Check the cell that best corresponds to your answer.

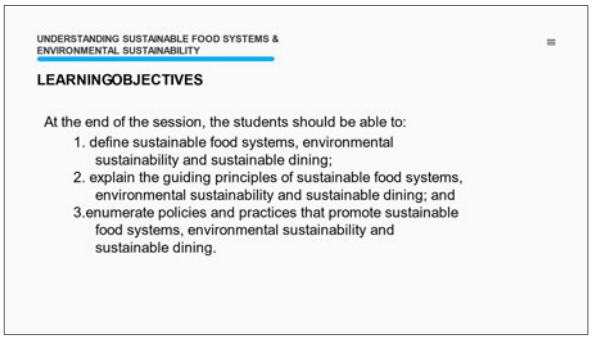
PRACTICES	Yes, already practicing	Trying	Not yet	Do not know
1. My family uses energy-efficient equipment in the kitchen.				
2. My family uses water-efficient/saving equipment and devices.				
3. My family buys food and ingredients from local sources.				
4. My family buys food and ingredients from sustainable sources.				
5. My family buys food and ingredients that are in season.				
6. My family buys just enough food items and ingredients.				
7. My family shares our excess food.				
8. My family composts organic waste.				
9. My family practices waste segregation.				
10 My family avoids the use of single-use plastics.				
11. My family prefers to prepare home-cooked meals.				
12. My family consumes more plant-based food.				
13. My family reduces meat consumption.				
14. My family prefers to eat left-over food first, if any.				
15. My family prepares just enough food for the family.				

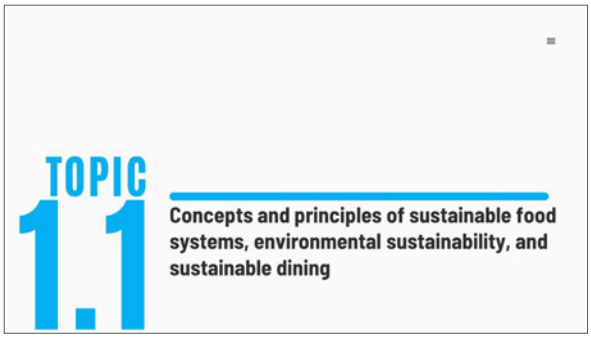
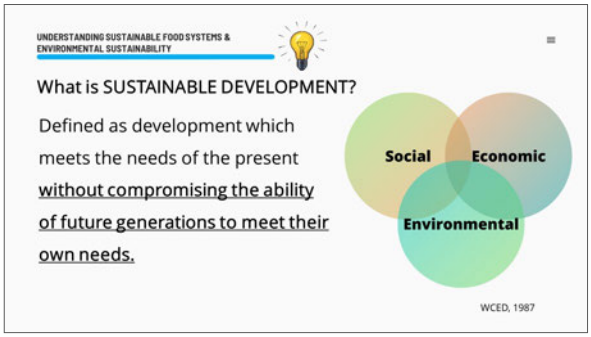
PRACTICES	Yes, already practicing	Trying	Not yet	Do not know
16. My family tracks monthly energy usage.				
17. My family tracks monthly water usage.				
18. My family adjusts our menu to include seasonal food products.				
19. My family grows some of our food.				
20. My family patronizes establishments that practice/promote sustainability.				
21. My family promotes sustainable production and consumption.				
22. My family joins the cause for actions towards sustainable production and consumption.				

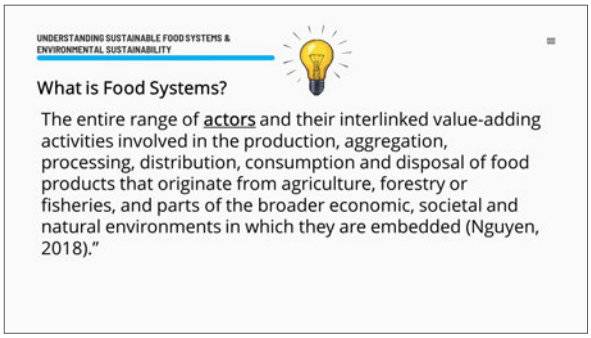
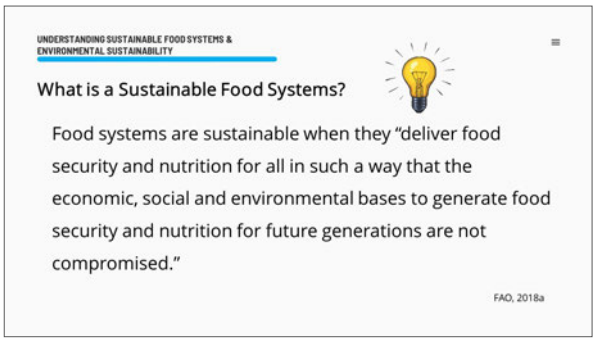
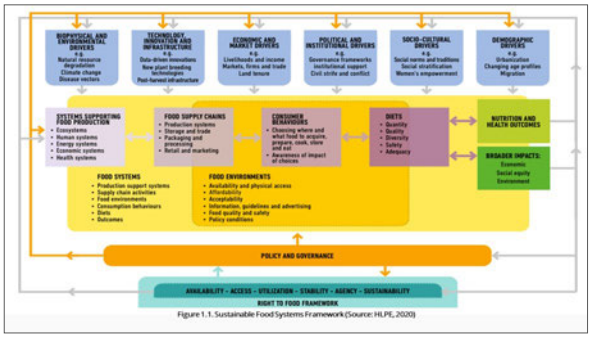
Expected Outputs

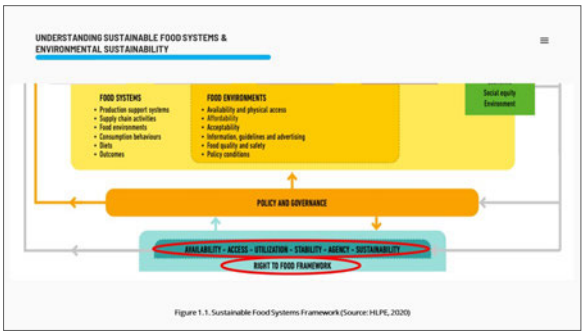
1. Accomplished “Am I a Sustainable Diner?” form
2. Accomplished Food Quiz
3. Individual reflection paper/commitment statement

PRESENTATION OF POWERPOINT SLIDES

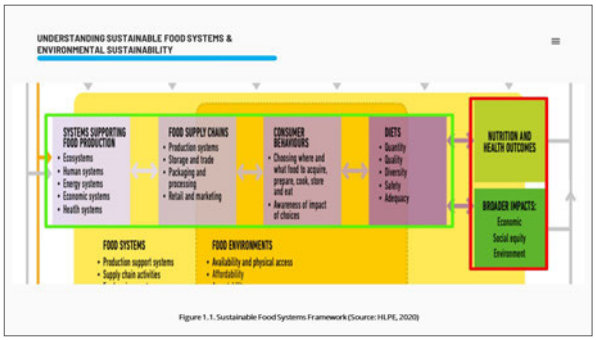
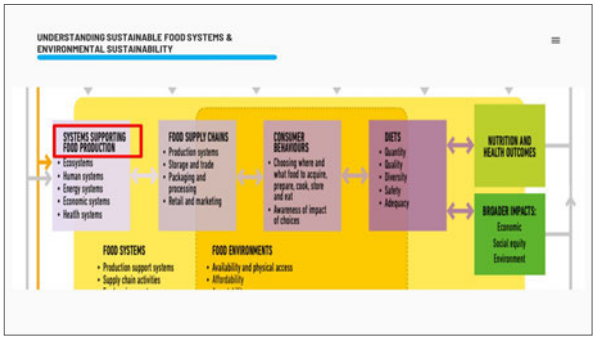
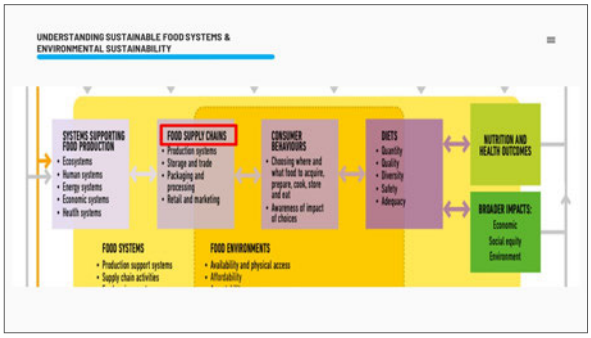
Slide #	PowerPoint Slide	Instructions
1		Introduce Module 1 by reading the title. State that this is the first of four modules for this Supplementary Teaching Manual for Faculty Members in Higher Education Institutions. Add that Module 1 is designed to present the concepts and principles of sustainable food systems, environmental sustainability, and sustainable dining. Inform the students that the purpose of this module is to have a common knowledge and understanding on these concepts.
2		Inform the students that Module 1 consists of two (2) topics. Read the titles of Topic 1 and Topic 2.
3		Read the three (3) learning objectives. Explain that these are expected learnings from the students as they go through and complete the session for Module 1. Add that at the end of Module 1, students can refer back to these objectives and check if they are able to achieve these targets.

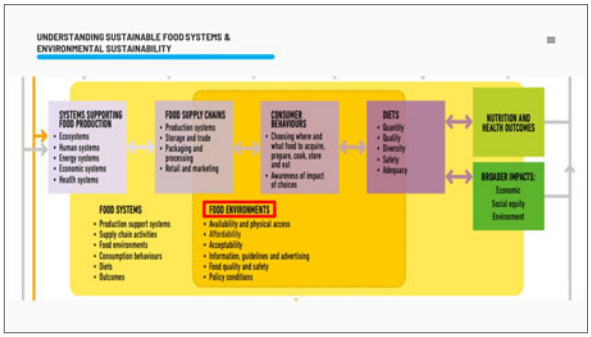
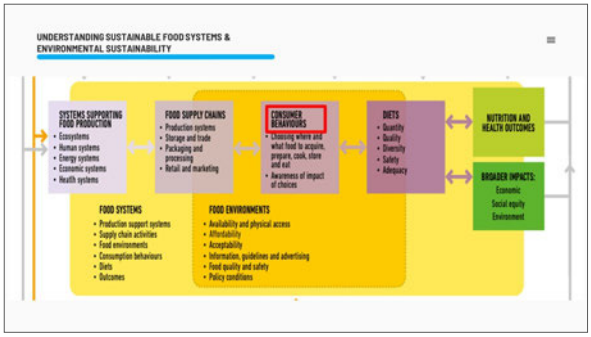
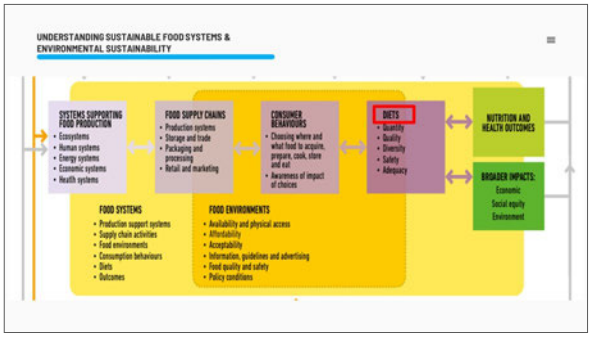
Slide #	PowerPoint Slide	Instructions
4		Proceed with stating the title of Topic 1.1. Emphasize that it defines the key terminologies that will help the students have a common understanding of food systems, environmental sustainability, and sustainable dining.
5		Introduce Topic 1.1 by defining sustainability. Elaborate that despite the many definitions given to the word “sustainable” or “sustainability”, it is consistent with the goal of preserving the environment as it is the only factor that is independent but is still related to the other aspects, such as social and economic sustainability, and is the resource needed to sustain humanity’s needs (Morelli, 2011).
6		Define sustainable development. Explain that the concept of sustainable development captures the following three (3) aspects of development namely: economic, environmental, and social (Harris, 2002).

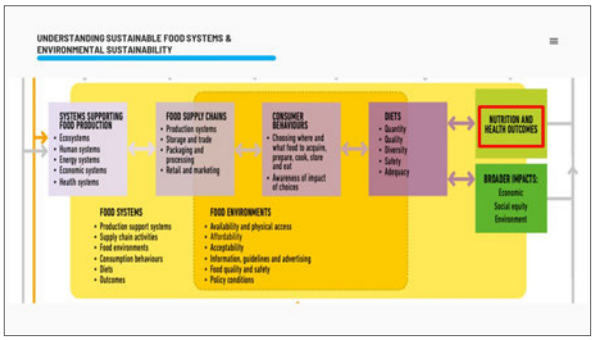
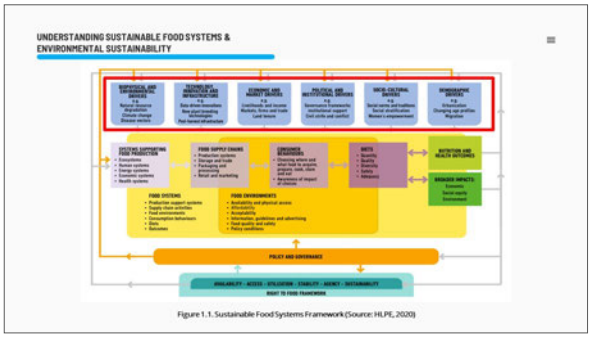
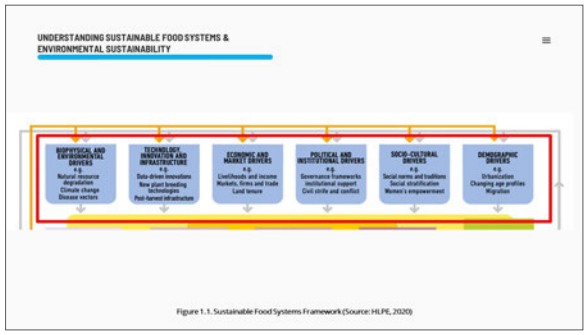
Slide #	PowerPoint Slide	Instructions
7		Present the definitions of Food Systems.
8		Present the definition of Sustainable Food Systems.
9	 Figure 1.1. Sustainable Food Systems Framework (Source: HLPE, 2020)	Show Figure 1 and state the Title: Sustainable Food Systems Framework. Inform the students that: "The food systems framework captures the complexity of the interrelationships of drivers of change at a broader scale with the functioning of food systems from production to consumption of food.".

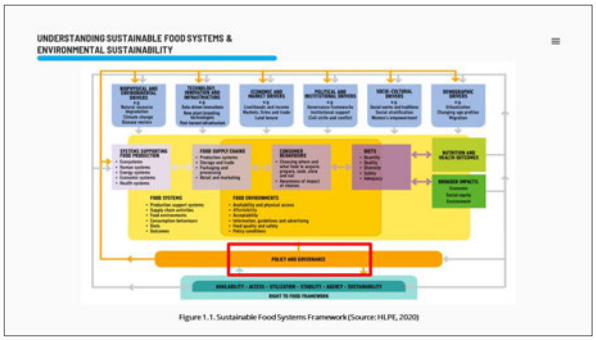
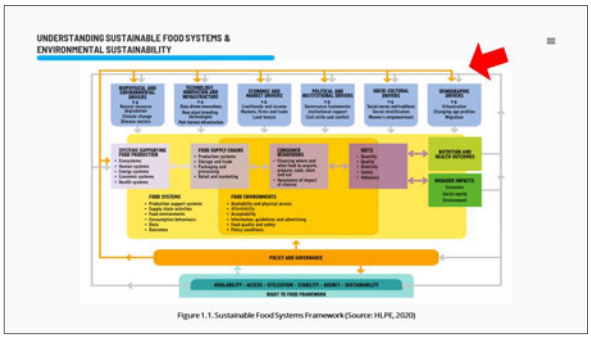
Slide #	PowerPoint Slide	Instructions
10		Emphasize that the sustainable food systems framework is underpinned or guided by the principle of right to food, also referred to as right to adequate food. Explain further that the framework supports the six (6) dimensions (availability, access, utilization, stability, agency and sustainability) of food security and nutrition which are necessary to realize the right to food and for meeting all Agenda 2030 goals, especially SDG 2.
11-12	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Right to Food as a Guiding Principle to Food Systems** Table 1.1. Description of International Declarations and Events Related on the Right to Adequate Food UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY	Show Table 1.1. Inform the students that the right to adequate food has been articulated in the following declarations or international events and serve as the legal basis for its adoption. Discuss the descriptions of each declaration/ international event.

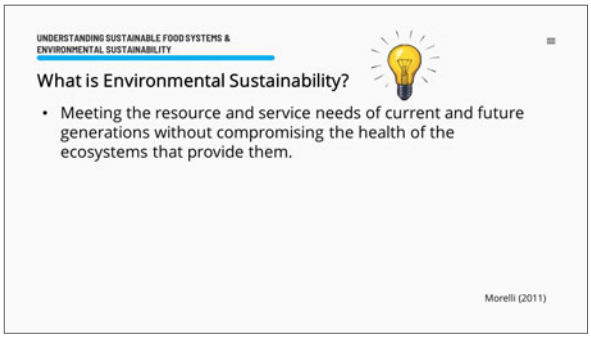
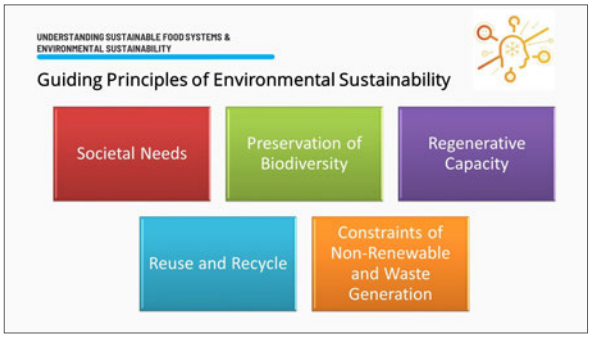
Declarations/International Events	Description
a. 1948 Universal Declaration of Human Rights	The right to adequate food is recognized as a fundamental human right to be upheld by states as duty bearers.
b.1966 International Covenant on Economic, Social and Cultural rights	States have the duty, obligation and responsibility to respect, protect and fulfill human rights, including the right to food.
c. 1996 Rome Declaration on World Food Security and adopted in the 1996 World Food Summit	Governments reaffirmed "the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger".
d. 2002 World Food Summit	Member governments of FAO-UN Council reaffirmed the right to food and requested that guidelines be developed on the right to food to support their realization.
e. 2004 Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security (also referred to as the Right to Food Guidelines)	Adopted unanimously by the FAO Council to encourage more states to realize this right in practice.

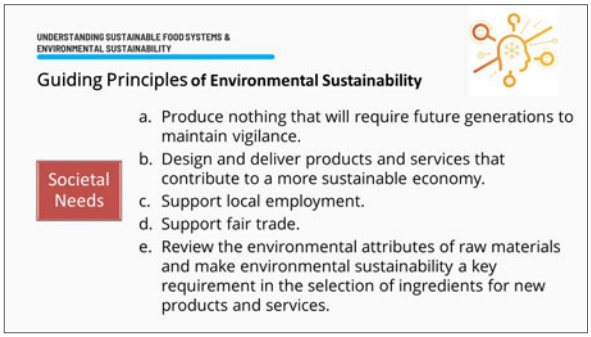
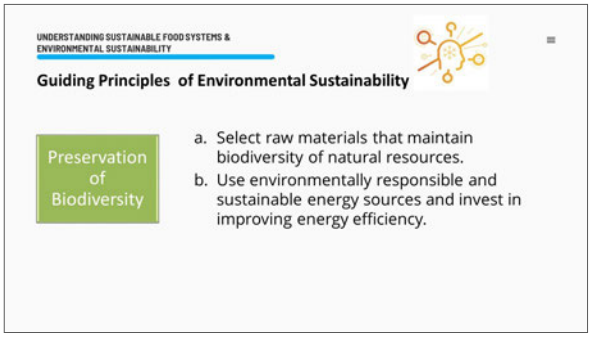
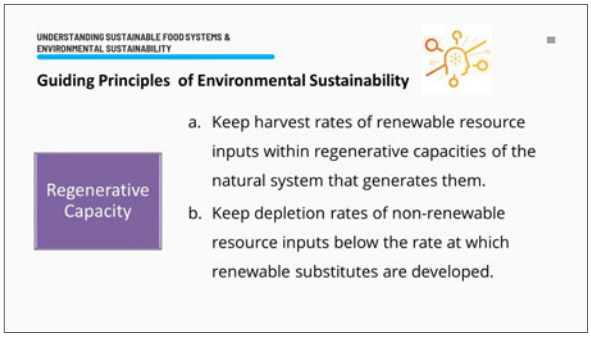
Slide #	PowerPoint Slide	Instructions
13		Introduce the Components and Key Features of the Framework. Explain that there is a complex relationship among the systems that support its components: food production, food supply chains, food environments, the behaviors of individual consumers, diets, and nutritional and wider outcomes that feedback into the system.
14		Discuss each component of the framework. Show Slide 14 and pinpoint the first component: Food Production. State that **Food Production** includes ecosystems, human systems, energy systems, economic systems and health systems, which provide essential inputs into the food systems.
15		Show Slide 15 and pinpoint the Second component: **Food Supply Chains.** Explain that it is also referred to as food production and distribution networks that includes all the stages and actors, including private sector businesses, from production to trade, processing, retail marketing, consumption and waste disposal.

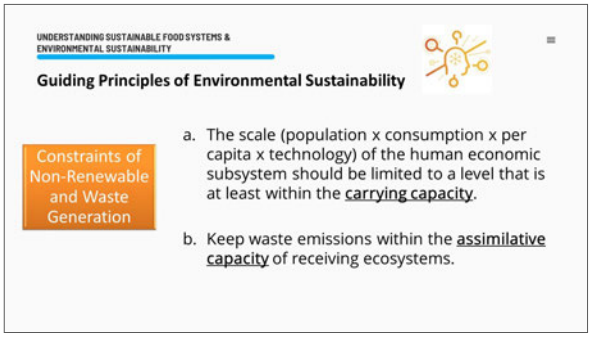
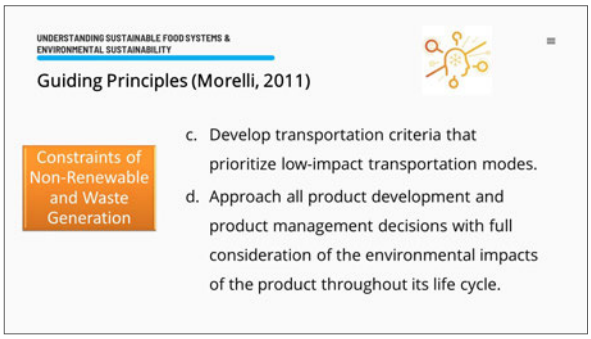
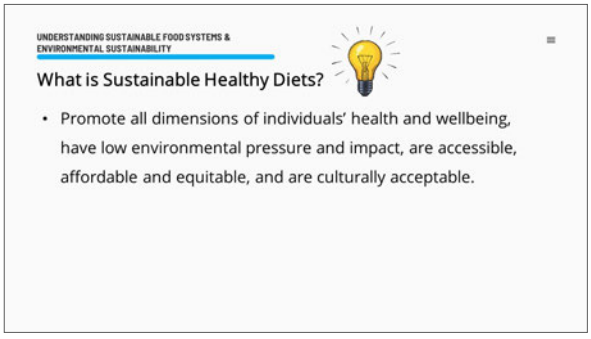
Slide #	PowerPoint Slide	Instructions
16		Show Slide 16 and pinpoint the Third component: Food Environments. Present that **Food environments** refers to the physical, economic, socio-cultural and policy conditions that shape accessibility, affordability, safety and food preferences.
17		Show Slide 17 and pinpoint the Fourth component: Consumer Behavior. Explain that **Consumer behavior** is a response to food environments and consists of individual awareness and decisions on where and what foods to acquire, prepare and eat. These decisions ultimately shape diets in terms of quantity, quality, diversity, safety and adequacy of food.
18		Show the slide 18 and pinpoint the Fifth component: **Diets.** Discuss that diets in turn shape outcomes that affect other systems, such as nutritional impacts within populations that affect health systems, as well as the climate impact of diets that affect ecosystems.

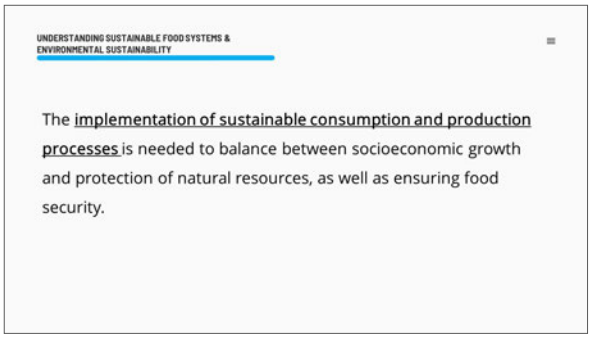
Slide #	PowerPoint Slide	Instructions
19		Show Slide 19 and pinpoint the Nutrition and Health Outcomes and Broader Impacts. Explain that well-nourished **individuals and communities** are key throughout food systems to ensure positive outcomes that feedback into food systems by influencing people's ability to work and to exercise agency within the system.
20-21	 Figure 1.1. Sustainable Food Systems Framework (Source: HLPE, 2020)  Figure 1.1. Sustainable Food Systems Framework (Source: HLPE, 2020)	Refer again to the framework and explain that main drivers of food systems include biophysical and environmental; technology and innovation; economic and market; political and institutional; socio cultural; and demographic.

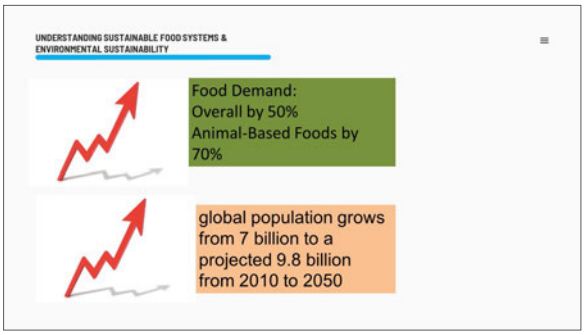
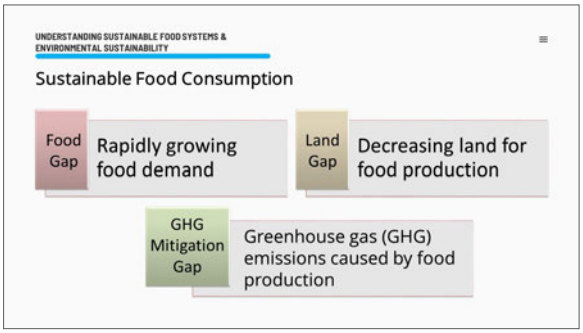
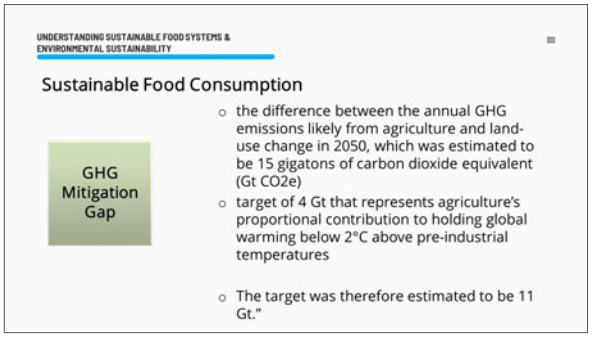
Slide #	PowerPoint Slide	Instructions
22		Explain while referring to the framework that policy and governance systems interact with food systems in complex and iterative ways. It encompasses both formal and informal rules, norms and processes that shape policies and decisions that affect food systems. Food system policy and governance are also guided by the principle of the right to food that are most likely to support food security.
23		End the discussion on Food Systems by showing the linkages in the framework that create feedback loops that shape the drivers of food system change and the policies that address it.
24		Introduce the definitions of environmental sustainability. First, discuss the definition by Harris, 2002. .

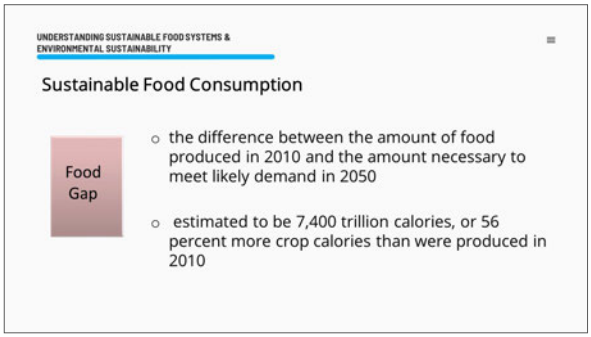
Slide #	PowerPoint Slide	Instructions
25		Present another definition of sustainable development by Morelli, 2011. Explain further that environmental sustainability is a condition of balance, resilience and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity.
26		Emphasize that there are four (4) aspects of environmental sustainability.
27		Present that there are 15 guiding principles of environmental sustainability and are classified into societal needs, preservation of biodiversity, regenerative capacity, reuse and recycle, and constraints of non-renewable resources and waste generation.

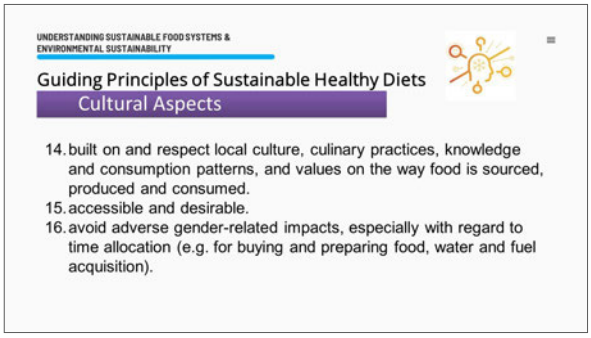
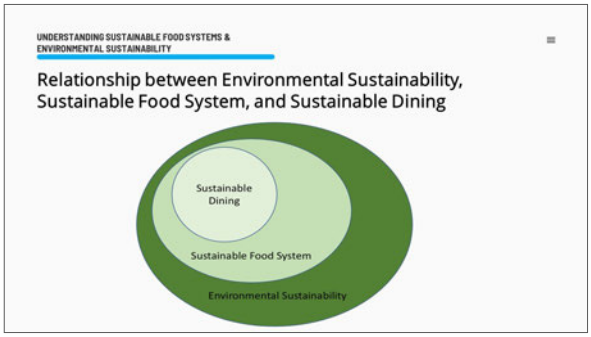
Slide #	PowerPoint Slide	Instructions
28		Ask the students either as a class or individual or by pair to read each of the guiding principles per classification. Start with **Societal Needs.**
29		Ask the students either as a class or individual or by pair to read each of the guiding principles for **Preservation of Biodiversity.**
30		Ask the students either as a class or individual or by pair to read each of the guiding principles for **Regenerative Capacity.**
31		Ask the students either as a class or individual or by pair to read each of the guiding principles for **Re-use and Recycle.**

Slide #	PowerPoint Slide	Instructions
32-33	 	Ask the students either as a class or individual or by pair to read each of the guiding principles for **Constraints of non-renewable resources and waste generation.**
34		Introduce the concept of sustainable dining by sharing the definition by WWF-PH. Elaborate the definition by providing examples of sustainable practices.
35		Explain that sustainable dining is similar to the concept launched in the European countries called, "Sustainable Healthy Diets." State the definition of Sustainable Healthy Diets.

Slide #	PowerPoint Slide	Instructions
36		Explain that according to WWF-PH, the food service industry accounts for a substantial share of local consumption and production as dining out is part of the Filipino's dining habit. It was found out that spending on restaurants and hotels is the second highest in terms of consumption expenditure growth, indicative of a growing culture of out-of-home consumption. Filipinos are more willing to spend on higher value goods and services such as better-quality meals, ready-to-eat food delivery services and new restaurant trends.
37		Tell the students that in order to balance between the socio-economic growth and the protection of natural resources as well as food security, the implementation of sustainable consumption and production processes must be integrated into the food service industry mandate and operations.
38		Reiterate that sustainable dining is introduced under sustainable consumption and production in the Philippines. This initiative is highly related to Sustainable Development Goal (SDG) 12 or the Responsible Production and Consumption, which aims to produce more with less environmental impact and dissociate environmental degradation from economic growth.

Slide #	PowerPoint Slide	Instructions
39		Explain the current situation regarding food demand, population growth, and vegetated land.
40		Discuss the reasons for the rise of the field of sustainable food consumption.
41-43	 	Present the major gaps in sustainable consumption, as follows: 1) food gap; 2) land gap; and 3) GHG mitigation gap.

Slide #	PowerPoint Slide	Instructions
		
44		Discuss the set of actions that WRI recommends in order to close the gaps by 2050. Emphasize that it should be "implemented in time, at scale, and with sufficient public and private sector dedication. This set of actions is called "menu for a sustainable future."
45		Continue the discussion by mentioning that FAO and WHO convened several experts in developing the guiding principles on sustainable healthy diets and that it emphasizes the achievement of SDG 12 (responsible consumption and production).
46		Discuss the three main guiding principles of sustainable healthy diets: (1) Health and Nutrition; (2) Environmental Impact; and (3) Cultural Aspects.

Slide #	PowerPoint Slide	Instructions
47		Discuss the first guiding principle of sustainable healthy diets: **Health and Nutrition.**
48		Discuss the second guiding principle of sustainable healthy diets: **Environmental Impact.**
49		Discuss the third guiding principle of sustainable healthy diets: **Cultural Aspects**.
50		End Topic 1.1 by presenting Figure 1.2 on Relationship between environmental sustainability, sustainable food system and sustainable dining. Explain that the relationship of the three (3) concepts could be described as overlapping, with environmental sustainability as

Slide #	PowerPoint Slide	Instructions
		the overarching goal in the operationalization of sustainable food systems and sustainable dining. The latter is part and parcel of sustainable food system, and both concepts uphold environmental sustainability.

Topic 1.1. Concepts and Principles of Sustainable Food Systems, Environmental Sustainability and Sustainable Dining

Throughout the manual, "sustainable" or "sustainability" will be the focus of all discussion. At this point, it is essential that a common understanding of sustainability be established. Despite the many definitions given to the word "sustainable" or "sustainability", it is consistent with the goal of preserving the environment as it is the only factor that is independent but is still related to the other aspects, such as social and economic sustainability, and is the resource needed to sustain humanity's needs (Morelli, 2011).

Sustainability is often linked to the environment and development. In 1987, the World Commission on Environment and Development sought to address the conflicts between environment and development goals by formulating the definition of "sustainable development". As such, sustainable development was defined as development which meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). Since then, the concept of sustainable development captures the following three (3) aspects of development namely: economic, environmental and social (Harris, 2002).

A. Sustainable Food Systems

1. Definition of Food Systems and Sustainable Food Systems

Food systems gather all elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production,

processing, distribution, preparations and consumption of food, and the output of these activities, including socio-economic and environmental outcomes (HLPE, 2014).

A food system is also defined as the "entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded (Nguyen, 2018)." Figure 1.1 shows the food systems framework, which captures the complexity of the interrelationships of drivers of change at a broader scale with the functioning of food systems from production to consumption of food.

According to FAO (2018a), food systems are sustainable when they "deliver food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised".

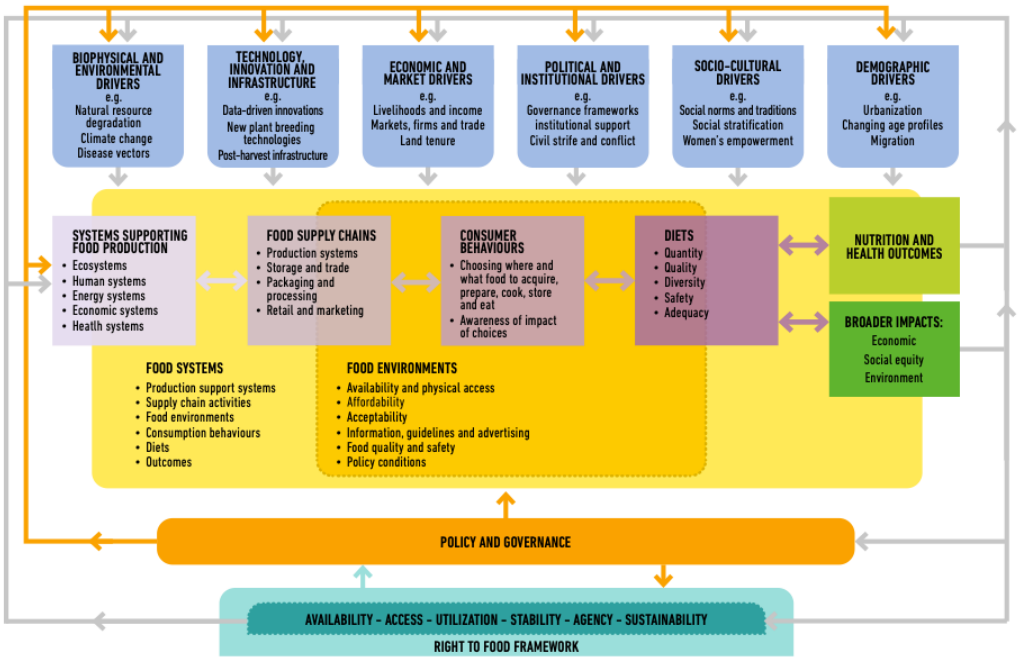


Figure 1.1. Food Systems Framework (Source: HLPE, 2020)

2. Right to Food as Guiding Principle of Food Systems

The sustainable food system framework is underpinned by the principle of right to food, also referred to as right to adequate food. The framework further supports

the six (6) dimensions (availability, access, utilization, stability, agency and sustainability) of food security and nutrition which are necessary to realize the right to food and for meeting all Agenda 2030 goals, especially SDG 2.

The right to food is a fundamental human right that is inseparable from social justice. Feeding people is one of the primary objectives of any government, and is a part of national sovereignty. The complex and interconnected nature of food and nutritional security issues and their impacts on public and planetary health know no borders and, therefore, reinforce the importance of international coordination, not only to ensure the future health of the global food systems but also for national governments to fulfil their own sovereign responsibility to feed their people.

The right to adequate food has been articulated in the following declarations or international events (Table 1.1):

Table 1.1. Description of International Declarations and Events Related on the Right to Adequate Food

Declarations/International Events	Description
a. 1948 Universal Declaration of Human Rights	The right to adequate food is recognized as a fundamental human right to be upheld by states as duty bearers.
b. 1966 International Covenant on Economic, Social and Cultural rights	States have the duty, obligation and responsibility to respect, protect and fulfill human rights, including the right to food.
c. 1996 Rome Declaration on World Food Security and adopted in the 1996 World Food Summit	Governments reaffirmed "the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger".
d. 2002 World Food Summit	Member governments of FAO-UN Council reaffirmed the right to food and requested that guidelines be developed on the right to food to support their realization.

Continuation of Table 1.1

Declarations/International Events	Description
e. 2004 Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security (also referred to as the Right to Food Guidelines)	Adopted unanimously by the FAO Council to encourage more states to realize this right in practice.

3. Components and Key Features of the Sustainable Food Systems Framework

The Sustainable Food Systems Framework recognizes the complexity of relationships among the systems that support its components: food production, food supply chains, food environments, the behaviors of individual consumers, diets, and nutritional and wider outcomes that feedback into the system (Figure 1.1).

The following briefly describes the components of the Framework:

a. The systems that support **food production** include ecosystems, human systems, energy systems, economic systems and health systems, which provide essential inputs into the food systems.

b. **Food supply chains** (also often referred to as food production and distribution networks), are an important component of food systems, and include all the stages and actors, including private sector businesses, from production to trade, processing, retail marketing, consumption and waste disposal.

c. **Food environments** refer to the physical, economic, socio-cultural and political conditions that shape accessibility, affordability, safety and food preferences.

d. **Consumer behavior** is a response to food environments and comprised of individual awareness and decisions on where and what foods to acquire, prepare and eat. These decisions ultimately shape diets in terms of quantity, quality, diversity, safety and adequacy of food.

e. **Diets** in turn shape outcomes that affect other systems, such as nutritional impacts within populations that affect health systems, as well as the climate impact of diets that affect ecosystems.

Well-nourished individuals and communities are key throughout food systems to ensure positive outcomes that feedback into food systems by influencing people's ability to work and to exercise agency within the system.

Private companies and industries, for example, often shape food environments, which can be major drivers of poor health and environmental degradation (by promoting diets high in calories, added sugars, saturated fats and ultra-processed foods). In turn, environmental degradation (resulting from unsustainable diets) can exacerbate negative impacts on health, for example, from climate change and agricultural pollution associated with land clearing and highly industrialized modes of agriculture.

The Framework also emphasized the main drivers of food systems namely: *biophysical and environmental; technology and innovation; economic and market; political and institutional; socio cultural; and demographic.* Moreover, policy and governance systems interact with food systems in complex and iterative ways. It encompasses both formal and informal rules, norms and processes that shape policies and decisions that affect food systems. Food systems policy and governance are also guided by the principle of the right to food that are most likely to support food security. Lastly, the linkages in the framework create feedback loops that shape the drivers of food system change and the policies that address it.

B. Environmental Sustainability

1. Definition of Environmental Sustainability

Anchored on the 2030 Sustainable Development Goals (SDGs), environment together with economic and social dimensions are considered as pillars of sustainable development. **Environmental Sustainability or an environmentally sustainable system** was then defined as a system maintaining a stable resource base, avoiding over-exploitation of renewable resource systems or environmental sink functions, and depleting non-renewable resources only to the extent that investment is made in adequate substitutes. This includes maintenance of biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources (Harris, 2002).

Adapting the Brundtland definition of sustainable development, Morelli (2011) defined environmental sustainability as *meeting the resource and service needs of current and future generations without compromising the health of the ecosystems that provide them*. More specifically, environmental sustainability is a condition of balance, resilience and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity.

Goodland (1995 as cited in Moldan et al., 2012) emphasizes four (4) aspects of environmental sustainability namely: the use of renewable and nonrenewable resources on the source side; and pollution and waste assimilation on the sink side.

2. Guiding Principles

The environmental sustainability concept is guided by 15 principles as outlined by Morelli (2011). The principles are classified into societal needs, preservation of biodiversity, regenerative capacity, reuse and recycle, and constraints of non-renewable resources and waste generation (Refer to Table 1.2 below) .

Table 1.2. Principles of Environmental Sustainability by Classification

Classification	Principles
a. Societal Needs	♦ Produce nothing that will require future generations to maintain vigilance. ♦ Design and deliver products and services that contribute to a more sustainable economy. ♦ Support local employment. ♦ Support fair trade. ♦ Review the environmental attributes of raw materials and make environmental sustainability a key requirement in the selection of ingredients for new products and services.
b. Preservation of Biodiversity	♦ Select raw materials that maintain biodiversity of natural resources. ♦ Use environmentally responsible and sustainable energy sources and invest in improving energy efficiency.

Continuation of Table 1.2

Classification	Principles
c. Regenerative Capacity	♦ Keep harvest rates of renewable resource inputs within regenerative capacities of the natural system that generates them. ♦ Keep depletion rates of non-renewable resource inputs below the rate at which renewable substitutes are developed.
d. Reuse and Recycle	♦ Design for reusability and recyclability ♦ Design (or redesign, as appropriate) manufacturing and business processes as closed-loop systems, reducing emissions and waste to zero.
e. Constraints of Non-renewable Resources and Waste Generation	♦ The scale (population x consumption x per capita x technology) of the human economic subsystem should be limited to a level that, if not optimal, is at least within the carrying capacity and therefore sustainable. ♦ Keep waste emissions within the assimilative capacity of receiving ecosystems without unacceptable degradation of its future waster absorptive capacity or other important ecological services. ♦ Develop transportation criteria that prioritize low-impact transportation modes. ♦ Approach all product development and product management decisions with full consideration of the environmental impacts of the product throughout its life cycle.

C. Sustainable Dining

1. Definition of Sustainable Dining

Sustainable dining is defined as “the integration of sustainable practices in the operations of food-related businesses, or our own actions as consumers” (WWF-PH, 2018). Sustainable in this context means the use of local and seasonal produce; eating or serving more plant-based dishes; conserving water and energy in food-related operations or scenarios; minimizing food waste; and reducing overall waste related to food (e.g., single use plastic utensils)." The concept is similar to the concept launched in the European countries called, “Sustainable Healthy Diets,” which “promote all dimensions of individuals’ health and wellbeing, have low environmental pressure and impact, are accessible, affordable and equitable, and are culturally acceptable.”

WWF-PH noted that the food service industry accounts for a substantial share of local consumption and production as dining out is part of the Filipino’s dining habit. It was found out that spending on restaurants and hotels is the second highest in terms of consumption expenditure growth, indicative of a growing culture of out-of-home consumption. Filipinos are more willing to spend on higher value goods and services such as better-quality meals, ready-to-eat food delivery services and new restaurant trends. In order to balance between the socio-economic growth and the protection of natural resources as well as food security, the implementation of sustainable consumption and production processes must be integrated into the food service industry mandate and operations.

2. Guiding Principles of Sustainable Dining

Sustainable dining practices lean toward using local and seasonal produce, supporting creation and consumption of plant-based dishes, conserving energy and water in food-related operations, minimizing food waste, and reducing overall food-related waste (e.g., single use plastic utensils). This concept is introduced under sustainable consumption and production in the Philippines. This initiative is highly related to Sustainable Development Goal (SDG) 12 or the Responsible Production and Consumption which aims to produce more with less environmental impact and dissociate environmental degradation from economic growth.

The World Resources Institute (2018) reported an increase in the overall food demand by more than 50 percent and animal-based foods by nearly 70 percent as income grows across the developing world, and as the global population grows

from 7 billion to a projected 9.8 billion from 2010 to 2050. Despite these numbers, challenges in food availability and accessibility remains. Almost half of the world's vegetated land is already used for agriculture, contributing to a quarter of annual greenhouse gas emissions (GHGE), yet hundreds of millions of people are still experiencing hunger.

The field of sustainable food consumption is growing for the following main reasons: 1) rapidly growing demand for food (food gap); 2) decreasing land for food production (land gap); and 3) greenhouse gas (GHG) emissions caused by food production (WRI, 2018). Interest in this field is also increasing due to other several reasons, including presence of poor work conditions of food producers, changing consumer behavior towards healthy and nutritious food, and even protection of food culture and traditions (Lund-Durlacher *et al*, n.d.). The major gaps were further discussed below (WRI, 2018):

1. The food gap—"the difference between the amount of food produced in 2010 and the amount necessary to meet likely demand in 2050", which was estimated to be 7,400 trillion calories, or 56 percent more crop calories than were produced in 2010.

2. The land gap—"the difference between global agricultural land area in 2010 and the area required in 2050 even if crop and pasture yields continue to grow at past rates", which was estimated to be 593 million hectares (Mha).

3. The GHG mitigation gap—"the difference between the annual GHG emissions likely from agriculture and land-use change in 2050, which was estimated to be 15 gigatons of carbon dioxide equivalent (Gt CO2e), and a target of 4 Gt that represents agriculture's proportional contribution to holding global warming below 2°C above pre-industrial temperatures. The target was therefore estimated to be 11 Gt."

The World Resources Institute (WRI) recommended a set of actions that can close these gaps by 2050 if these are "implemented in time, at scale, and with sufficient public and private sector dedication." This set of actions is called "menu for a sustainable future" and is organized in five (5) courses:

1. Reduce growth in demand for food and other agricultural products

2. Increase food production without expanding agricultural land

3. Protect and restore natural ecosystems and limit agricultural land-shifting

4. Increase fish supply

5. Reduce GHG emissions from agricultural production

Shifting to a healthier and more sustainable diet helps in reducing the exponential growth in food demand. Immediate incorporation during menu planning or improvement and engaging human resource working in the food and food-related business are of vital importance in achieving this. In line with this, the Food and Agriculture Organization (FAO) and World Health Organization (WHO) convened several experts across the globe to develop the guiding principles on sustainable healthy diets (Table 1.3). To avoid unintended consequences, sustainable healthy diets must combine all the dimensions of sustainability, thus, these principles could be adapted in upholding sustainable dining practices.

Table 1.3. Guiding Principles of Sustainable Healthy Diets

Considerations	**Sustainable healthy diets…**
Health and Nutrition Aspects	…start early in life with early initiation of breastfeeding, exclusive breastfeeding until six months of age, and continued breastfeeding until two years and beyond, combined with appropriate complementary feeding. … are based on a great variety of unprocessed or minimally processed foods, balanced across food groups, while restricting highly processed food and drink products. … include wholegrains, legumes, nuts and an abundance and variety of fruits and vegetables. … can include moderate amounts of eggs, dairy, poultry and fish; and three (3) small amounts of red meat. … include safe and clean drinking water. … are adequate (i.e. reaching but not exceeding needs) in energy and nutrients for growth and development, and to meet the needs for an active and healthy life across the lifecycle. … are consistent with WHO guidelines to reduce the risk of diet-related NCDs, and ensure health and wellbeing for the general population.

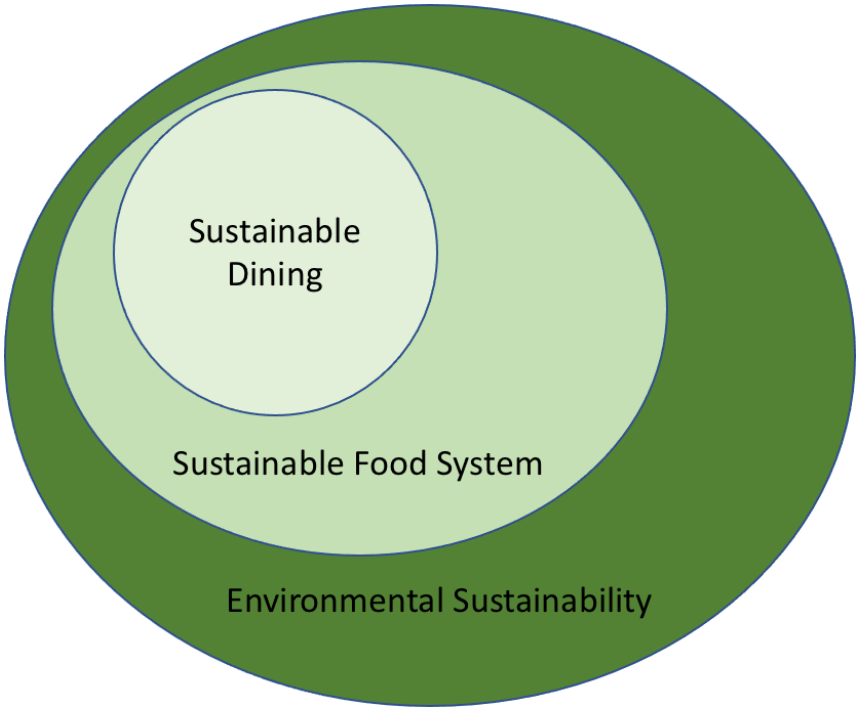
Continuation of Table 1.3

Considerations	Sustainable healthy diets…
Environmental Impact	… contain minimal levels, or none if possible, of pathogens, toxins and other agents that can cause foodborne disease. … maintain greenhouse gas emissions, water and land use, nitrogen and phosphorus application and chemical pollution within set targets. … preserve biodiversity, including that of crops, livestock, forest-derived foods and aquatic genetic resources, and avoid overfishing and overhunting. …minimize the use of antibiotics and hormones in food production. …minimize the use of plastics and derivatives in food packaging. … reduce food loss and waste.
Cultural Aspects	… are built on and respect local culture, culinary practices, knowledge and consumption patterns, and values on the way food is sourced, produced and consumed. … are accessible and desirable. … avoid adverse gender-related impacts, especially with regard to time allocation (e.g. for buying and preparing food, water and fuel acquisition).

While these aspects and principles are considered, operationally, WWF-PH defines sustainable dining as using local and seasonal produce; eating or serving more plant -based dishes; conserving water and energy in food-related operations or scenarios; minimizing food waste; and reducing overall waste related to food (e.g. single use plastic utensils).

In summary, the relationship of the three (3) concepts could be described as overlapping, with environmental sustainability as the overarching goal in the operationalization of sustainable food systems and sustainable dining. The latter is part and parcel of sustainable food systems, and both concepts uphold environmental sustainability (Figure 1.2.).

Figure 1.2. Relationship between Environmental Sustainability, Sustainable Food System and Sustainable Dining



Topic 1.2. Policies and Practices that Promote Sustainable Food Systems, Environmental Sustainability and Sustainable Dining

Duration

30 minutes

Learning Objective

At the end of this topic, the students should be able to identify policies and practices which promote sustainable food systems, environmental sustainability, and sustainable dining.

Topic Inputs and Reflections

What are the policies and practices related to the promotion of sustainable food systems, environmental sustainability, and sustainable dining being implemented?

Materials

- Soft copy of the slide deck
- Food Sharing Network Program: http://www.foodsharenetwork.com/
- Hotel Kitchen Toolkit: https://hotelkitchen.org/about-toolkit/

Preparation Activities

Instruct the students to:

- **Listen:** Lecture on Policies and Practices that Promote Sustainable Food Systems, Environmental Sustainability and Sustainable Dining.
- **Reflect:** Do I understand the laws related to environmental sustainability and sustainable dining?
- **Respond:** Identify difficulties or problems related to the implementation of laws on environmental sustainability and sustainable dining.

Methodology

- Lecture-Discussion
- Activity: “Restaurant Maker”

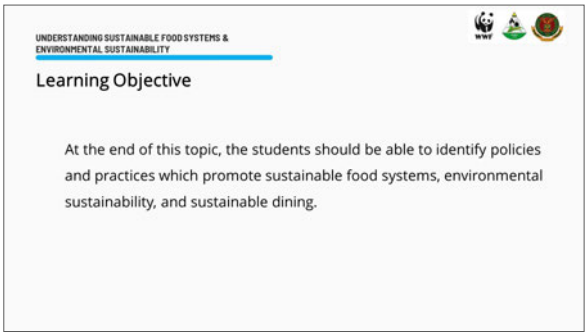
Process

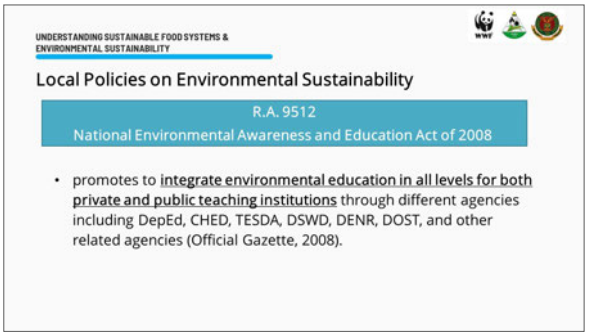
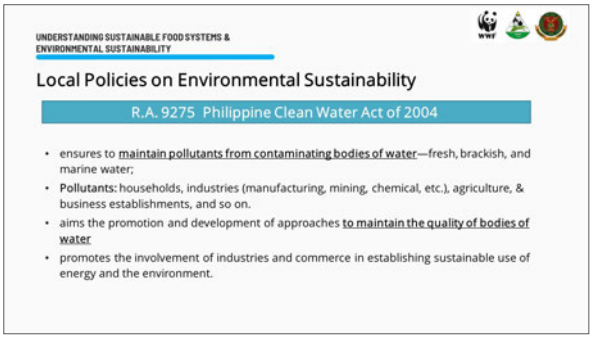
- **Lecture-Discussion:** The faculty-in-charge will discuss the policies that promote sustainable food systems, environmental sustainability, and sustainable dining. Examples of foodservice establishments implementing sustainable dining practices are also to be discussed.
- **Activity:** After the discussion, the class will be divided into groups with 3-4 members each. Each group will have to develop their own concept for a restaurant which upholds the environmental sustainability and sustainable dining policies and practices. The students will also evaluate the pros and cons of their developed restaurant concept.

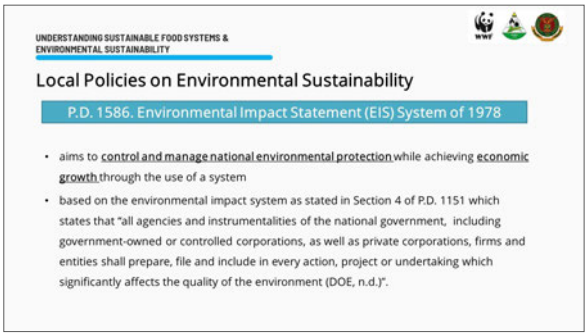
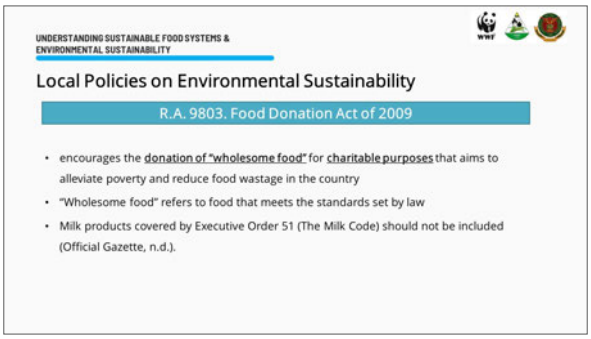
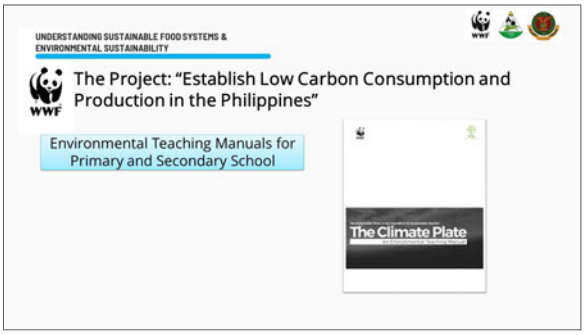
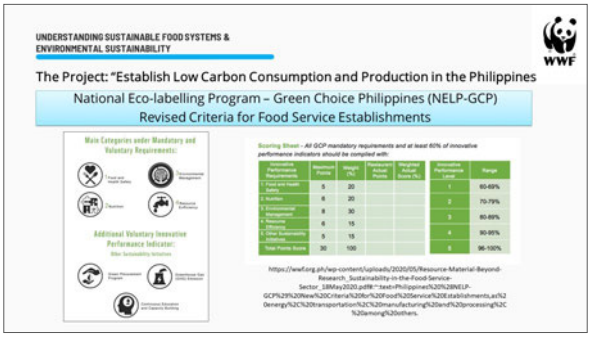
Expected Outputs

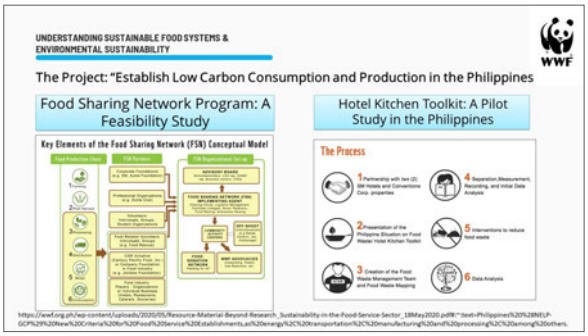
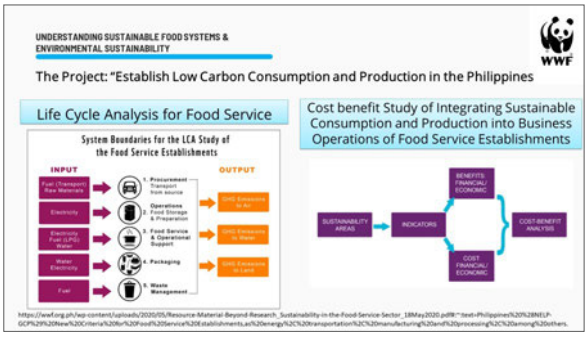
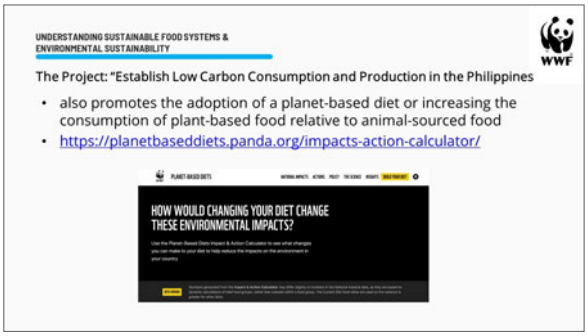
- Slide presentation

PRESENTATION OF POWERPOINT SLIDES

Slide #	Powerpoint Slide	Instructions
1		Introduce Topic 1.2: Policies and practices that promote sustainable food systems, environmental sustainability, and sustainable dining.
2		Discuss the learning objectives of Topic 1.2.

Slide #	Powerpoint Slide	Instructions
3		Define what is an "Enabling Environment."
4-8	  	Present the local policies related to environmental sustainability.

Slide #	Powerpoint Slide	Instructions
	 	
9		Discuss the project entitled "Establish Low Carbon Consumption and Production in the Philippines. Cite that an example of this project is The Climate which is an environmental teaching manual for primary and secondary school which was developed by WWF.
10		Discuss that another example is the National Eco-labeling Program – Green Choice Philippines (NELP-GCP) Revised Criteria for Food Service Establishments.

Slide #	Powerpoint Slide	Instructions
11		Mention the other examples. You may also show the websites for: Food Sharing Network: http://www.foodsharenetwork.com/ Hotel Kitchen Toolkit: https://hotelkitchen.org/about-toolkit/
12		
13-16	 	Mention that this project also aims to decrease the consumption of animal-sourced food and increase plant-based diets which has lower environmental impact. You may show the website for Planet-based diets developed by WWF: https://planetbaseddiets.panda.org/impacts-action-calculator/

Slide #	Powerpoint Slide	Instructions
	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices: Guidelines** • Cook what's in season • Partner with the Right Producers • Grow it Yourself • Buy locally, in bulk • Think beyond the food • Start small • Manage your waste – all of it • Do your homework • Train your staff to be passionate about the cause. • Extend the mission to your community. • Plan for the long haul. • Prioritize customer satisfaction above anything else. Terenzio, 2015 UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** • Start from the Ground Up • Start Composting • Go Local • Farm Greener • Offer Seasonal Menu • Grow Your Own Food • Source Reduction • Food Donation • Recycling Hollis, 2018	Cite examples of sustainable dining practices.
17-18	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** • Green Your Food Offerings • Practice Water Efficiency and Conservation • Reduce Waste • Have Strict Recycling Policies in Place • Clean Green • Ditch Disposable for Takeout • Reduce Pollution • Use Energy Efficiently • Consider Sustainable Interior Décor • Resources and Certification for Green Restaurants • Tell Your Customers All About Your Practices Chait, 2019 UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices Guidelines** • Cook seasonally • Producer Partnerships • Grow Your Food • Think Beyond Food • Manage Water Waste • Reduce Food Waste • Start Small • Educate Staff About Sustainable Dining • Plant-based Foods • Spread the Word About Sustainable Dining Burkhart, 2020	

Slide #	Powerpoint Slide	Instructions
19-22	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** 1. Shenandoah University – Virginia, USA • Reusable Water Bottles • Tray-less Dining • Environment Friendly Products • Campus Kitchen • The Village Composting Project  UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** 2. Northern Michigan University • Use of biodegradable eating utensils • Tray-less Alternative • Renovation of dishwashing area to reduce water usage • Use of pulper which is used to grind and mix food scraps, cardboard, aluminum foil and so on to reduce volume of waste  UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** 3. Iowa State University • Reduce use of plastic bags, straws and so on. • Encourage sustainable purchasing in cafes and convenience stores  UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** 4. Sacramento State University • Sustainable food purchasing • Recycling and waste reduction • The use of environment-friendly packaging and materials • Green custodial and cleaning • Energy efficiency 	Discuss examples of sustainable dining practices in schools.

Slide #	Powerpoint Slide	Instructions
23-26	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** 5. University of Massachusetts Lowell • Hydration stations around the campus • Reusable Mug Discounts • Partners with the campus to recycle and compost from all dining locations across campus • Tray-less dining which leads people to carry smaller amounts of food to prevent food waste • Training of staff about energy and water conservation • Recycled content paper • Green cleaning  UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** 6. University of Minnesota Duluth • Local, sustainable, and healthy choices – partners with local businesses • Reducing waste – includes meal planning, portion-controlled servings, and bulk ordering. Excess food is also donated to Second Harvest Northern Lakes Food Bank. • Compostable utensils are also being used.  UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** 7. University of Michigan • Local and Sustainable Foods • Reducing Waste • Sustainable Facilities  UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices** 8. De La Salle University Dasmariñas • Ban on single-use plastics and Styrofoam products • Waste Minimization Policy for cafeteria concessionaires • Has a centralized sewage treatment plant used to process wastewater to be reused • Has their own Environmental Resource Management Center (ERMAC) 	

Slide #	Powerpoint Slide	Instructions
27-29	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices**  8. De La Salle University Dasmariñas • Ban on single-use plastics and Styrofoam products • Waste Minimization Policy for cafeteria concessionaires • Has a centralized sewage treatment plant used to process wastewater to be reused • Has their own Environmental Resource Management Center (ERMAC) UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices**  9. Ateneo de Manila University • has existing sustainability policies and guidelines; • campus sustainability and awareness, use and conservation of materials and energy, food sustainability and food packaging, and disaster risk management and emergency response UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Sustainable Dining Practices**  9. Ateneo de Manila University • Reduces freshwater consumption through rainwater storage systems and water recycling • Promote healthy and nutritious eating through ensuring that food outlets offer nutritious food and follow proper handling and service practices • Minimize food waste and avoid overconsumption of food • Use less packaging, use of reusable, renewable, and/or recyclable packaging materials	
30	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Restaurants Practicing Sustainable Dining**  • Azurmendi in Larrabetzu, Spain - has three (3) Michelin stars; uses solar panels and geothermal energy system to regulate temperature during different seasons; grows its own food in gardens and greenhouses, where customers may visit • Relae in København, Denmark - employs sustainability from its design to the menu; uses recycled chairs; ingredients are sourced from farms that does not use chemicals or pesticides • Captain's Galley in Scrabster, Scotland - uses locally sourced food within the 15-mile radius; menu is based on the seasonality of ingredients	Discuss the sustainable dining practices in restaurants.

Slide #	Powerpoint Slide	Instructions
31-33	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Restaurants Practicing Sustainable Dining**  • **Septime in Paris, France** - menu is 80% plant-based and 99% are sourced in the country; partnered with farmers and other restaurant to conserve 1,400 seed varieties • **Narisawa in Tokyo, Japan** - restaurant's theme is "satoyama" which is about the "sliver of Earth where people and nature coexist;" offers seasonal menus based on the availability of ingredients. • **Uncommon Ground in Chicago, Illinois** - has the first certified organic rooftop far which the restaurant uses for its menu. It also has beehives where honey is harvested to be mixed to their food and beverage. UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Restaurants Practicing Sustainable Dining**  • **Nomad in Surry Hills, Australia** - uses locally harvested & sustainable firewood; buy their meat whole & uses all parts of the animal; use locally sourced wine, recycle oil into biodiesel, & serve as the solar panel host site in their community • **Mil in the Andes Mountains, Peru** - works with SINBA to manage and repurpose their organic waste; support local farms and suppliers where they get 50% of the harvest profits UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Restaurants Practicing Sustainable Dining**  • **L'Arpège, France** - winner of the Chefs' Choice Award in the World's 50 Best Restaurants 2019; considered the pioneer of plant-based cuisine and sustainability; source of their vegetables is from hand-harvested farms which produces 50 tons per year • **Schloss Schauenstein, Switzerland** - recipient of Sustainable Restaurant Award at the World's 50 Best Restaurants 2019; scored 94% in the Food Made Good Global 2019 assessment which proves how they have employed sustainability in their operations; grows its own produce and have established partnerships with local organic farmers; menu is based on seasonality and availability of ingredients. It also uses renewable energy UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY **Restaurants Practicing Sustainable Dining**  • **Mirazur, France** - has 3 Michelin stars & one of the World's 50 Best Restaurants 2019; ingredients are from their own garden & land while they also source from local farmers and fishermen • **Central and Mil, Peru** - Central is 6th among the World's 50 Best Restaurants; owner uses local ingredients to preserve their culinary identity and cultivate native ingredients • **La Vague d'Or, France** - 3 Michelin stars; uses locally sourced ingredients where the owner establishes linkages among local farmers • **The Test Kitchen, South Africa** - owner has a deep commitment to sustainability evidenced by employing a "Drought Kitchen" menu during the 2018 water crisis in their area; owner is an ambassador of Chefs for Change to combat decline in fish population	

Slide #	Powerpoint Slide	Instructions
34-37	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY Restaurants Practicing Sustainable Dining - USA  • **Mixt Greens** - menu offers food items with organic ingredients; uses **compostable packaging**, and energy-efficient equipment **(EEE)**. • **Bareburger** - famous for making **non-GMO** & **pesticide-free burgers** • **The Plant Café Organic** - All food items are grown organically from local farms; ensure freshness because produce are **only picked days before it is used** • **Busboys and Poets** - food items are locally sourced; use of recycled paper products and **renewable energy** in the restaurant UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY Restaurants Practicing Sustainable Dining - USA  • **Soupergirl - s**oups are **made from scratch** using organic ingredients; food waste and scraps are used to make compost. • **Root Down -** restaurant makes use of **wind energy to power** the establishment; herbs and vegetables are **harvested from rooftop** gardens and patios • **Red Stagg Supperclub -** more than serving organic and locally-sourced food, the restaurant was the first **Leadership in Energy and Environmental Design** which only uses LED energy-efficient lights; cut down their energy usage in half UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY Restaurants Practicing Sustainable Dining - USA  • **Tilth** -serves organic food; offers **organic feminine products in the bathroom** and children are given soy crayons. • **Woodberry Kitchen** -Ingredients - sourced locally; -Vegetable wastes - ground & extracted to make it lighter when disposed of; -**Return oyster shells to the bay** to regenerate oyster beds • **Founding Farmers -** countertops are made from **recycled paper composite;** food are also locally sourced; menu uses **soy-based** and don't use fume paints UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY Local Restaurants Practicing Sustainable Dining • **Earth Kitchen (Quezon City)** -ingredients' sources → local farmers and fishermen -ensure that farms they partner employ sustainable farming practices  • **Manna (Mandaluyong City)** - get their ingredients from local sources - emphasize the benefits of sourcing produce from local farms to their customers.	

Slide #	Powerpoint Slide	Instructions
38-40	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY Local Restaurants Practicing Sustainable Dining • **ECHO Café (Makati City)** -Supports local farmers -name stands for Environment and Community Hope Organization.  • **Le Don's Garden Café (Silang, Cavite)** Employs a farm-to-table process of serving food through growing their own garden where they get their ingredients to conserve energy, water, and to lessen food waste.  https://ledonsgarden.wixsite.com/le-dons-garden/our-vision UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY Local Restaurants Practicing Sustainable Dining • **The Cravings Group** • Compliant to RA 9003 or the Ecological Solid Waste Management Act of 2000 • Uses renewable energy sources such as biogas, solar energy, and biomass • Has its own bee apiary, butterfly sanctuary • Recycles metal, paper, and plastics • Employs conservation of energy, water, and paper • Total waste segregation and recovery program • Foliar fertilizer production from food waste • Vermiculture • Certified with ISO 14001:2004 + Cor. 1:2009  http://cafemobility.blogspot.com/2011/06/cca-kitchen-by-cravings-revisited.html UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY SUMMARY • There are local policies, programs and projects in support of sustainable dining • Sustainable dining is getting its attention globally • Local initiatives and practices are slowly	
41	UNDERSTANDING SUSTAINABLE FOOD SYSTEMS & ENVIRONMENTAL SUSTAINABILITY Activity 1 - My Dream Sustainable Restaurant • Type of Restaurant: • Three priority characteristics 1. … 2. … 3. … Benefits | Challenges	Explain Activity 1: After the discussion, the class will be divided into groups with three to four (3-4) members each. Each group will have to develop their own concept for a restaurant which upholds the environmental sustainability and sustainable dining policies and practices. The students will also evaluate the pros and cons of their developed restaurant concept.

Creation of an enabling environment is necessary in the promotion of sustainable food systems, environmental sustainability and sustainable dining. An enabling environment includes policies, government mechanisms, incentives and disincentives; legal frameworks; and regulatory instruments to promote the production, processing, distribution, labelling and marketing, and consumption of a variety of foods (WHO & FAO, 2019) that contribute to sustainable food systems, environmental sustainability and sustainable dining.

Globally, policies are recognized as a vital component to improve rather than deteriorate environmental systems, to reduce environmental stresses and human vulnerability and to uplift social and institutional capacity as well as global stewardship towards environmental sustainability. It is not enough to have policy; policy coherence should also be ensured by aligning policies across all sectors including agriculture, health, education, environment, water, and trade, among others, from local to national to international levels and discussing with all actors of society. For example, while SDG 12 on responsible production and consumption presents an overarching global aspiration, the policy directions on this SDG should be clear and consistent from the national level down to the local levels and among different actors to achieve food security and nutrition in a sustainable manner. Likewise, the information should cascade and be converted into actions and observed in collective fashion among individuals, families, households, and institutions so that impact will be felt and upscaled.

1. **Local Policies on Environmental Sustainability**

In the Philippines, initiatives on environmental sustainability have been in place. In fact, for three (3) consecutive years from 2017, the country has been ranked number one for environmental sustainability in the World Energy Council's World Energy Trilemma Index (WETI) 2017 (DOE, 2018). Laws and policies were also enacted and implemented as a response to this issue (Table 1.3). Although these indicate the country's attention to environmental sustainability, energy use is just one part of the challenge. There are still other sectors involved in the issue of environmental sustainability such as agriculture, water, pollution, waste management, food, and so on. If actions will not be implemented, these will remain as challenges in the coming years. Specifically, the food sector has also been identified by FAO (2014) as one of the major contributors to greenhouse gas emissions (crop and animal production) and waste (food consumption).

Table 1.4. Selected Philippine Laws Related to the Management and Protection of the Environment

Policy	Description
R.A. 9512 National Environmental Awareness and Education Act of 2008	An Act which promotes to integrate environmental education in all levels for both private and public teaching institutions through different agencies including Department of Education (DepEd), Commission on Higher Education (CHED), Technical Education and Skills Development Authority (TESDA), Department of Social Welfare and Development (DSWD), Department of Environment and Natural Resources (DENR), Department of Science and Technology (DOST), and other related agencies (Official Gazette, 2008).
R.A. 9275 Philippine Clean Water Act of 2004	An Act that ensures to maintain pollutants from contaminating bodies of water—fresh, brackish, and marine water. Pollutants may come from households, industries (manufacturing, mining, chemical, etc.), agriculture, and business establishments, and so on. This aims the promotion and development of approaches to maintain the quality of bodies of water. This law also promotes the involvement of industries and commerce in establishing sustainable use of energy and the environment.
R.A. 9003 Ecological Solid Waste Management Act of 2000	An Act that ensures the proper and systematic management of solid waste starting from segregation to the proper storage, treatment, and disposal. This law aims to protect the environment and the communities. This is being conducted through partnerships with other stakeholders.
P.D. 1586 Environmental Impact Statement (EIS) System of 1978	An Act which aims to control and manage national environmental protection while achieving economic growth through the use of a system. The system is based on the environmental impact system as stated in Section 4 of P.D. 1151 which states that "all agencies and instrumentalities of the national government, including government-owned or controlled corporations, as well as private corporations, firms and entities shall prepare, file and include in every action, project or undertaking which significantly affects the quality of the environment (DOE, n.d.)"

Continuation of Table 1.4

Policy	Description
R.A. 8749 The Philippine Clean Air Act of 1999	An Act that is primarily concerned in the management of air pollution through development of national programs and mechanisms. Its objective is to pursue economic growth while maintaining the conservation of the environment.
R.A. 9803 Food Donation Act of 2009	An Act which encourages the donation of "wholesome food" for charitable purposes that aims to alleviate poverty and reduce food wastage in the country. "Wholesome food" refers to food that meets the standards set by law. Milk products covered by Executive Order 51 (The Milk Code) should not be included (Official Gazette, n.d.).

2. The Project: "Establish Low Carbon Consumption and Production in the Philippines"

The WWF-PH introduced and has been implementing the project entitled "Establish Low Carbon Consumption and Production in the Philippines" since 2017 to contribute to the Philippines' capacities for integrating and improving the use of SCP principles in national policies, private businesses, and civil society as a means to live up to the national climate strategies. The following are some of the components of activities under the project (Table 1.5).

Table 1.5. Components of Establish Low Carbon Consumption and Production in the Philippines Project by WWF-PH

Components	Description
Environmental Teaching manuals for Primary and Secondary School Teacher	Teaching manual designed for Primary and Secondary School Teacher was developed and pilot-tested in four (4) schools. The manual has the following topics: ♦ Grade 1: Taking Care of the Environment and Vegetables are Yummy ♦ Grade 2: Dealing with Leftovers, Saving Power and Water, and Using Less Plastics

Continuation of Table 1.5

Components	Description
	♦ Grade 3: The Oxygen Cycle, Climate Change (Basic), and Eating Out with No Food Waste ♦ Grade 4: Why We Avoid Plastics, Conserving the Resources We Use ♦ Grade 5: Climate Change (Intermediate), What Goes on Our Plate, and The Mindset of Sustainability ♦ Grade 6: Understanding Your Carbon Footprint, Finding Alternatives to Plastics, and Introduction to Sustainable Dining ♦ Grade 7: State of the Environment, and Environmentally Responsible Eating Habits ♦ Grade 8: Calculating Your Carbon Footprint, and Environmentally Sound Business Practices ♦ Grade 9: Climate Change (Advanced), and Supporting Local Food Products ♦ Grade 10: Defining Sustainability, and Environmental Projections ♦ Grade 11: Environmentally Responsible Home Cooking, Real Sustainability Instead of Eco-Novelty, and The Importance of Biodiversity ♦ Grade 12: The Zero-Waste Ideology, Climate Change: Climate Crisis, and Know Your Environmental Influence
National Eco-labelling Program – Green Choice Philippines (NELP-GCP) Revised Criteria for Food Service Establishments	This project was in partnership with different government, private and non-government organizations to establish the (NELP-GCP) criteria for food establishments. There are four (4) main categories under mandatory and voluntary requirements, while there are three (3) additional voluntary innovative performance indicators under Other Sustainability Initiatives.

Continuation of Table 1.5

Components	Description
Food Sharing Network Program: A Feasibility Study	This was a commissioned project to various existing FDPs in terms of their impact, technical soundness, and social and political acceptability. A conceptual model was developed with the component of food production chain, partners and organizational set-up.
Hotel Kitchen Toolkit: A Pilot Study in the Philippines	To help the hospitality industry do its part in fighting food waste, explore possibilities of helping local communities meet the needs of the food insecure and provide diversion mechanisms that will make better use of food waste.
Life Cycle Analysis for Food Service	This was a commissioned study to conduct LCA study in six (6) partner restaurants in Cebu City, Quezon City, and Tagaytay City to define the industry's impacts and environmental priorities. The carbon footprint of top dishes was also calculated to measure its contribution to climate change.
Cost benefit Study of Integrating Sustainable Consumption and Production into Business Operations of Food Service Establishments	This study considers the project's financial costs and benefits, and its externalities or social and environmental impacts. It aims to present the viewpoints of the restaurants, providing an overview of the financial costs and benefits associated with implementing SCP practices, and from the outlook of society which monetizes economic, social and environmental externalities whether positive or negative.

WWF also promotes the adoption of a planet-based diet or increasing the consumption of plant-based food relative to animal-sourced food. These actions are intended to reduce the pressure on agricultural lands to support livestock production and to reduce biodiversity loss. Other resources and information may be found in this site:

https://planetbaseddiets.panda.org/impacts-action-calculator/

3. Sustainable Dining Practices

Awareness on sustainability and sustainable dining has been growing in the recent years. Table 1.6 presents a summary of articles on adopting sustainable dining practices in restaurants, Table 1.7 presents the different sustainable dining practices at different university cafeterias and canteens, and Table 1.8 shows the examples of restaurants that practice sustainable dining and their characteristics. These show that the importance of environmental sustainability and sustainable dining is being appreciated, and efforts are being made to employ a more sustainable way of producing and consuming food.

Table 1.6. Summary of Sustainable Dining Practices Based on Online Articles

Article Title	Sustainable Dining Practices
Sustainable Dining Practices to Adopt Today (Burkhart, 2020)	♦ Cook Seasonally – changing menu items based on availability and seasonality. ♦ Producer Partnerships – includes choosing partnerships with various local suppliers to reduce carbon emissions due to a shorter supply chain. ♦ Grow Your Food – having a kitchen garden where composts from food waste may be used. ♦ Think Beyond Food – use of environmentally efficient equipment and design, as well as use of reusable items instead of disposable ones. ♦ Manage Water Waste – making sure that there are no leaking pipes and making sure that faucets are turned off when not used. Avoiding the selling of bottled water may also reduce plastic waste. ♦ Reduce Food Waste – food items in the menu may be limited. Teams that monitor food waste in the restaurant. Excess food may also be donated to reduce food waste. ♦ Start Small – one may start with small steps to achieve sustainable dining habits. ♦ Educate Staff About Sustainable Dining – teaching staff regarding sustainable dining may have lasting effects.

Continuation of Table 1.6

Article Title	Sustainable Dining Practices
	♦ Plant-based Foods – restaurants should start offering vegetarian or vegan options. Offering plant-based foods is a more sustainable and accessible option and the demand also increases. ♦ Spread the Word About Sustainable Dining – communicate the goals and values of sustainable dining to the community.
12 Ways to Make Your Restaurant More Sustainable (Terenzio, 2015)	♦ Cook What's in Season ♦ Partner with the Right Producers ♦ Grow it Yourself ♦ Buy locally, in bulk ♦ Think beyond the food ♦ Start small ♦ Manage your waste – all of it ♦ Do your homework ♦ Train your staff to be passionate about the cause. ♦ Extend the mission to your community. ♦ Plan for the long haul. ♦ Prioritize customer satisfaction above anything else.
Why are Sustainable Restaurants Important? (Hollis, 2018)	♦ Start from the Ground Up – use of environmentally friendly and biodegradable products which includes cups, utensils, cleaners (ammonia- and chlorine-free), etc. ♦ Start Composting – creation of compost bins where food waste can be used as fertilizer ♦ Go Local – buy from local farms ♦ Farm Greener – choose suppliers or farms which also supports sustainability ♦ Offer Seasonal Menu – base the menu on the availability or seasonality of ingredients or produce

Continuation of Table 1.6

Article Title	Sustainable Dining Practices
	♦ Grow Your Own Food – start growing own food in a garden to ensure freshness and food safety ♦ Source Reduction – creation of waste log to identify which food items should be prepared less in a day to reduce food waste ♦ Food Donation – instead of throwing away excess food, it could be donated to organizations ♦ Recycling – example is to turn used oil into fuel
Best Eco-Friendly Practices for Organic Restaurants (Chait, 2019)	♦ Green Your Food Offerings a. Serve food items that are organic and locally sourced. For seafoods, make sure that it is sustainably sourced. b. Use minimal or recycled food packaging c. Offer vegan and vegetarian, plant-based options d. On-site food production e. Use GMO-free products
	♦ Practice Water Efficiency and Conservation a. Use plants that require less water b. Reuse water by setting up water catchments c. Use low-flow faucets. Use toilets that are designed to conserve water d. Use energy-efficient equipment e. Serve water to customer only when requested ♦ Reduce Waste a. Compost b. Portion-control. Surplus food should be donated c. Paperless transactions d. Donate or recycle when renovating or redecorating e. Use hand towels or air dryers instead of paper towels

Continuation of Table 1.6

Article Title	Sustainable Dining Practices
	♦ Have Strict Recycling Policies in Place – recycle everything that can be recycled ♦ Clean Green a. Use of reusable towels b. Eco-friendly cleaners and detergent c. Steam cleaning floors instead of using cleaners with strong chemicals ♦ Ditch Disposable for Takeout - Consider more eco-friendly packaging materials especially for take outs. Use of corn-based plastics instead of the usual disposables. ♦ Reduce Pollution a. Give incentives to staff to bus, carpool or bike to work b. No-idling policy in the restaurant c. Use a manual mower d. Use low-VOC (containing less Volatile Organic Compounds) paints e. Open the windows of the restaurant
	♦ Use Energy Efficiently a. Keep moderate temperature in the restaurant b. Use roofing and window materials that block temperature extremes c. Use energy-efficient equipment and appliances d. Use heat recovery system e. Use of occupancy sensor for lights f. Regular inspection and maintenance of appliances g. Consider use of renewable energy sources

Continuation of Table 1.6

Article Title	Sustainable Dining Practices
Best Eco-Friendly Practices for Organic Restaurants (Chait, 2019)	♦ Consider Sustainable Interior Décor a. Use linen b. Use non-disposable dish wares c. Reuse tables and chairs d. Purchase furniture using rapidly renewed wood source like bamboo ♦ Resources and Certification for Green Restaurants a. The Green Restaurant Association (GRA) – a non-profit organization that awards certifications to restaurants which follows sustainable practices. b. The Green Business Network – The organization offers business tools to adapt sustainable practices. ♦ Tell Your Customers All About Your Practices – communicate the advocacy by giving out pamphlets to customers that highlights how sustainability is practiced in the restaurant.

Table 1.7. Summary of Sustainable Dining Practices Adopted in Different Universities

Source	Sustainable Dining Practices
UNITED STATES	
Shenandoah University: Sustainable Dining Practices (SU, n.d.)	♦ Reusable Water Bottles ♦ Tray-less Dining ♦ Environment Friendly Products ♦ Campus Kitchen ♦ The Village Composting Project
Northern Michigan University: Dining Services (NMU, n.d.)	♦ Use of biodegradable eating utensils ♦ Tray-less Alternative ♦ Renovation of dishwashing area to reduce water usage

Continuation of Table 1.7

Source	Sustainable Dining Practices
	♦ Use of pulper which is used to grind and mix food scraps, cardboard, aluminum foil and so on to reduce volume of waste
Iowa State University: Sustainability Dining Practices – Sustainability Committee (Wilde, 2019)	♦ Reduce use of plastic bags, straws and so on. ♦ Encourage sustainable purchasing in cafes and convenience stores.
Sacramonte State University: Sustainable Dining Practices (UEI, n.d.)	♦ Sustainable food purchasing ♦ Recycling and waste reduction ♦ The use of environment-friendly packaging and materials ♦ Green custodial and cleaning ♦ Energy efficiency
University of Massachusetts Lowell: Sustainable Practices, Food and Dining (Umass Lowell, n.d.)	♦ Hydration stations around the campus ♦ Reusable Mug Discounts ♦ Partners with the campus to recycle and compost from all dining locations across campus ♦ Tray-less dining which leads people to carry smaller amounts of food to prevent food waste ♦ Training of staff about energy and water conservation ♦ Recycled content paper ♦ Green cleaning
University of Minnesota Duluth: Sustainability practices (UMD, n.d.)	♦ Local, sustainable, and healthy choices – partners with local businesses ♦ Reducing waste – includes meal planning, portion-controlled servings, and bulk ordering. Excess food is also donated to Second Harvest Northern Lakes Food Bank. Compostable utensils are also being used.

Continuation of Table 1.7

Source	Sustainable Dining Practices
University of Michigan: Sustainability (Umich, n.d.)	♦ Local and Sustainable Foods a. Sustainable Mondays – Every Monday, the menu offers plant-based proteins, poultry, and fish. b. Fresh Produce – Partners with farms to serve fresh produce each time. ♦ Reducing Waste a. Composting – pre-consumer waste is turned into compost, mulch, and topsoil while post-consumer waste such as leftovers are ground and extracted for easier transport to the Compost Center b. Food Recovery – Food Recovery Network (FRN) which is managed by students collects surplus food for donation. c. Tray-less Dining – encourages people to choose their meals carefully since there is no available trays to carry their food with ♦ Sustainable Facilities a. Campus Leaders – Michigan Dining is the first department to be awarded with Platinum Workplace Certification which is a certification for sustainability b. Green Renovations – constructions and renovations are built using energy-saving equipment, recycled materials and so on
PHILIPPINES	
De La Salle University Dasmariñas: Sustainable Programs (n.d.)	♦ Ban on single-use plastics and styropor products ♦ Waste Minimization Policy for cafeteria concessionaires ♦ Has a centralized sewage treatment plant used to process wastewater to be reused ♦ Has their own Environmental Resource Management Center (ERMAC)

Continuation of Table 1.7

Article Title	Sustainable Dining Practices
Ateneo de Manila University: Sustainability Policies and Specific Guidelines (2016)	♦ Has existing sustainability policies and guidelines as part of their execution of their 3rd strategic thrust ♦ Has their own policy and guidelines on the following: campus sustainability and awareness, use and conservation of materials and energy, food sustainability and food packaging, and disaster risk management and emergency response. This can be accessed through: https://www.ateneo.edu/sites/default/files/Ateneo Sustainability Guidelines_June_2016_ website_version.pdf ♦ Reduces freshwater consumption through rainwater storage systems and water recycling ♦ Promotes healthy and nutritious eating through ensuring that food outlets offer nutritious food and follow proper handling and service practices ♦ Minimizes food waste and avoid overconsumption of food ♦ Uses less packaging, use of reusable, renewable, and/or recyclable packaging materials

Table 1.8. Examples of Restaurants Practicing Sustainable Dining

Article Title	Sustainable Dining Practices
The 8 most amazing, sustainable restaurants in the world (Jabbar, 2019)	♦ **Azurmendi in Larrabetzu, Spain** The restaurant has three (3) Michelin stars. This restaurant uses solar panels and geothermal energy system to regulate temperature during different seasons. It also grows its own food in gardens and greenhouses, where customers may visit.

Continuation of Table 1.8

Article Title	Sustainable Dining Practices
	♦ **Relae in København, Denmark** The restaurant employs sustainability from its design to the menu. It uses recycled chairs. Their ingredients are sourced from farms that does not use chemicals or pesticides. ♦ **Captain's Galley in Scrabster, Scotland** The restaurant uses locally sourced food within the 15-mile radius. The menu is based on the seasonality of ingredients. ♦ **Septime in Paris, France** The menu in the restaurant is 80% plant-based and 99% are sourced in the country. They have also partnered with farmers and other restaurant to conserve 1,400 seed varieties. ♦ **Narisawa in Tokyo, Japan** The restaurant's theme is *"satoyama"* which is about the "sliver of Earth where people and nature coexist." It offers seasonal menus based on the availability of ingredients. ♦ **Uncommon Ground in Chicago, Illinois** It has the first certified organic rooftop far which the restaurant uses for its menu. It also has beehives where honey is harvested to be mixed to their food and beverage. ♦ **Nomad in Surry Hills, Australia** The restaurant uses locally harvested and sustainable firewood. They buy their meat whole and uses all parts of the animal. They also use locally sourced wine, recycle oil into biodiesel, and they also serve as the solar panel host site in their community. ♦ **Mil in the Andes Mountains, Peru** The restaurant works with SINBA to manage and repurpose their organic waste. They also support local farms and suppliers where they get 50% of the harvest profits.

Continuation of Table 1.8

Article Title	Sustainable Dining Practices
The World's Best Sustainable Fine Dining Restaurants (Hill, 2019)	♦ **L'Arpège, France** The restaurant is the winner of the Chefs' Choice Award in the World's 50 Best Restaurants 2019. The restaurant is also considered the pioneer of plant-based cuisine and sustainability. The source of their vegetables is from hand-harvested farms which produces 50 tons per year. ♦ **Schloss Schauenstein, Switzerland** The restaurant is the recipient of the Sustainable Restaurant Award at the World's 50 Best Restaurants 2019. The restaurant scored 94% in the Food Made Good Global 2019 assessment which proves how they have employed sustainability in their operations. It grows its own produce and have established partnerships with local organic farmers. The menu is based on seasonality and availability of ingredients. It also uses renewable energy. ♦ **Mirazur, France** The restaurant has three (3) Michelin stars and was also among the World's 50 Best Restaurants 2019. Ingredients are from their own garden and land while they also source from local farmers and fishermen. ♦ **Central and Mil, Peru** Central is 6th among the World's 50 Best Restaurants. The owner uses local ingredients to preserve their culinary identity and cultivate native ingredients. ♦ **La Vague d'Or, France** The restaurant has three (3) Michelin stars. It uses locally sourced ingredients where the owner establishes linkages among local farmers. ♦ **The Test Kitchen, South Africa** The owner has a deep commitment to sustainability evidenced by employing a "Drought Kitchen" menu during the 2018 water crisis in their area. The owner was also an ambassador of the Chefs for Change to combat decline in fish population.

Continuation of Table 1.8

Article Title	Sustainable Dining Practices
The 10 Most Sustainable Restaurants in America (Spoon University, 2017)	♦ **Mixt Greens** The menu offers food items with organic ingredients. The restaurant also uses compostable packaging, and energy-efficient equipment. ♦ **Bareburger** Famous for making non-GMO and pesticide-free burgers. ♦ **The Plant Café Organic** All food items are grown organically from local farms. They ensure freshness because produce are only picked days before it is used. ♦ **Busboys and Poets** Food items are locally sourced. They make use of recycled paper products and renewable energy in the restaurant. ♦ **Soupergirl** Soups are made from scratch using organic ingredients. Food waste and scraps are used to make compost. ♦ **Root Down** The restaurant makes use of wind energy to power the establishment. Herbs and vegetables are harvested from rooftop gardens and patios. ♦ **Founding Farmers** Countertops are made from recycled paper composite. Food are also locally sourced. Their menu uses soy-based inks and they don't use fume paints. ♦ **Red Stagg Supperclub** More than serving organic and locally-sourced food, the restaurant was the first Leadership in Energy and Environmental Design which only uses LED energy-efficient lights. This cut down their energy usage in half.

Continuation of Table 1.8

Article Title	Sustainable Dining Practices
	♦ **Tilth** The restaurant serves organic food. More than that, the restaurant also offers organic feminine products in the bathroom and children are given soy crayons. ♦ **Woodberry Kitchen** Ingredients are sourced locally. Vegetable wastes are ground and extracted to make it lighter when disposed of. They also return oyster shells to the bay to regenerate oyster beds.
4 restaurants at the forefront of sustainability (Torres, 2020)	♦ **Earth Kitchen (Quezon City)** Sources ingredients from local farmers and fishermen. They also ensure that the farms they partner with employ sustainable farming practices. ♦ **Manna (Mandaluyong City)** They get their ingredients from local sources. They also emphasize the benefits of sourcing produce from local farms to their customers. ♦ **ECHO Café (Makati City)** Supports local farmers. The name stands for Environment and Community Hope Organization. ♦ **Le Don's Garden Café (Silang, Cavite)** Employs a farm-to-table process of serving food through growing their own garden where they get their ingredients to conserve energy, water, and to lessen food waste.
The Cravings Group (ClickTheCity, 2013)	♦ Compliant to RA 9003 or the Ecological Solid Waste Management Act of 2000 ♦ Uses renewable energy sources such as biogas, solar energy, and biomass ♦ Has its own bee apiary, butterfly sanctuary ♦ Recycles metal, paper, and plastics

Continuation of Table 1.8

Article Title	Sustainable Dining Practices
	♦ Employs conservation of energy, water, and paper ♦ Total waste segregation and recovery program ♦ Foliar fertilizer production from food waste ♦ Vermiculture ♦ Certified with ISO 14001:2004 + Cor. 1:2009

MODULE 02

EMBRACING SUSTAINABLE DINING

The sustainable diner food path begins with production, distribution, transportation, preparation, and then consumption. This module covers the means and strategies in applying sustainable dining principles from food establishment operations to everyday living including menu planning, ingredient and supplies purchasing, and meal preparation and consumption. This module also tackles the importance of resource management including water and energy, as well as the importance of waste management in its achievement. After the completion of this module, the students are expected to apply and promote sustainable dining and its strategies.

This module has the following topics:

Topic 2.1. Planning the Menu

Topic 2.2. Choosing Resources and Ingredients

Topic 2.3. Managing Resources

Topic 2.4. Managing Waste

Topic 2.5. Implementing Sustainable Dining as a Way of Life (Operations and Management)

DURATION: 30-45 minutes per topic, 2-3 hours for the entire module.

LEARNING OBJECTIVE

At the end of this module the students should be able to:

1. Develop a regional menu according to sustainable dining principles;
2. Formulate cost-effective means for sustainable purchasing;
3. Identify ways on how to manage resources in the context of sustainable dining;
4. Develop a sustainable water management system for the establishment;

5. Formulate a sustainable waste management system for the establishment; and
6. Write a statement of commitment on sustainable dining.

COMPETENCIES TO BE DEVELOPED

The students should be able to acquire knowledge and skills on sustainable dining practices, particularly on: regional cuisine and menu development, choosing resources and ingredients, resource management, development of sustainable water management system, development of proper waste management system and composting, and development of statement of commitment on sustainable dining practices.

TOPIC INPUTS AND REFLECTIONS FOR STUDENTS

1. How can I apply sustainable dining principles in developing menus at home? In a food establishment?
2. How do I choose the resources and ingredients according to sustainable dining principles? How can I support local producers?
3. How can I help save water, energy, and other resources?
4. What can I do to minimize food waste at home?
5. Am I ready to practice sustainable dining? How can I be more sustainable?

MATERIALS

- Soft copy of PowerPoint presentations
- Copy of video presentations
- Laptop, projector, and sound system

PREPARATORY ACTIVITIES FOR THE FACULTY

- Prepare topic guides for a detailed instruction of activities.
- Prepare and upload PowerPoint and video presentations.
- Ready instructions for students.

METHODOLOGY

- Lecture-Discussions
- Individual reflections
- Group activities

PROCESS

- Start Lecture-Discussion per topic using the PowerPoint presentations.
- Give instructions to students on the activities per topic.

EXPECTED OUTPUTS

- Individual reflections
- Group written reports
- Oral presentations
- Statement of commitment and/or establishment policy

Topic 2.1. Planning the Menu

Duration:

30-45 minutes

Learning Objective

At the end of this topic, the students should be able to develop a regional menu following the principles of sustainable dining.

Topic Inputs and Reflections

How can sustainable dining principles be applied in menu planning?

- Lecture-Discussion on the principles of sustainable dining as applied in menu planning
- Writing a regional menu following the principles of sustainable dining

Materials

1. Soft copy of the slide deck
2. Soft copy of video presentation. Here are some examples:

   Global:

   - WWF International. (2020, October 9). *Planet-based diets - good for us, good for nature!* [Video]. Youtube. https://youtu.be/fiMOh0DEUSg
   - Lifehacker. (2019, May 10). *Food tips from the most sustainable restaurant in the world* [Video]. Youtube. https://www.youtube.com/watch?v=baO37bGFDRU
   - Mashable Brand X. (2016, March 24). *The San Francisco restaurant redefining what sustainable eating can mean - the new way* [Video]. Youtube. https://www.youtube.com/watch?v=TuV8mJtZw7s
   - The Atlantic. (2020, January 11). *The struggle of zero-waste restaurant* [Video]. Youtube. https://www.youtube.com/watch?v=Gj38m08QLoE

   Local:

   - WWF-Philippines. (2018, February 28). *The sustainable diner - how chefs can promote eco-friendly dining* [Video]. Youtube. https://www.youtube.com/watch?v=sjgULQ752Qs

3. Laptop, projector, and sound system

Preparation Activities

- Prepare the slide deck and video presentations.
- Prepare examples of menus following the principles of sustainable dining. This can be incorporated in the slide deck.
- Instruct the students to:
    a. **Listen:** Concepts in sustainable dining will be taught through an interactive Lecture-Discussion. Choose any of the videos suggested.
    b. **Reflect:** How can I apply the principles of sustainable dining in developing menus at home? In a food and/or a food-related establishment?
    c. **Respond**: Create a regional menu for the household or for a food and/or a food-related establishment.

Methodology

1. Lecture-Discussion
2. Video presentation
3. Menu planning activity

Process

1. **Lecture-Discussion:** The faculty-in-charge will discuss what is sustainable dining, its principles, and current trends in adopting such practices. Menu planning, the process and its principles should also be discussed to guide the students in doing their own menu.
2. **Video Presentation:** The faculty-in-charge will show the video presentations where sustainable dining principles are being adopted in real life settings.
3. **Activity 1. *"Menu for Thought"***

    The faculty-in-charge will show examples of menu items. The students will be asked to identify the principles applied and will be asked to share in class their recommendations and ideas to improve the said menu.

Example 1	Example 2	Example 3
Herbed Grilled Grouper in Lemon Butter Sauce Steamed Broccoli Florets Crispy-Skinned Oven-Baked Potatoes Carrot Cake Slice Brewed Iced Tea	Spiced Lentil Soup Vegetable Paella served with Hummus Quesadilla Vegan Shortbread Fruit-Infused Green Tea	Oyster Mushroom Soup Baked Chicken Breast with Buttered Corn Brown Rice Kesong Puti and Fresh Fruit Plate Freshly Squeezed Calamansi Juice

Note: The faculty-in-charge can include more relatable examples; can be from instructional materials used in the course.

4. Ask the students to form groups with three (3) to four (4) members. Let the students choose a region to represent.

5. **Activity 2: *"What's on the Menu?"***

   The students will write a menu for a household or a restaurant, with at least one menu item, for each of the following categories:

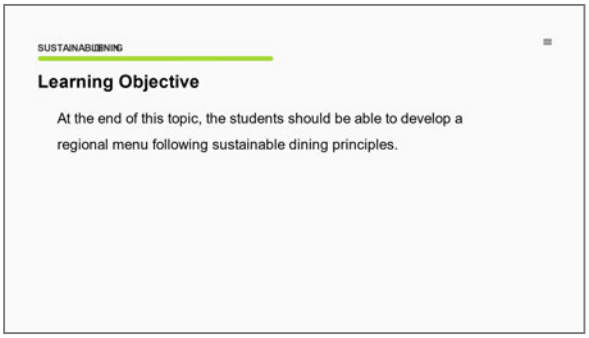
   1. Main entrée with a vegetable side dish
   2. Rice or any other carbohydrate-rich food
   3. Dessert
   4. Beverage

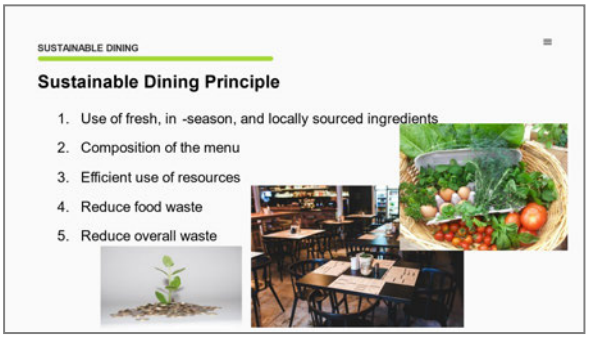
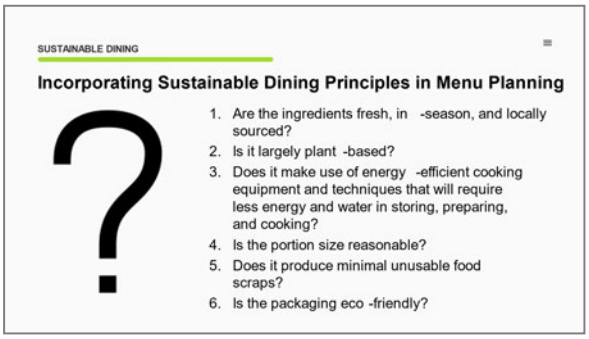
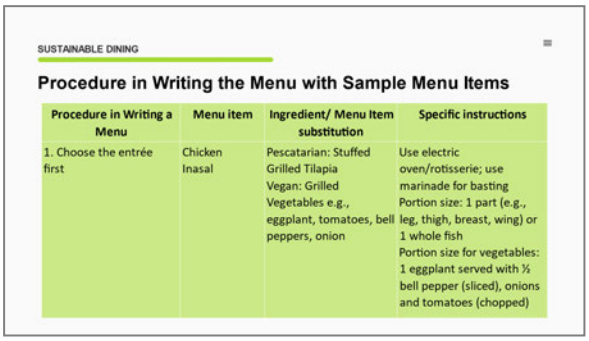
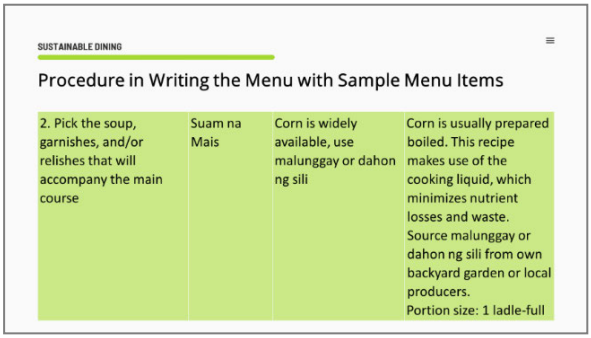
   Include specific instructions such as ingredient substitutions, ways to minimize waste during preparation, efficient use of resources, portioning, and serving materials to be used for dine-in and/or take-away. Take note that the menu to be developed should follow menu planning and sustainable dining principles. The students can visit the WWF Planet-Based Diet website, Build Your Diet (https://planetbaseddiets.panda.org/impacts-action-calculator), for menu ideas. The students can decide on what will be the theme and other aspects of the food establishment. Make sure that each group will have a unique theme/cuisine/aspect to avoid duplication of output. Each group should report their output in class the next meeting.

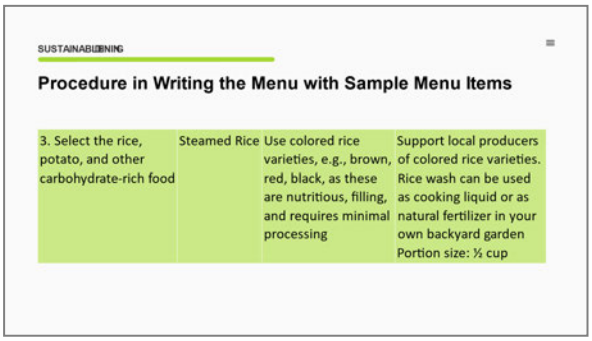
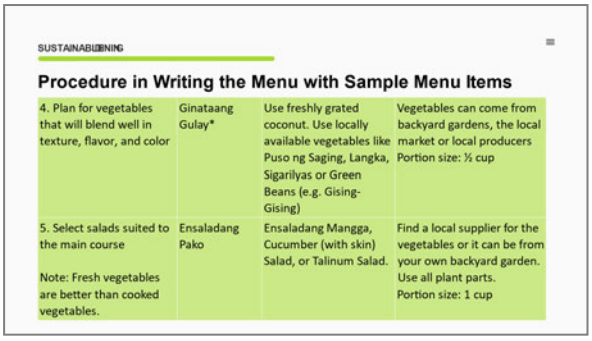
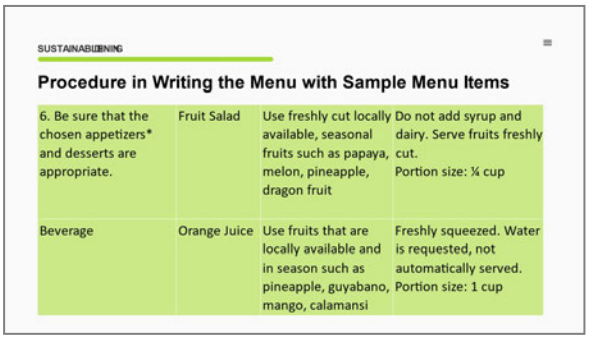
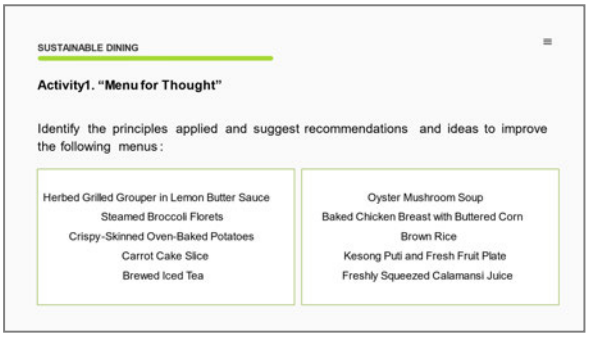
Expected Output

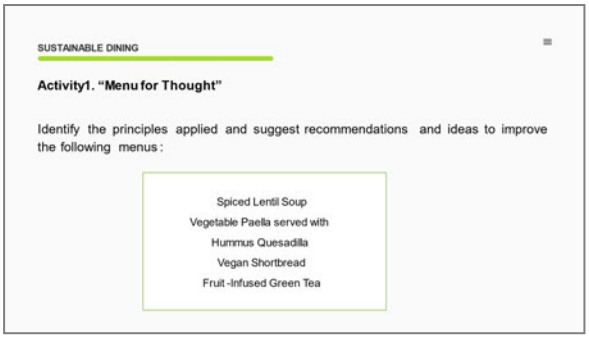
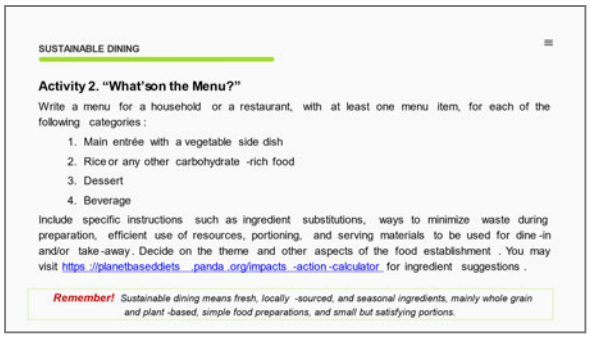
1. Group menu
2. Oral presentation by group (submit slide deck used)

PRESENTATION OF POWERPOINT SLIDES

Slide #	PPT slide	Instructions
1		Welcome students and introduce sustainable dining and Topic 2.1: Planning the Menu.
2		State the objective of the topic.
3		Play the video.

Slide #	PPT slide	Instructions
4		Discuss the sustainable dining principles in the slide.
5		Discuss how sustainable dining can be incorporated in menu planning.
6-10	 	Discuss the steps in writing a sample menu. Cite the examples given at each step.

Slide #	PPT slide	Instructions
	  	
11-12		Discuss the instructions for Activity 1.

Slide #	PPT slide	Instructions
		
13		Discuss the instructions for Activity 2. Refer the students to access the following website: https://planetbaseddiets.panda.org/impacts-action-calculator

Sustainable Dining Principles

Fulfilling the clients' needs and meeting targets are just some of the tasks of a food business and considering all aspects of sustainability adds more challenge. It is therefore important to start the implementation process gradually – and that means incorporating sustainability as early as during menu planning since there are several factors to be taken into account including use of sustainable ingredients, efficient water and energy use from preparation to waste disposal, and the subsequent amount of waste that will be generated (Lund-Durlacher *et al*, n.d).

To achieve sustainable dining in menu planning, the following principles should be considered:

1. **Use of fresh, in-season, and locally sourced ingredients** – All these ingredients have better quality and sensory appeal than their counterparts. Since very minimal transportation of local food items is needed, food miles, food losses, and carbon footprint are reduced. Local food systems also offer the use of more diverse local land, conservation of traditional agricultural landscapes, and sometimes foster more environment-friendly production methods with reduced chemical inputs, all of which

contribute to the reduction of GHGE and pollutants and agriculture intensification (Shindelar, 2015; Schoenhart et al., 2009; Kemp et al., 2010; Coelho et al., 2017).

Meanwhile, fresh ingredients contain relatively higher amounts of micronutrients and have considerably less sodium, added sugars, and trans and saturated fats than fast food. Since fresh ingredients are likely to be minimally processed, it also decreases the potential to contribute to the development of non-communicable diseases (UOC, n.d.). Maintaining an on-site or community garden is one way of achieving sustainability and continuous supply of fresh ingredients. With efficient and sustainable agricultural production practices, this can help reduce operations cost from purchasing of ingredients to delivery, storage, and preparation (Lund-Durlacher *et al*, n.d).

Aside from reducing the amount of needed preservation and storage, in-season fruits and vegetables are more likely to offer full flavors. In designing a menu, it is therefore important to consider the growing seasons of local farmers and distant regions. Local sourcing of in-season ingredients by working with smaller producers may offer interesting and flavorful varieties since the restaurants are more willing to experiment. Local sourcing also helps in creating sustainability consciousness in the community and encourages food businesses, local farmers and retailers, school children and the media to adopt healthier eating habits by learning to steward the land and grow their own food (UOC, n.d.).

2. **Composition of the menu** – Menu variation and inclusion of seasonal highlights are just some ways of providing sustainable food. The principles of menu planning – balance, variety, contrast – should be followed. Meals and snacks should focus on diversity by providing fruits and vegetables and less meat. A considerable number of dishes in the menu is also desirable not only to simplify the thinking process of diners but also to avoid food wastes due to non-usage of some ingredients. Most, if not all, ingredients and trim-offs should be considered to be used in crafting other menu items (Lund-Durlacher *et al*, n.d). More examples of sustainable menu items can be found here:

    - NYU Torch Club. (n.d.). *Sustainable menu.* https://www.nyu.edu/content/dam/nyu/campusServices/documents/Torch%20Club%20-%20Sustainable%20Menu%20PDF.pdf

    - Research suggests that shifting to mostly plant-based diet is the most effective way to help diners make healthy and sustainable food choices and that growing plants for food has less negative impact on the environment than raising livestock as shown in Figure 1 (UOC, n.d.).

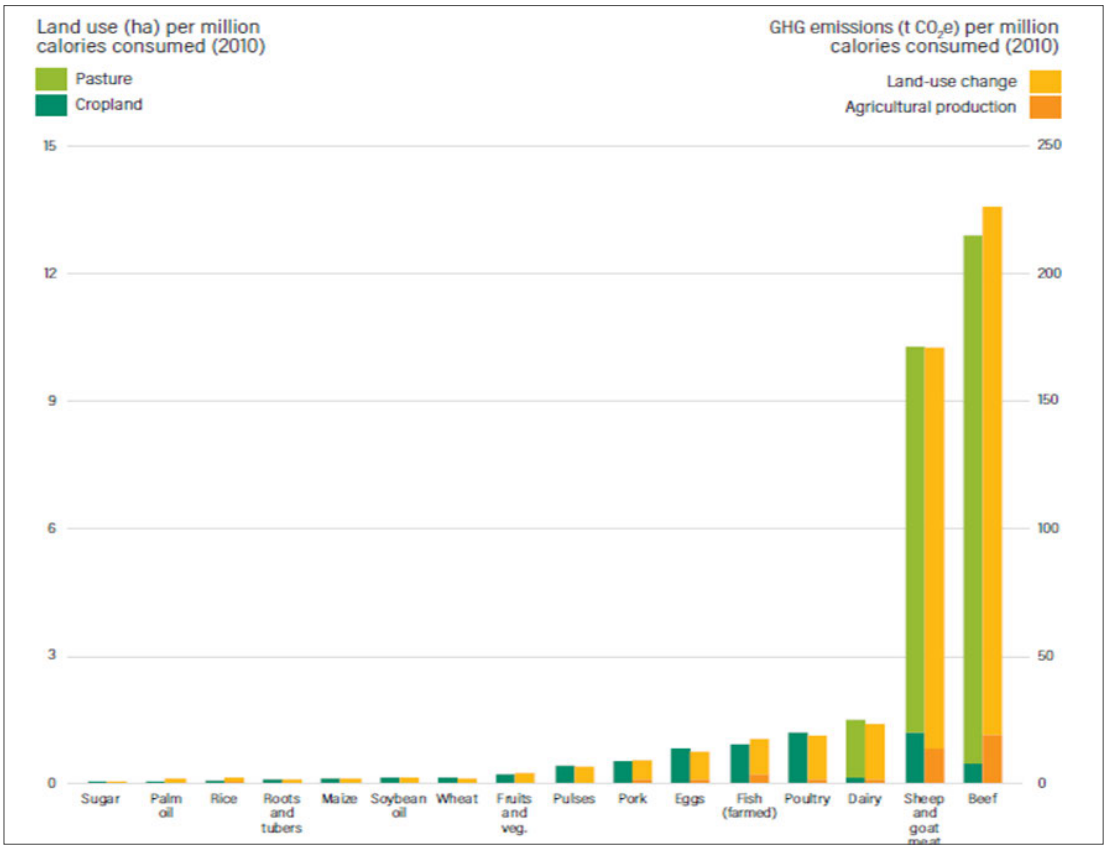


Figure 3.1. Animal-based foods are more resource-intensive than plant-based (WRI, 2018).

Goodland (1997) noted that 2,700 gallons of water are needed to produce just a pound of beef, while 100 and 200 gallons of water are needed for a pound of vegetables and grains, respectively. Cattle production and livestock overgrazing were also found to be responsible for 2.5% (60 million tons) of global greenhouse gas production and loss of fertile land due to soil erosion, respectively.

Industrialized livestock production also competes with land allocation for food production. More than 95% of oats, 80% of corn, and 70% of soy produced in arable lands are fed to livestock, and this data was in the US alone (Woldeab, 2019). Only 10-15% of cereals being fed to livestock is already enough to meet the caloric needs of the world. Protein derived from an acre of cereals is two (2) to 10 times higher than an acre of beef while an acre of legumes is 10 to 20 times higher (Goodland, 1997).

It is therefore a big contribution to reduce, if not totally, the amount of meat or the number of meat dishes in the menu. However, there are numerous ways to substitute meat with more sustainable ingredients including the use of plant-based

protein or meats made from plant materials designed to mimic the appearance, smell, taste, and texture of meat. It can be used to substitute sausages, ground meat, nuggets, burger meats, and even faux-seafood like fish and shrimp. Combinations of plant-based protein sources may also be considered to supply complete protein in the diet. Examples of combinations include grains and legumes, lentils and rice, pasta and beans, tortillas and beans, tofu and rice, and hummus and whole wheat pita (The Culinary Institute of America, 2011).

3. **Efficient use of resources** – Menus should be designed in a way that it will make efficient use of resources from storing, preparing, to cooking. Plan a menu that will make use of energy-efficient cooking equipment and techniques that will require less energy and water in storing, preparing, and cooking the food items (Lund-Durlacher *et. al.*, n.d). Energy-efficient equipment and cooking techniques may be employed, like batch preparation. Though batch cooking saves time and fuel, it should only be used for some necessary steps. In most cases, it is better to implement cook-to-order preparations to easily measure and limit food waste, thus saving more money and resources in the long term. Other techniques also include sautéing and grilling instead of stewing since the latter takes more time and fuel to accomplish (AIFS, n.d.).

   During procurement, it is also important to buy the right amount of ingredients at the right time to maximize the contents of the storage units and avoid too much stacking, which can help in saving energy. The right size and type of kitchen equipment relative to the kitchen size are also important factors to achieve maximum efficiency.

4. **Reduce food waste** – Food waste refers to both food left on the plate of the guests and food trimmings during dish preparation. One helpful technique in reducing the first source of food waste is to offer different meal sizes or to make the serving amount just enough for one (1) average person.

   One of the biggest steps is to moderate portion size, not just because it contributes to sustainability, but it also lowers the rates of obesity. Portion size moderation is different from offering multiple portion sizes, as the latter urges diners to upsize to bigger portions, offering greater value for their money.

   Another big step in the food service industry is the shift of diners' focus from quantity to quality. The nutrient quality, flavor, and total culinary and dining experience should be emphasized. New menu formats can be done to highlight more sustainable options in the menu. It may include dishes with plant proteins including nuts and legumes, slowly metabolized whole grains, and health oils that create great flavors and lasting satiety (UOC, n.d.).

Determining the right type and amount of ingredients to be bought or delivered at the right time is also a crucial part in reducing food waste (FAO, 2020). This can be done by keeping a sales history to forecast the potential orders on a specified period (AIFS, n.d.). Shelf life and storage capacity should also be taken into consideration. Remember to buy only what is needed and will be used. Bulk buying saves money only if all are used before spoilage. Perishable items in the menu should also be considered to be prepared and cooked ahead of time and frozen until use (US-EPA, n.d.).

Planning a flexible menu that can make use of leftover ingredients definitely helps in reducing food waste in the kitchen. It is better to track the source and amount of food waste before implementing changes (FAO, 2020; AIFS, n.d.). For the unusable food scraps, consider making a compost if possible, in order to divert it away from the landfills. These scraps can be a good fertilizer for the on-site food garden or landscapes (AIFS, n.d.).

5. **Reduce overall waste** – In menu planning, the method of serving and packaging dishes and utensils should also be included. Plan how to serve the meals in and out of the establishment. Since huge amounts of non-food waste can be generated from food establishments, some are already using reusable utensils, cloth napkins, and recyclable packaging materials. Some establishments also encourage customers to bring their own take-out containers and offer reusable utensils and napkins by diners' request.

B. Incorporating Sustainable Dining Principles in Menu Planning

In planning a menu, it is important to consider the basic method of preparation, the nutritive value of foods, and aesthetics of food combinations. Take note of the sensory qualities of the food such as color, texture, consistency, size, shape, and flavor. To incorporate sustainable dining principles, ask the following questions:

1. Are the ingredients fresh, in-season, sustainably grown and locally sourced?
2. Is it largely plant-based?
3. Does it make use of resource-efficient equipment and techniques when storing, preparing, and cooking?
4. Is the portion size reasonable?

5. Does it produce minimal unusable food scraps?

6. Is the packaging eco-friendly?

A sustainable menu should not be difficult to plan and prepare. Here are some examples of menu items with ingredient substitutions and specific instructions, showing how sustainable dining principles can be applied. Choose menu items that fit the desired menu pattern.

Remember! *Sustainable dining means fresh, locally-sourced, sustainably grown and seasonal ingredients, mainly whole grain and plant-based, simple food preparations, and adequate and satisfying portions.*

Table 3.1. Procedure in Writing a Menu with Sample Menu Items.

Procedure in Writing a Menu	Menu item	Ingredient/ Menu Item substitution	Specific instructions
Choose the entrée first	Chicken Inasal	Pescatarian: Stuffed Grilled Tilapia, Vegan: Grilled Vegetables e.g., eggplant, tomatoes, bell peppers, onion	Use of electric oven/rotisserie; use marinade for basting *Portion size: 1 part (e.g., leg, thigh, breast, wing) or 1 (150 g) tempeh or tofu* *Portion size for vegetables: 1 eggplant served with ½ bell pepper (sliced), onions and tomatoes (chopped)*
Pick the soup, garnishes, and/ or relishes that will accompany the main course	Suam na Mais	Corn is widely available, use malunggay or chili leaves	Corn is usually prepared boiled. This recipe makes use of the cooking liquid, which minimizes nutrient losses and waste. Source malunggay or chili leaves from your own backyard garden or local producers. *Portion size: 1 ladle-full*

Continuation of Table 3.1

Procedure in Writing a Menu	Menu item	Ingredient/ Menu Item substitution	Specific instructions
Select the rice, potato, and other carbohydrate-rich food	Steamed Rice	Use colored rice varieties, e.g., brown, red, black, as these are nutritious, filling, and requires minimal processing	Support local producers of colored rice varieties. Rice wash can be used as cooking liquid or as natural fertilizer in your own backyard garden *Portion size: ½ cup*
Plan for vegetables that will blend well in texture, flavor, and color	Ginataang Gulay*	Use freshly grated coconut. Use locally available vegetables like banana heart, jackfruit, winged bean or Green Beans (e.g. Gising-Gising)	Vegetables can come from backyard gardens, the local market or local producers *Portion size: ½ cup*
Select salads suited to the main course *Note: Fresh vegetables are better than cooked vegetables.*	Ensaladang Pako	Ensaladang Mangga, Cucumber (with skin) Salad, or Talinum Salad.	Find a local supplier for the vegetables or it can be from your own backyard garden. Use all plant parts. *Portion size: 1 cup*
Be sure that the chosen appetizers* and desserts are appropriate.	Fruit Salad	Use freshly cut locally available, sustainably grown, seasonal fruits such as papaya, melon, pineapple, dragon fruit	Do not add syrup and dairy. Serve fruits freshly cut. *Portion size: ¼ cup*

Continuation of Table 3.1

Procedure in Writing a Menu	Menu item	Ingredient/ Menu Item substitution	Specific instructions
Beverage	Orange Juice	Use fruits that are locally available and in season such as pineapple, guyabano, mango, calamansi	Freshly squeezed. Water is requested, not automatically served. *Portion size: 1 cup*

**optional*

Topic 2.2. Choosing Resources and Ingredients

Duration

30-45 minutes

Learning Objective

At the end of this topic, the students should be able to:

1. Explain the environmental, economic, and health impacts of different consumer food purchases and practices; and
2. Apply cost-effective means for sustainable purchasing.

Topic Inputs and Reflections

How do I choose the resources and ingredients according to the sustainable dining principles? How can I support local producers?

- Lecture-Discussion on how to choose resources and ingredients according to sustainable dining principles.
- Critique the menu (output) from Topic 2.1 based on the sustainable dining principles.
- Written and oral reports containing prospective local suppliers for the menu planned in Topic 2.1

Materials

- Soft copy of the slide deck
- Menu from Topic 2.1

Preparation Activities

- Prepare the slide deck.
- Each student must prepare a copy of their menu from Topic 2.1.
- Prepare the interview guide.

- Instruct the students to:
    a. **Listen:** The importance and factors that need to be considered when choosing resources and ingredients will be discussed through an interactive Lecture-Discussion.
    b. **Reflect**: How do I choose the resources and ingredients according to sustainable dining principles? How can I support local producers?
    c. **Respond**: Get to know local suppliers through market visits and/or online or phone interviews with key persons, e.g., suppliers, managers, restaurant owners.

Methodology

- Lecture-Discussion
- Online or phone interviews

Process

1. **Lecture-Discussion:** The faculty-in-charge will discuss the importance of and factors that need to be considered when choosing resources and ingredients following sustainable dining principles.
2. **Activity 1: *"Think-Pair-Share"***
    1. Make sure that all students have a copy of the menu that they developed in Topic 2.1.
    2. Assign pairs in breakout rooms. Ask them to present their prepared menus then discuss answers to these guide questions:
        a. What can you say about the ingredients and methods used?
        b. What do you find interesting about their menu?
        c. How can it be improved?
        d. What makes a sustainable menu?
    3. Return to the main session room and ask volunteers to share their insights on what makes a sustainable menu.
    4. The faculty-in-charge will process the activity.

Activity 2: *"Off to Market"*

a. The faculty-in-charge is to choose from these two (2) activities:

Option 1: Each group will be asked to go to a local market and look for prospective suppliers for their developed menus. The students may also use other methods such as online platforms in searching for local suppliers.

Option 2: Each group will interview one (1) food establishment to learn about their sustainable practices in sourcing ingredients using the attached checklist on sustainable purchasing policy (on p. 19 of the Sustainable Kitchen Egyptian version). Ask the students to highlight the practices that demonstrate sustainable dining principles.

b. Each group will report their output in the next session.

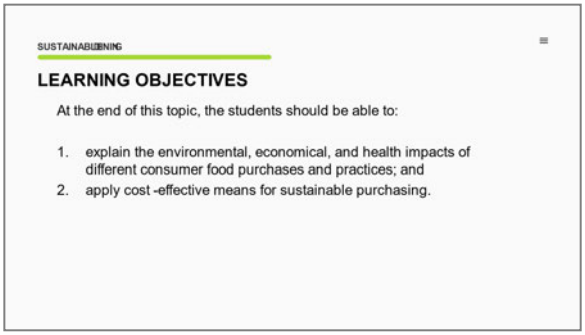
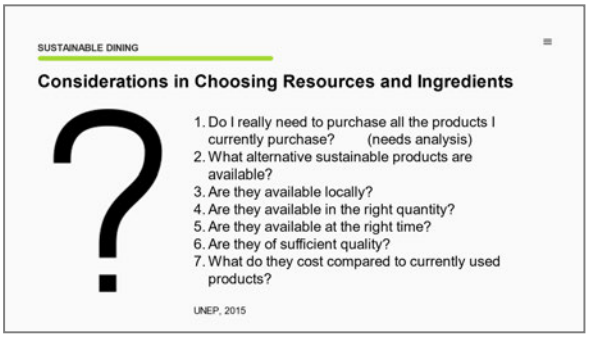
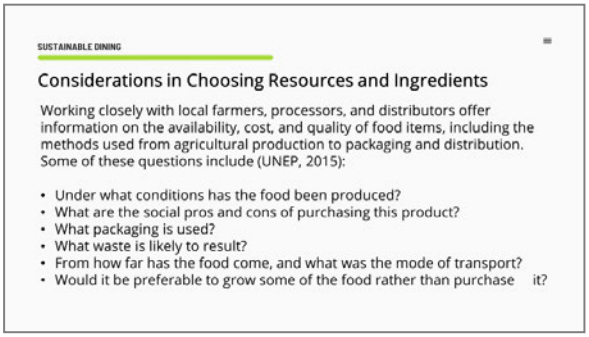
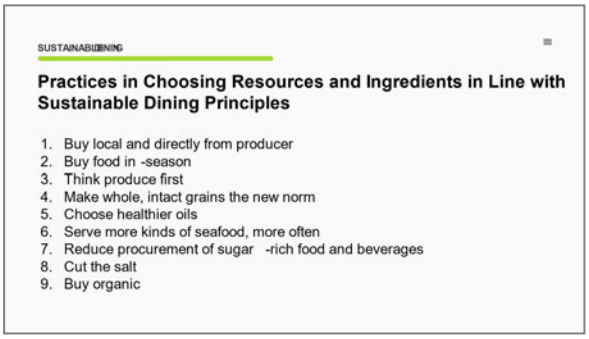
c. The faculty-in-charge will process the activity.

Expected Output

- Insights on the menu developed from Topic 2.1
- Oral presentation by group for the take-home activity (submit slide deck used)

PRESENTATION OF POWERPOINT SLIDES

Slide #	PPT slide	Instructions
1		Welcome students and introduce Topic 2.2: Choosing resources and ingredients

Slide #	PPT slide	Instructions
2		State the learning objectives of Topic 2.2.
3-4	 	Discuss the consideration in choosing resources and ingredients. You may refer to the discussion in this manual.
5-6		Discuss practices in choosing resources and ingredients in line with the sustainable dining principles.

Slide #	PPT slide	Instructions
	SUSTAINABLE DINING **Practices in Choosing Resources and Ingredients in Line with Sustainable Dining Principles** 10. Buy in bulk 11. Buy as few or as little as possible ingredients with high energy/water requirements 12. Work with your suppliers towards sustainability 13. Avoid disposable, prioritize reusable	
7	SUSTAINABLE DINING **Examples of reclaimed/upcycled materials**  Photo by Christy Boyer on Unsplash  Photo by Fernando Villanueva of MRF-Binan, Laguna  Photo by Carmela Julian E. Valencia on Paragon Press Ceramic cup and bricks from volcanic ashes Jeepneys as dining tables and chairs	Show examples of reclaimed/ upcycled materials using the images in the slide.
8	SUSTAINABLE DINING **Activity1. "ThinkPair-Share"** Group in pairs and proceed to breakout rooms. Present prepared menus from Topic 2.1 then discuss answers to these guide questions: 1. What can you say about the ingredients and methods used? 2. What do you find interesting about their menu? 3. How can it be improved? 4. What makes a sustainable menu? Return to the main session room and share insights on what makes a sustainable menu.	Discuss the instructions for Activity 1.
9	SUSTAINABLE DINING **Activity2. "Offto Market"** Choose from the following activities: **Option 1**: Each group will be asked to go to a local market to look for prospective suppliers for their developed menus. The students may also use other methods such as online platforms in searching for local suppliers. **Option 2**: Each group will interview one food establishment to learn about their sustainable practices in sourcing ingredients using the attached checklist on sustainable purchasing policy (on p. 19 of the Sustainable Kitchen Egyptian version). Ask the students to highlight the practices that demonstrate sustainable dining principles. Each group will report their output in the next session.	

A. Considerations in Choosing Resources and Ingredients

Choosing better products is the second step in sustainable dining. It should undergo a critical process to ensure that expectations and requirements are met. The questions that any food purchaser will want answers to are (UNEP, 2015):

- Do I really need to purchase all the products I currently purchase? (needs analysis)
- What alternative sustainable products are available?
- Are they available locally?
- Are they available in the right quantity?
- Are they available at the right time?
- Are they of sufficient quality?
- What do they cost compared to currently used products?

Working closely with local farmers, processors, and distributors offer information on the availability, cost, and quality of food items, including the methods used from agricultural production to packaging and distribution. Some of these questions include (UNEP, 2015):

- Under what conditions has the food been produced?
- What are the social pros and cons of purchasing this product?
- What packaging is used?
- What waste is likely to result?
- From how far has the food come, and what was the mode of transport?
- Would it be preferable to grow some of the food rather than purchase it?

Remember! *While purchasing seems to be a viable option for large-scale operations, it is worth noting that we are promoting environmental sustainability when we grow our own produce. In this manner, we have better control over our agricultural inputs as we aim to minimize air, water, and land pollution.*

B. Practices in Choosing Resources and Ingredients in Line with the Sustainable Dining Principles

1. Buy locally and directly from the producer

Direct and local purchasing does not only shorten the farm to fork food path which saves fuel and time, but also supports the local economy. Direct purchasing is also often cheaper than buying from a wholesaler and allows for better negotiations. It also lowers packaging wastes and nutritional losses and may also provide healthier options.

Imported goods should be substituted with local alternatives. The quality of some local ingredients is at par with imported goods and are much more climate friendly. An example is rice production, which is very water-intensive (Lund-Durlacher *et al.*, n.d.).

Learning about the availability, quality, and variety of local produce can be achieved by visiting local farmers and producers. Working closely with them may also ensure quality and constant supply of ingredients at a good price. Patronizing local food is also the most sustainable choice due to the minimal energy, transport, and storage costs (UNEP, 2015).

One significant indicator in measuring food sustainability is the concept of "food miles". This means that locally sourced ingredients have relatively lower food miles than those sourced outside. However, local sourcing does not necessarily equate to a lower energy option. For example, growing a crop in a heated greenhouse during cold periods/months requires more energy than importing from a place with a warmer climate. Exporting/importing more exotic products entail provision of organized and understandable information on proper production, packaging, and transportation to meet customer demand (UNEP, 2015).

How to find local suppliers? (Lund-Durlacher *et al.*, n.d.)

Learning more about local producers and their products can empower local farmers and support the growth of local culture and economy. Acquiring information on unique foods in a region can pave the way for better marketing since guests are willing to pay more for authentic, exclusive experience. Aside from this, establishing a trustworthy supply network also starts with getting in touch with local producers.

- Participate in local food festivals or food fairs or visit trade fairs and farmers' markets to network and discover new local food suppliers.

- Contact chefs' associations and agricultural NGOs and apply for membership to stay updated with latest developments on agricultural techniques and local fresh produce suppliers.

- Take a study trip to best-practice hotels and benefit from their experience.

2. **Buy food in-season** (Lund-Durlacher *et al.*, n.d.)

   Cultivating seasonal food items throughout the year requires the use of energy-intensive greenhouses to sustain the required environment for them to grow. It also entails higher energy costs for freezing and unfreezing and increases the amount of transportation needed to deliver the goods from one place to another. Buying food in-season therefore, reduces energy waste and carbon dioxide emissions.

   In addition, fruit and vegetables that are in season are fully mature and have developed their full quota of vitamins and flavor. That is why seasonal fruit is often the healthier and tastier option. It also strengthens local producers and enhances an understanding of the local food culture. To ensure supply, head chefs should communicate frequently with their purchasing agents who inform them about the availability of fresh, seasonal produce.

   Consumers should also be informed about the possible consequences of demanding seasonal produce year-round to the environment. For example, eating out-of-season seafood can negatively affect fish stocks due to early consumption during their breeding or spawning season. In consuming seafood, "red" and "green" months should be considered as red months produce fish below the matured size while green months are the best time to enjoy eating them and help maintain stock levels.

   List of some seasonal fruits and vegetables in the Philippines can be found in these sources:

   - Malasig, J. (2018, June 4). *The peak season of the Philippines' most popular fruits.* interaksyon. https://interaksyon.philstar.com/breaking-news/2018/06/04/127991/peak-season-philippines-popular-fruits-chart/

   - Miranda, P. (2018, June 29). *In-season fruits from July to September.* NOLISOLI. https://nolisoli.ph/44928/season-fruits-july-september/

3. **Think produce first** (UOC, n.d.)

   Restaurants should offer more vegan and vegetarian options. Inclusion of fruits and vegetables across meals and snacks should be done and should be emphasized in the menu. In-season fruits and vegetables should be offered during their seasons for better appreciation. If not possible, these can be preserved through freezing and without added salt or sugar.

4. **Make whole, intact grains the new norm** (UOC, n.d.)

   Slow-metabolizing, whole and intact grains, such as 100 percent whole-grain bread, brown rice, and whole grain/higher protein pasta, should be promoted and highlighted by food service establishments. Since refined carbohydrates have similar effects to sugar and saturated fats, the use of white flour should be limited. Ideally, new menu items should emphasize whole, intact, or cut—not milled—cooked grains, from wheat berries and oats to quinoa, which can be used creatively in salads, soups, side dishes, breakfast dishes, and more. Use blends of milled whole grains with intact or cut whole grains for baking to achieve good results.

5. **Choose healthier oils** (UOC, n.d.)

   Dishes in the menu should make use of healthier oils, containing unsaturated fats such as canola, soy, peanut, and olive oils. Healthier oils can also be found among fishes, nuts and seeds, and whole grains. Foods containing saturated fats can be used occasionally as needed. Avoid using ingredients with trans fats, which are now labeled as “metabolic poison”.

6. **Serve more kinds of seafood, more often** (UOC, n.d.)

   Seafood is a vital component of a healthy diet. It is important to serve more kinds of seafood, especially the less popular fish choices, but make sure to source them responsibly. Restaurant operators should be aware and should understand how to properly manage and use underutilized wild-caught and farm-raised fish and shellfish.

7. **Reduce procurement of sugar-rich food and beverages** (UOC, n.d.)

   Sugary food and beverages can be minimized by offering smaller portion sizes. However, if possible, explore the possibility to remove such items in the menu since these add little to no nutritional value and satiety. Instead, offer healthier options by choosing food with little or no added sugar, favoring healthy oils over sugar in products such as salad dressings; featuring smaller portions of dessert augmented with fruit; and substituting whole, cut, and dried fruit for sugar in recipes.

   With the addition of only minimal amounts of sugar and refined carbohydrates, try to include sweets and desserts focused on whole grains, nuts, dark chocolate, coffee, fruit, healthy oils, yogurt, small amounts of other low-fat dairy and eggs, and small amounts of beverage alcohol as appropriate.

   Restaurateurs should also promote and support other emerging entrepreneurs and brands offering research-based healthier options.

8. **Cut the salt** (UOC, n.d.)

   Flavor delivery should be considered when purchasing condiments and flavoring. Buy the best-quality, high-flavor products; work with spices, herbs, citrus, and other aromatics; and use balanced sauces, seasonings, and other strategies for creating flavors.

9. **Buy organic**

   Though organic farming is more labor intensive, it generates more employment than traditional agriculture. It also revolves around essential principles including low use of external resources (e.g. by fertilizers), the use of natural self-regulating mechanisms (e.g. crop rotation), soil instead of plant nutrition, closed resource circles, the use of natural plant safety products, and animal welfare. One negative factor of consuming organic products is its high cost. However, organic products are often healthier choices than conventional food items and are now being offered at several markets.

10. **Buy in bulk**

Bulk buying may entail lower prices, minimized transportation, and easier communication. However, remember that bulk buying is profitable only when all ingredients are used up and not spoiled in the kitchen counters. Many hotels are now conscious of the value of local food. Nevertheless, because of a lack of logistics, infrastructure and communication, buying local food is often inconvenient. There are only a few small local providers. Therefore, the creation of strong local networks is of critical importance to help overcome certain obstacles towards achieving a more sustainable food system. Though the building of such networks is a critical and long-term process, it will pay off in the future.

11. **Buy as few or as little as possible ingredients with high energy/water requirements**

Some of examples of these are:

- Vegetables grown in heated greenhouses
- Foods involving air transport
- Imported beef
- Deep-sea fish (e.g. cod) or farmed carnivorous fish (e.g. salmon)
- Ingredients wrapped in aluminum foil
- Seasonal foods out of season

12. **Work with your suppliers towards sustainability** (UNEP, 2015)

As mentioned earlier, taking the road to sustainability may be smoother once the objectives are communicated with the suppliers. Sustainable food purchasing can be ensured through proper dialogue; in this way, both you and the suppliers will have the same level of expectations. Influence suppliers to embrace sustainability by raising awareness of key issues and demonstrating why sustainability is important.

Choosing to buy fair trade food is another path to accepting social responsibility. Helping manufacturers achieve better trading conditions by applying higher social and environmental standards is the goal of the Fair-Trade Movement.

For food products that are traditionally exported from developing countries to developed countries, fair trade is particularly important, especially cocoa and coffee, sugar and honey, tea, fresh fruit (e.g. bananas), wine and even fresh flowers. In order to ensure that goods follow such environmental, labor and development requirements, fair trade certification is commonly used, and a range of certification schemes are in place worldwide.

13. Avoid disposable, prioritize reusable

Generally, choose reusable tableware, service ware, and operating supplies (such as napkin and food packaging) to minimize waste and contribute to sustainable dining objectives (UNEP, 2015). It is also recommended to buy products packaged in recyclable materials such as cardboard, whenever possible.

For take-out transactions, choose take-out containers and cutlery made from recycled and rapidly renewable content. Reusable eco-friendly bags or paper bags are also being used to avoid use of plastic bags. Some restaurants are already employing the "bring your own take-out containers" to further minimize waste generation.

In terms of interior design for the establishment, use of reclaimed or pre-used materials instead of buying brand new (flooring, furniture, fixtures, etc.) can be done. These materials can undergo upcycling or transforming waste into new products.

A good example is transforming volcano ashes into bricks and old jeepneys into restaurant tables and chairs. Read more about this in this source:

- Torres, T. (2020, January 15). *Here's how Taal's volcanic ash can be upcycled.* NOLISOLI. https://nolisoli.ph/73149/taal-volcano-ash-upcycled-ttorres-20200115/.

- Prioritize "green" cleaning products that have a less or reduced effect on human health and the environment.

Topic 2.3. Managing Resources

Duration

30-45 minutes

Learning Objectives

At the end of this topic, the students should be able to develop ways on how to manage resources in the context of sustainable dining.

Topic Inputs and Reflections

How can I help conserve resources such as energy and water?

- Lecture-Discussion on managing resources such as energy and water. Introduce the cost-benefit monitoring tool.
- List of equipment by workstation and/or what is available in their food laboratories to include description, specifications, consumption rate, source, price, etc. of the most cost-efficient brand or model for each equipment on the list they submitted.

Materials

- Soft copy of the slide deck
- Cost-benefit monitoring tool (MS Excel spreadsheet)

Preparation Activities

- Prepare the slide deck and the cost-benefit monitoring tool.
- Instruct the students to:
    1. **Listen:** The guidelines in managing resources such as energy and water will be discussed through an interactive Lecture-Discussion.
    2. **Reflect:** How can I help conserve resources such as energy and water?
    3. **Respond**: List all equipment by workstation, or based on what is available in food laboratories, with energy and water requirements.

Methodology

- Lecture-Discussion
- Listing of equipment with specifications

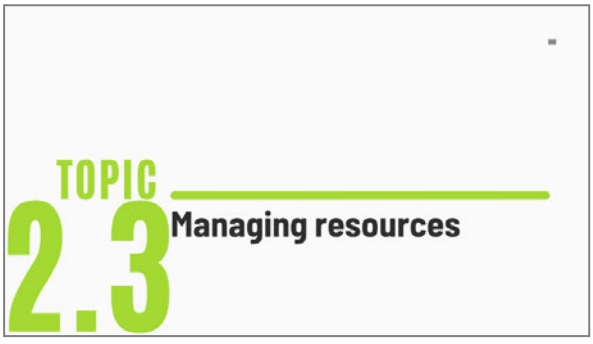
Process

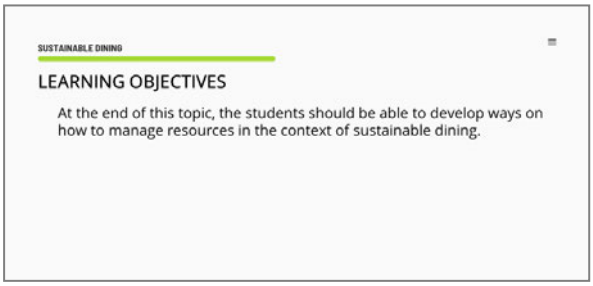
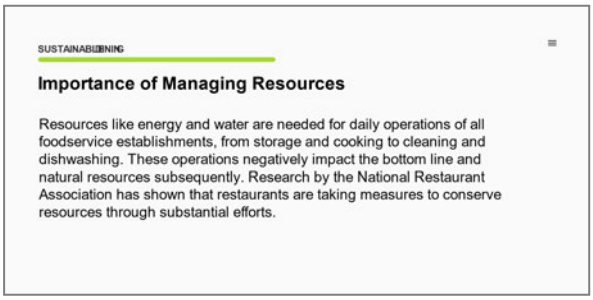
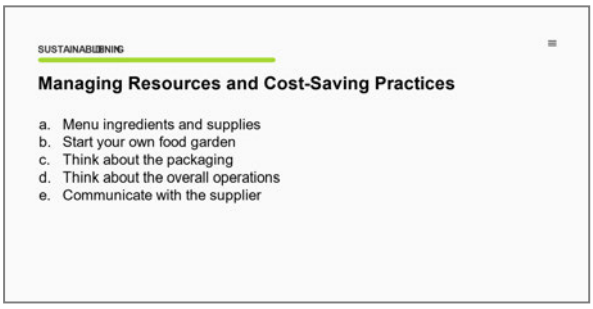
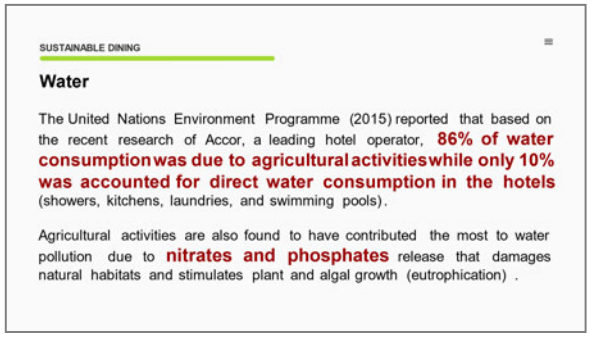
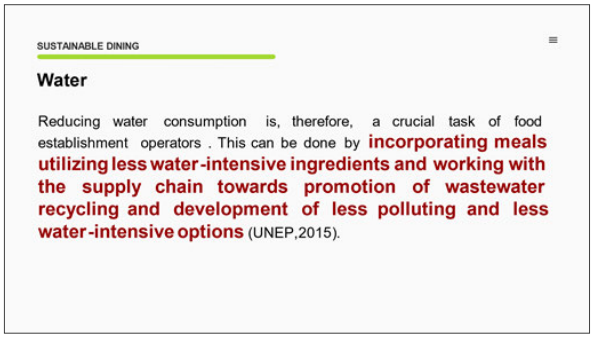
1. **Lecture-Discussion:** The faculty-in-charge will discuss the guidelines in managing resources in accordance with sustainable dining principles. Introduce the cost-benefit monitoring tool.
2. **Activity:** *"Making Sense of My Equipment Specs"*
    a. Each group will be preparing a list of all equipment, specifically those with energy and water requirements, by workstation or based on what is available in their food laboratories. Work stations include receiving, preparation, production, service/dining, dishwashing, and waste disposal areas.
    b. The report should contain pertinent information such as description, specifications, consumption rate, source, price, etc. of the most cost-efficient brand or model for each equipment.
    c. Each group will report characteristics of each of the listed equipment that make or do not make them cost-efficient.

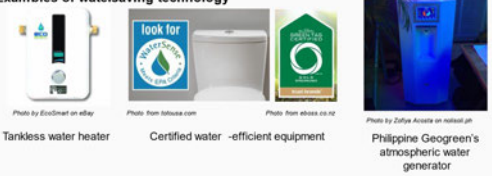
Expected Output

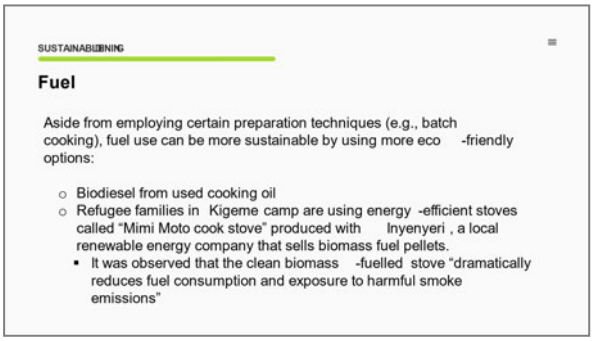
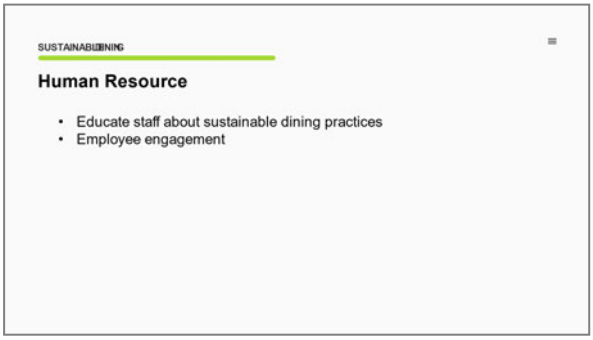
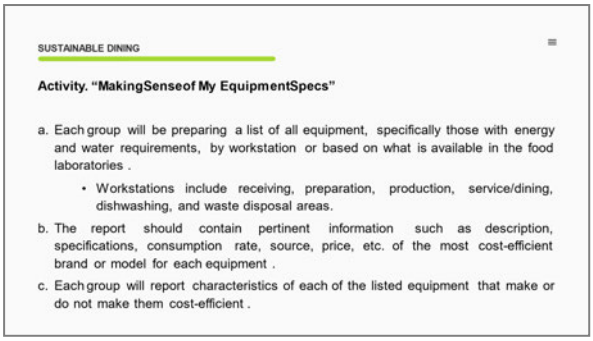
- List of equipment per workstation by group
- Written output and oral presentation by group (submit slide deck used)

PRESENTATION OF POWERPOINT SLIDES

Slide #	PPT slide	Instructions
1		Welcome students and introduce Topic 2.3: Managing resources.

Slide #	PPT slide	Instructions
2		Present the learning objectives for this topic.
3		State the importance of managing resources such as water and energy.
4		Discuss cost-saving practices. You may refer to the discussion on this manual on Topic 2.3 for further details.
5-8	 	Discuss how to manage water and practices that may be adapted by foodservice establishments to achieve environmental sustainability and sustainable dining. Show examples of water-saving technology.

Slide #	PPT slide	Instructions
	SUSTAINABLE DINING **Water** Food establishments can also save and recycle water by/from: 1. Tracking water data 2. Wastewater recycling 3. Use of rainwater collector for cleaning and watering plants 4. Use of water -saving technology	
	SUSTAINABLE DINING **Managing resources and cost-saving practices** **Examples of water-saving technology**  Tankless water heater Certified water -efficient equipment Philippine Geogreen's atmospheric water generator	
9-10	SUSTAINABLE DINING **Equipment and Electricity** One of the best ways to manage electricity is by: • tracking the energy consumption of the whole operation • using energy -saving equipment and practice (NRA, 2018) • upgrading equipment to be eco -friendly	Discuss how to equipment and electricity that may be adapted by foodservice establishments to achieve environmental sustainability and sustainable dining.
	SUSTAINABLE DINING **Equipment and Electricity** Some of the steps that can be done to further manage the running cost of the equipment include: 1. Using start -up/shut -down schedule 2. Cutting down energy use 3. Maintaining equipment 4. Minimizing the number of appliances being used at once 5. Using solar panels 6. Replacing outdated kitchen appliances 7. Maximizing natural lighting and ventilation 8. Planning preparation techniques	

Slide #	PPT slide	Instructions
11		Discuss options that may be adapted when it comes to fuel use. Introduce the use of the cost-benefit monitoring tool developed by WWF to manage resources such as energy and water.
12		Discuss how the human resource or staff may contribute to achieving a more environmentally sustainable restaurant or foodservice establishment.
13		Discuss the instructions for the activity.

A. Importance of Managing Resources

Resources like energy and water are needed for daily operations of all food service establishments, from storage and cooking to cleaning and dishwashing. These operations negatively impact the bottom line and natural resources subsequently. Research by the National Restaurant Association has shown that restaurants are taking measures to conserve resources through substantial efforts.

Moreover, it is important for every establishment to manage food costs. Proper resource management helps to keep companies productive by training workers on service and preparation standards, maintaining a comprehensive inventory of stocks, and sourcing various suppliers for the most cost-effective and sustainable ingredients (ECPI, n.d.). In addition, proper resource management in business operations helps in providing a reasonably priced dining experience to customers with corresponding income growth.

B. Managing Resources and Cost-Saving Practices

Menu ingredients and supplies, water, electricity, facilities, fuel, and human capital are the most common and basic resources required to start and continue operations in the food business sector. Good planning and management of these resources beginning at the early stages of organization will improve the business' chance of growth and survival.

1. **Improve buying routine.** Suggest improvements on the purchasing strategy if supplies eat up a significant portion of the budget. Some of these are the following:

    - **Streamline the buying process.** Consult with suppliers if they can provide most of the needed ingredients and supplies since streamlining the ordering process saves cost of transportation.

    - **Place larger orders less frequently.** Larger volume of purchases may qualify for discounts. This may also mean fewer deliveries, thus less time for receiving and putting away orders, which further reduces staffing cost.

    - **Evaluate the cost-effectiveness of the menu.** The dishes on the menu determine profitability. Less profit will be made if the dishes require a lot of expensive ingredients and a long preparation time. Review the cost-

effectiveness of the menu by analyzing the total cost and preparation time of each dish and make necessary changes. If not possible, look for ways of changing the dish to make it more profitable without sacrificing its flavor. Explore the possibility to remove or substitute some ingredients with more economical options.

2. **Start your own food garden.**

Another option is to start developing your own farm or food garden, as this will give you more flexibility on how you can manage fresher ingredients. More and more hotels are now building on-site kitchen gardens. These gardens have several benefits, even though the production is on a limited scale. These include shorter distance from the market, ensuring low to no transportation costs and losses, less packaging, and improved freshness of the produce. Food may also be grown in a way that best suits the business. A well-designed hotel farm can also be an added appeal for guests, helping to increase their knowledge on local sourcing and food cultures, and possibly increasing their willingness to pay for food.

In areas where land is abundant, having their own vegetable patch is the most cost-effective and sustainable way of sourcing fresh produce. Growing your own fruit, vegetables and herbs will dramatically decrease food miles and operating expenses. Even with a lack of land but with a bit of imagination and ingenuity, gardening can be done by using rooftops, or collaborating with local gardeners. However, managing and making use of available resources can be more challenging in some developing countries due to several reasons, including poor soil conditions, presence of crop diseases, occurrence of droughts and floods, and even political conflicts.

3. **Think about the packaging.**

Food service packaging enables restaurants to serve guests in a safe, simple, and cost-effective manner. However, packaging often poses environmental considerations, so many restaurants pay attention to their packaging materials. The use of recyclable and compostable materials as packaging are more often used by many operators due to their smaller environmental impact. About 75% of food establishments use packaging and supplies made from recycled materials while more than 50% buy certified compostable packaging and supplies (NRA, 2018).

In addition, you can manage your packaging resources by:

- **Offering reusable food containers**, which will be a one-time expense to the business. Sometimes, food establishments also allow the customers to bring their own containers.

- **Swap out non-recyclable packaging for reusable and recyclable materials**. For example, if your restaurant offers takeaway service, stop the use of any cling film to cover food and any single-use plastics and polystyrene utensils and boxes. Customers may also be encouraged to return the packaging materials by offering a return deposit if they do (Burton, 2020).

4. **Think about the overall operations** (Burton, 2020).

    - Print menus on recycled papers. Also, consider writing menu specials on chalk boards everyday instead of printing them out.

    - Cut down on printed receipts. Many POS systems now available are capable of sending digital receipts to guests

    - Replace paper napkins with linens. Although this adds up to laundry expenses, this option is still better than thousands of paper napkins ending up in landfills.

5. **Communicate with the supplier.**

    Look for a supplier that uses minimal packaging or negotiate with the existing one to cut down on the packaging materials. An example is getting your fruit and vegetables deliveries in reusable crates instead of cartons and styrofoam. Try to work together to limit the use of disposable packaging materials (Burton, 2020).

C. Water

The United Nations Environment Programme (2015) reported that based on the recent research of Accor, a leading hotel operator, 86% of water consumption was due to agricultural activities, while only 10% was accounted for direct water consumption in the hotels (showers, kitchens, laundries, and swimming pools). Agricultural activities were also found to have contributed the most to water pollution due to nitrates and phosphates release that damage natural habitats and stimulate plant and algal growth (eutrophication).

Reducing water consumption is, therefore, a crucial task of food establishment operators. This can be done by incorporating meals utilizing less water-intensive ingredients and working with the supply chain towards promotion of wastewater recycling and development of less polluting and less water-intensive options (UNEP, 2015).

Food establishments can also save and recycle water by/from:

1. Tracking water data

    - Track monthly water consumption and benchmark standards to indicate water use.

    - Take action to minimize wastage in the processing and transport systems.

2. Wastewater recycling

    - Soiled water used in washing food items can be used as water for plants

    - Soiled water from bathroom sinks can be used for toilet flushing

3. Use of rainwater collector for cleaning and watering plants

4. Use of low-flow plumbing system and water-saving plumbing fixtures. Low-flow plumbing fixtures minimize the amount of water they expel such as in showerheads, toilets, and faucets.

    Here are some examples of articles that you can read and share:

    - Rodriguez, J. (2019, September 6). *Water-saving plumbing fixtures: Low-water usage showerheads, toilets, and faucets.* the balance small business. https://www.thebalancesmb.com/low-flow-fixtures-types-benefits-and-costs-844731

- Westerkamp, T.A. (2014, April 20). *Low-flow fittings proven way to conserve water.* facilitiesnet. https://www.facilitiesnet.com/plumbingrestrooms/article/Low-Flow-Fittings-Proven-Way-to-Conserve-Water--14890

5. Use of water-saving technology

    - According to National Restaurant Association (NRA) (2018), about 50% of food establishments use low-flush toilets while more than 25% are using other innovations such as high-efficiency pre-rinse spray valves and faucet aerators (NRA, 2018).

    - A cool water dispenser technology that can create water from air. An example can be seen in this article:

        - Acosta, Z. (2019, April 18). *This water dispenser creates water out of thin air*. NOLISOLI. https://nolisoli.ph/61468/water-dispenser-creates-water-thin-air/

    - Tankless water heater

    - Motion-activated toilets or faucets (Burton, 2020)

    - Waterless urinals

    - Certified water-efficient equipment

D. **Equipment and Electricity**

Cooking equipment accounts for most of a food establishment's energy consumption. Aside from being an important part of sustainability, achieving energy efficiency will also result in improved business cost and more savings. Since food production directly and indirectly consumes energy at every stage, it is therefore important to think of ways to conserve it. In simpler terms, the more processed a product is, the more energy was used to produce it. Among all the types of processes involved in food production, deep freezing uses the most electricity.

Energy efficiency measures in food operations include "better refrigeration and storage; kitchen equipment such as cooking and dishwashing appliances that cost the same but use less energy; new vehicle designs that travel further on less fuel; and buildings that require less energy to heat and cool" (UNEP, 2015).

One of the best ways to manage electricity is by:

- Tracking the energy consumption of the whole operation
- Using energy-saving equipment and practice (NRA, 2018)
    - About 80% restaurant operators use energy-efficient lighting.
    - About 60% use programmable heating, ventilation and air conditioning (HVAC) thermostats
    - More than 40% use energy star-rated refrigerators, freezers and ice makers
- Upgrading equipment to be eco-friendly
    - Choose equipment with energy star ratings as they are more cost-efficient in the long term (Burton, 2020).

Some of the steps that can be done to further manage the running cost of the equipment include:

1. **Using start-up/ shut-down schedules.** More than 60% of restaurant operators use start-up/ shut-down schedules to conserve energy use for kitchen appliances. Turning on kitchen equipment and lights too early can be wasteful. Start-up/shut-down schedules can keep ovens, broilers, and other equipment turned on for the correct amount of time to curb wasteful idling (NRA, 2018).
2. **Cutting down energy usage.** Inspect around the establishment premises and look for ways to conserve energy. “Do the heating and lighting need to be on all night?” It may be better to encourage staff to turn things off at the end of a night or just install automated lights. Tracking energy usage may also be done by implementing an energy management system (Burton, 2020).
3. **Maintaining equipment.** Thorough cleaning and regular maintenance of all equipment and appliances ensure efficient running cost (Burton, 2020).
    - Maintain ventilation system to keep the kitchen more comfortable to lower down expenses on air-conditioning.

4. **Minimizing the number of appliances being used at once.** When possible, use one (1) or two (2) appliances for the majority of the work.

    - Use of manual coffee maker instead of machines does not only save energy but also increases appeal and uniqueness

5. **Using solar panels** or using metal roof. An example is shown in this article:

    - Going Solar. (n.d.). Solar panel installation on a metal roof? Advantages and disadvantages. https://goingsolar.com/solar-panel-installation-on-a-metal-roof-advantages-and-disadvantages/

6. **Replacing outdated kitchen appliances** with energy-efficient models to save money on utility bills.

7. **Maximizing natural lighting and ventilation** by having the dining area in an open space.

8. **Planning preparation techniques** such as baking bread and pastries so the oven will only be used for a short period of time to complete all of the day's baking.

E. Fuel

Aside from employing certain preparation techniques (e.g. batch cooking), fuel use can be more sustainable by using more eco-friendly options:

- Biodiesel from used cooking oil

  Some energy companies recycle used cooking oils and turn them into biodiesel. Biodiesel is a cleaner, more sustainable, and more efficient fuel source made from soybean oil, animal fats, and other kinds of recycled cooking oil. It is a valuable fuel for it is renewable and easy to produce (SeQuential, 2020)

- According to the United Nations High Commissioner for Refugees (n.d.), refugee families in Kigeme camp are using energy-efficient stoves called “Mimi Moto cook stove” produced with Inyenyeri, a local renewable energy company that sells biomass fuel pellets. It was observed that the clean biomass-fueled stove “dramatically reduces fuel consumption and exposure to harmful smoke emissions”.

You can read more about this in:

- UNHCR - The UN Refugee Agency. (n.d.). Rwanda: Sustainable cooking fuel. https://www.unhcr.org/afr/rwanda-sustainable-cooking-fuel.html

- Mimi Moto. (2017). *Mimi moto - clean cooking for all.* https://www.adrium.green/adrium-cat/ficheros/11_631541600911_mimi-moto-vision-ingles-2017.pdf

F. Human Resource

- Educate staff about sustainable dining practices

- Employee engagement

    - Empowering employees with sustainable practices create a strong sense of social responsibility and contribution which significantly boost their morale, commitment and motivation. Employees will feel prouder of their work as they feel they are contributing for a positive cause and will likely return as clients in the future (Burton, 2020).

Topic 2.4. Managing Wastes

Duration

30-45 minutes

Learning Objective

At the end of this topic, the students should be able to develop a sustainable waste management system for the establishment.

Topic Inputs and Reflections for Students

How can I minimize food and food-related waste at home and in a food establishment?

- Lecture-Discussion on waste management
- Demonstrating proper use and maintenance of compost bins
- Developing a waste management system following sustainable dining principles for a home or a food establishment

Materials

1. Soft copy of the slide deck
2. Laptop and projector
3. Materials for composting (soil, soil box/container, hand trowel, gardening gloves, scissors, water in a spray bottle, dried leaves/sawdust/wood chips, and food wastes like trimmings, peels, eggshells, etc.)

Preparation Activities

- Prepare the slide deck.
- Prepare the bokashi composting video:
  - Green Space. (2020, April 12). *HOW TO #BokashiComposting* [Video]. Facebook. https://www.facebook.com/watch/?v=242254873847139
- Prepare the needed materials for composting (you can ask the students to bring their own before this session)

- Instruct the students to:
    a. **Listen:** The strategies on managing waste will be discussed through Lecture-Discussion.
    b. **Reflect:** How can I minimize food and food-related waste at home?
    c. **Respond:** Create a waste management system based on sustainable dining principles.

Methodology

1. Lecture and discussion
2. Demonstration of composting using bins (by faculty-in-charge)
3. Activities

Process

1. **Lecture-Discussion:** The faculty-in-charge will discuss proper waste management in the context of food businesses, including the food waste hierarchy for cost-saving opportunities. Ways on preventing food waste, measuring food waste, reducing food spoilage, plate waste, and packaging wastes will be emphasized.
2. **Composting demonstration:** The faculty-in-charge will demonstrate the proper way of using a compost bin while using common food waste in a food business or play the video demonstrating bokashi composting.
3. **Option 1: *"Compost it!"***
    a. Ask the students to form groups with 3 to 4 members. The students will make their own compost following the proper way described or demonstrated by the faculty. Another option is to do individual composting using miniature compost bins fit for the amount of space they have at home. For example, students can use empty ice cream tubs or plastic containers. Here is an example of how to make an indoor compost bin:
        - Better Homes and Gardens. (2019, February 22). *DIY indoor compost bin* [Video]. Youtube.https://www.youtube.com/watch?v=jBTNCJa4rw8
    b. The faculty-in-charge will guide, check, and grade the students accordingly. These will be stored in a designated area in the school premises.
    c. The compost bins should be maintained by each group (i.e., regular watering and mixing) throughout a specified period (e.g., end of semester).
    d. The final product of the compost bins will be part of grading for this session.

Option 2: "*Let's track it*"

a. Ask the students to form groups with 3 to 4 members. The students will be assuming hypothetical amounts of food, packaging, and operating supply wastes (and other sources, if any) that their home or a food establishment can produce in a specified period (e.g., 1 month). The students can use the table template attached to summarize the hypothetical number of generated wastes.

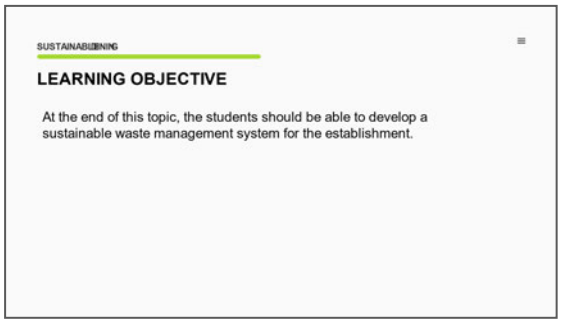
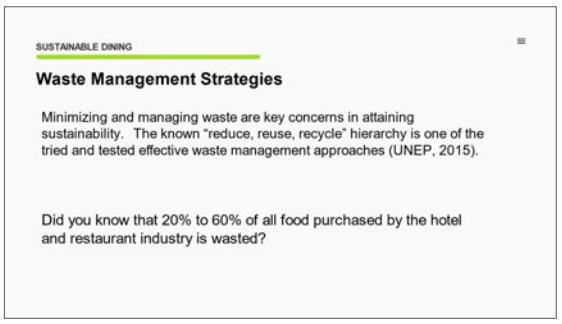
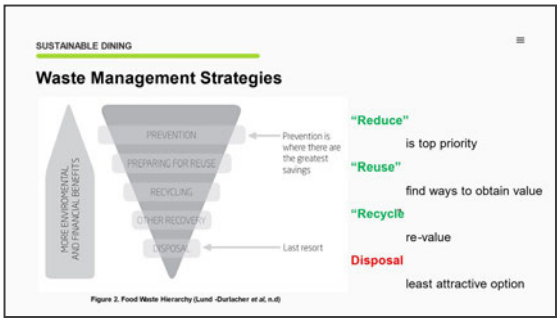
b. Using these hypothetical values, the student should prepare a waste management system for their home or a food establishment based on the guidelines discussed during the lecture. The waste management system should be holistic and can include improvements in other aspects of the food business.

c. Each group should report their output in class the next meeting.

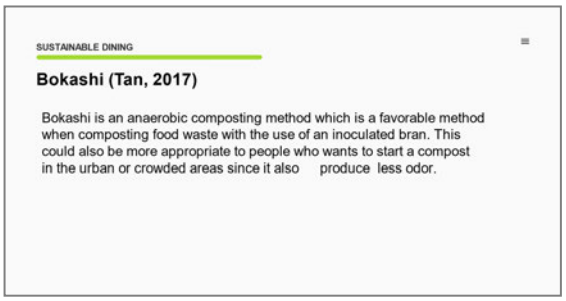
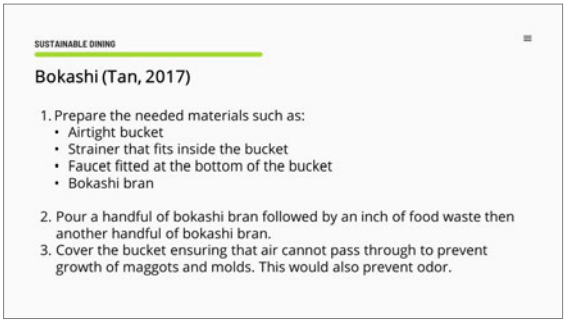
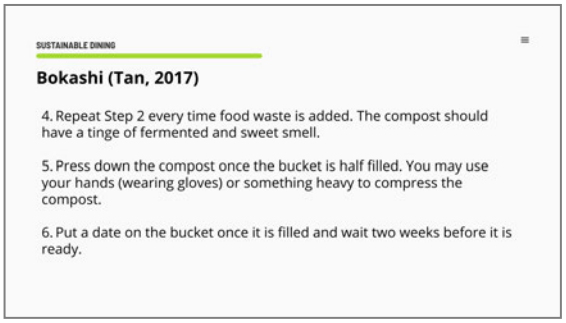
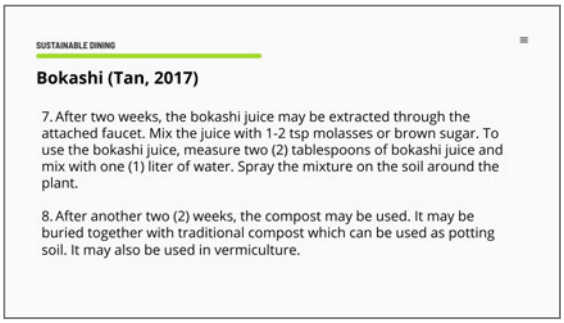
Expected Output

1. Compost bin individual or by group to be maintained throughout a specified period or a group written output on recommended waste management system
2. Oral presentation by group (submit slide deck used)

PRESENTATION OF POWERPOINT SLIDES

Slide #	PPT slide	Instructions
1		Welcome students and introduce Topic 2.4. Managing waste.
2		State the learning objective for this topic.
3-5	 	Discuss waste management strategies.

Slide #	PPT slide	Instructions
	SUSTAINABLE DINING **Waste Management Strategies** The following are some measures for waste management in a food establishment (Lund -Durlacher et al, n.d): 1. Proper menu planning from the start is the key to waste prevention 2. Monitor and measure food waste 3. Preventing spoilage 4. Preventing waste on customers' plate 5. Reduce and recycle wastes on food packaging and operating supplies	
6-8	SUSTAINABLE DINING **Composting** Food waste not fit for human or animal consumption can be turned into a high-quality compost, a humus rich soil amendment made by natural decomposition of organic materials. Composting is possible due to production of beneficial bacteria and fungi that breaks down the organic matter. The compost helps in plant diseases and pests suppression and in moisture retention and soil enrichment (University of Georgia Extension, 2017). SUSTAINABLE DINING **Composting** Steps in composting (Leduc, n.d.): 1. Prepare the needed materials. 2. Start with a layer of course materials (like twigs) to allow for drainage and aeration. Cover this layer with leaves. Then simply alternate between layers of greens materials (nitrogen -rich material) and browns (carbon -rich material). SUSTAINABLE DINING **Residential Composting** Browns: Dried leaves; Paper egg cartons; Paper towels/napkins; Dried grass clippings; Shredded newsprint; Bark; Unbleached coffee filters; Straw; Sawdust (limited amt.); Dryer/vacuum lint; Cardboard (corrugated and cut into small pieces); Dead house plants; Shredded brown paper bags Greens: Green leaves; Garden waste; Flowers; Vegetables; Fruit peels; Scraps; Coffee grounds; Tea leaves/bags; Egg shells; Flowers Don't Compost: Invasive weeds gone to see; Meat/fish/bones; Fat/oil/grease; Dairy products; Cooked foods (attracts animals); Pet waste; Plastics; Metals; Glass; Toxic material; Charcoal; Chemical logs	Discuss composting. And discuss how and what to compost..

Slide #	PPT slide	Instructions
9-12	   	Discuss the process of Bokashi composting.

Slide #	PPT slide	Instructions
13	SUSTAINABLE DINING **BOKASHI COMPOSTING DEMONSTRATION** https://www.facebook.com/watch/?v=242254873847139	Play the video on Bokashi Composting through this link: https://www.facebook.com/watch/?v=242254873847139
14	SUSTAINABLE DINING **Activity1. "Compostit!"** Ask the students to form groups with 3 to 4 members. The students will make their own compost following the proper way described or demonstrated by the faculty. Another option is to do individual composting using miniature compost bins fit for the amount of space they have at home. For example, students can use empty ice cream tubs or plastic containers. Here is an example of how to make an indoor compost bin: Better Homes and Gardens. (2019, February 22). DIY indoor compost bin [Video]. Youtube. https://www.youtube.com/watch?v=jBTNCJa4rw8	Discuss the mechanics of Activity 1
15-16	SUSTAINABLE DINING **Activity2. "Let'strack it!"** 1. Assume hypothetical amounts of food, packaging, and operating supply wastes (and other sources, if any) that your home or a food establishment can produce in a specified period (e.g., 1 month). 2. You may use the table template (on the next slide) to summarize the hypothetical amount of generated wastes. 3. Using these hypothetical values, prepare a waste management system for your home or a food establishment based on the guidelines discussed during the lecture. The waste management system should be holistic and can include improvements in other aspects of the food business. 4. Eachgroup should report their output in classthe next meeting. SUSTAINABLE DINING **Activity2. "Let'strack it!"** Dish / Ingredients/ Materials used / Amount used per day / Type of waste produced / Waste produced per day* / # of operating days in 1 month / Total amount of waste generated in 1 month Total amount of biodegradable waste generated Total amount of non-biodegradable waste generated *Include all sources of wastes from spoilage, trimmings, possible surplus, cooking losses (burnt, uncooked, overcooked etc.), plate waste, and other non-food such as packaging, etc.	Discuss the instructions for Activity 2. Introduce the record sheet.

Waste Management Strategies

Minimizing and managing waste are key concerns in attaining sustainability. The known "reduce, reuse, recycle" hierarchy is one (1) of the tried and tested effective waste management approaches (UNEP, 2015). Did you know that 20% to 60% of all food purchased by the hotel and restaurant industry is wasted? Considering that almost a billion people are malnourished around the world, this data raises ethical and social concerns. This large amount of food waste not only reflects poor cost management but also gives us an estimation of its contribution to carbon emissions and methane gas produced from landfill decomposition, all of which greatly contributes to climate change and subsequently harms the environment. These food wastes are typically accounted from spoilage during storage, trimmings during meal preparation, and buffet and customer plate waste (Lund-Durlacher *et al*, n.d).

The food waste hierarchy shows cost-saving opportunities for businesses (Figure 2). The top preferred solution is to prevent food waste from occurring in the first place through proper menu planning while the use of landfill disposal is the least attractive option. Two (2) food-waste categories have to be considered: food which can still be eaten, reused, redistributed to people or used as animal feed if in compliance with legislation; and, non-edible food waste for further treatment in order to generate compost, energy or heat (Lund-Durlacher *et al*, n.d).

Figure 2. Food Waste Hierarchy (Lund-Durlacher *et al*, n.d)

Prevention, avoidance or simply "reducing" waste are the priority for waste management policies and systems. Sustainability will be improved by proper forecasting, smart and reasonable purchasing, stock management, efficient storage, effective menu planning and portioning, and only cooking to order. These will also help save money on commodities, labor, energy and of course, disposal costs (UNEP, 2015).

After prevention or reduction of food waste, the next best option in the "reduce, reuse, recycle" hierarchy is reuse, which means finding a secondary way to obtain value from a commodity that might otherwise be wasted. The most common way to do this is to redeploy overproduced food elsewhere on the menu while complying with food safety guidelines (UNEP, 2015).

The third option before total disposal is recycling or composting. Doing this minimizes the waste that will end up in the landfill or elsewhere in the solid waste stream (UNEP, 2015). The following are some measures for waste management in a food establishment (Lund-Durlacher *et al*, n.d):

1. **Proper menu planning from the start is the key to waste prevention**

    a. Design menus minding food waste and packaging reduction.

    b. Keep the range of ingredients down, so that more of each ingredient is used leading to greater stock turnover and less spoilage. Use perishable items in more than one menu option so they become used up faster.

    c. Buy small quantities of short-shelf-life items or use ingredients with a longer shelf life.

    d. Use a computer-based system for recipe management that can produce scaled recipes for each day based on the guest forecasts. Knowing the right amount of ingredients prevents unnecessary food waste by allowing for more efficient purchasing decisions.

    e. Maximize the use of ingredients (e.g. using a whole bunch of basil for pesto, trimmings and leftovers for sauces and soups). Also plan a flexible menu in which leftovers will be used as part of a dish or as another dish (FAO, 2020; and AIFS, n.d.).

    f. Poor stock management and large menu portioning are also sources of food waste. Analyze the menu and adjust portion sizes being offered. Some offer multiple portion sizes to fit the needs of each guest (Burton, 2020).

g. Remember that less is more. Maintaining just a number of offered dishes minimizes the risk of non-usage or spoilage of ingredients due to non-ordering (Burton, 2020).

h. Plan menus based on the reservation forecasts. Consider the number, demographics (age, nationality) and past food choices of guests.

i. Be adaptable: be willing to change your menu depending on what is available or in-season.

2. Monitor and measure food waste

Another emerging key activity among food establishment operators is food waste control and reduction. Since controlling food waste contributes significantly to operating cost, environmental footprint, and hunger reductions, restaurateurs are now finding ways to address this challenge. According to the NRA (2018), food waste tracking is being done by about half of restaurant operators in the US. This technique helps operators identify the source, type, and amounts of generated food waste and come up with solutions to minimize or divert them (AIFS, n.d.).

It was also observed that about 10% and 20% of the restaurants compost food waste and donate edible leftovers to charities, respectively. Research indicates that donation and composting can be boosted through providing more education on food donation, including liability protection and tax benefits, and giving access to local composting facilities (NRA, 2018).

Steps to measure food waste (UNEP, 2015):

a. Over a set period of time (daily/weekly/monthly), segregate food waste into separate bins for pre-consumer (spoilage, preparation, unserved cooked foods) and post-consumer wastes (customer plate waste). Pre-consumer waste can occur at any point prior to selling food, from the point when you receive a product, through preparation and production, to service.

b. Weigh and count the food waste bins at the end of the monitoring period. Have a waste tracking sheet for this. The result will provide baseline data against which the impact of changes in day-to-day practices can be compared.

c. Establish staff action teams to review waste data, set waste minimization goals and develop revised procedures, policies or menus. Discuss waste at some point every day and at a team meeting at least weekly.

Methods used in tracking food waste (NRA, 2018):

a. Manually (pen and paper)

b. On a computer spreadsheet or chart

c. Via food waste-specific software or smartphone app

What to do with food waste:

a. Plan for possible donation of edible leftovers to charity while leftovers not fit for human consumption to animal farms (AIFS, n.d.)

b. Compost non-edible leftovers

c. Sell for a cheaper price

d. Explore options to sell used fryers and cooking oil to biofuel producers (UNEP, 2015).

3. Preventing spoilage

Another step towards preventing spoilage is optimization of purchasing procedures. Procuring the right amount of the right types of food equates to less waste and more savings.

The measures below can be taken to prevent spoilage:

a. Maintain a good stock control and evidence-based forecasting (e.g. use a tool such as a stock control and purchasing list).

b. Work towards 'just-in time' delivery rather than pre-ordering in quantity.

c. Apply a first in-first out method of using up stock and clearly label products with their purchase and use-by dates.

d. Extend shelf life by vacuum packing, freezing and marinating meat and vegetables.

e. Consider new technologies for extending shelf life such as ozone food preservation.

f. Prepare items such as bread, cakes, and desserts in-house to control volumes on a daily basis.

g. A 'Special Dish of the Day' is a good way to use up stock that is approaching expiry date.

4. Preventing waste on customers' plate

a. Monitor the type of food being returned on the customers' plate. Customer feedback might help to determine the reason why it was not eaten. It may even indicate that the menu design needs to be changed.

b. Review menus to identify and reduce/eliminate frequently wasted items.

c. Consider offering different portion sizes to suit different appetites: lighter eaters and children.

d. Apply good portion control by working out optimum portion sizes and monitoring staff compliance with portioning standards and proper service methods (spoon size, slice count, ounces, etc.) (UNEP, 2015). Offer multiple sizes such as regular and lite. Portions can also be customized to meet the needs of individual clients or groups.

e. Make the choice of side dishes more flexible, e.g., smaller portion sizes with refill options.

f. Conduct a "Waste Awareness Drive" with both staff and guests. Part of this drive may also involve a suggestion box for additional ideas and new concepts, which may lead to additional waste reduction ideas (UNEP, 2015). Raising general awareness about food waste and its costs automatically drives waste down.

5. Reduce and recycle waste on food packaging and operating supplies

Recycling is another way of reducing waste by transforming them into reusable materials, thereby minimizing waste ending up in landfills and waste-hauling facilities. Despite the challenges in presence of supportive local infrastructure, NRA (2018) found that a high percentage of restaurants perform recycling, with about two-thirds recycling cardboard/paper and fats/oils/grease. The NRA (2018) also observed that recycling rates are higher among independently owned restaurants than franchises and among table service than limited-service restaurants.

Below are some techniques to minimize non-food waste (UNEP, 2015; NRA, 2018):

- Work with suppliers to minimize inbound packaging waste, and consider using products from manufacturers who have implemented packaging reduction processes.
- Encourage your staff to provide feedback when food seems to be over-packaged or packaging is bigger than necessary.
- Wherever possible buy products packaged in recyclable materials such as cardboard.
- If possible, return packaging to suppliers for reuse.
- Buy in bulk, as long as all the products will be used (e.g., condiments).
- Change policies to place emphasis on reusable tableware and service ware. Provide refillable bottles or carafes instead of plastic bottles.
- Serve beverages and drinks from a dispenser.
- Use a dispensing system to replace single portion packaging (sauces, condiments etc.).
- Shift to environment-friendly disposables and establish an appropriate collection program to route the product to commercial composting partners if necessary.
- Recycle packaging waste. Check out what recycling services are offered in the area which could generate additional revenue. Consider upcycling (transforming waste into new products) packaging material.

- ◊ Cardboard and paper
- ◊ Fats, oils, and grease
- ◊ Aluminum or metal cans
- ◊ Rigid plastics
- ◊ Glass

- ♦ Set up an internal waste collection system to segregate waste. Train staff to separate waste into the right bins and use bin icons/stickers to help staff put waste into the right bin.

TIP: Engage and encourage customers, staff, and suppliers to "reduce, reuse, and recycle."

B. Composting

Food waste not fit for human or animal consumption can be turned into a high-quality compost, which is a humus rich soil amendment made by natural decomposition of organic materials. Composting is possible due to the production of beneficial bacteria and fungi that breaks down the organic matter. The compost helps in plant diseases and pest suppression, and in moisture retention and soil enrichment (University of Georgia Extension, 2017).

Even non-food waste can be composted, like unbleached paper napkins, coffee filters, eggshells, and newspapers. However, some food waste, including raw meat, dairy, fat/oil, and bones are avoided due to the production of an unpleasant smell that could attract animals and pests (US-EPA, n.d.). Red meat and bones should only be added if the compost pile is well-controlled from vermin (UGA, 2017).

Since food waste has a low physical structure but high moisture content, mixing it with bulking agents is important. Bulking agents will absorb the excess moisture and will add structure to the pile. Use of sawdust and yard waste are good choices due to their high carbon and nitrogen ratio. Food waste also produces large amounts of odor, specifically ammonia and leachate, and the best prevention for this is to maintain a well-aerated pile that is free of standing water. Aeration and sufficient amounts of high carbon bulking agents also reduce leachate (UGA, 2017 and US-EPA, n.d.).

The easiest to compost is pre-consumer food waste, which refers to food never touched by consumers. Since post-consumer waste has separation and possible contaminant issues, composting it is more challenging, and careful decision has to be made on how to separate food from non-food (UGA, 2017).

1. Residential Composting

One of the most basic techniques that can be made even in residential areas is through composting in an open pile or through compost bins. This can be done by following the succeeding steps (Leduc, n.d.):

1. Prepare the needed materials.

2. Start with a layer of course materials (like twigs) to allow for drainage and aeration. Cover this layer with leaves. Then simply alternate between layers of greens materials (nitrogen-rich material) and browns (carbon-rich material).

Browns	**Greens**	**Dig Deeper!**
Dried leaves	Green leaves	Invasive weeds
Paper egg cartons	Garden waste	Meat/fish/bones
Paper towels/napkins	Flowers	Fat/oil/grease
Dried grass clippings	Vegetables	Dairy products
Shredded newsprint	Fruit peels	Cooked foods (attracts animals)
Bark	Scraps	Pet waste
Compostable coffee filters	Coffee grounds	**Don't Compost!**
Straw	Tea leaves/bags	Plastics
Sawdust (limited amount)	Egg shells	Metals
Dryer/vacuum lint	Flowers	Glass
Unbleached and corrugated cardboard (cut into small pieces or soaked in water and shredded)		Toxic material
Dead house plants		Charcoal
Shredded brown paper bags		Chemical logs

3. Whenever you add food scraps or yard waste, be sure to top it with a layer of browns. When you add fresh material, be sure to mix it in with the lower layers.

4. Materials should be as wet as a wrung-out sponge. Add dry materials or water – whichever is needed – to reach this moisture level.

5. Mix or turn the compost once a week to help the breakdown process and eliminate odor.

6. The bin contents/pile will shrink as it begins to decompose.

7. Finished compost will be dark, crumbly and smell like earth. The compost can take within four (4) to six (6) months to finish.

2. Bokashi (Tan, 2017)

The term bokashi is a Japanese term for 'fermented organic matter.' Bokashi is an anaerobic composting method which is a favorable method when composting food waste with the use of an inoculated bran. This could also be more appropriate to people who want to start a compost in the urban or crowded areas since it also produces less odor.

To start a Bokashi compost, the following steps should be followed:

1. Prepare the needed materials such as:

    - Airtight bucket
    - Strainer that fits inside the bucket
    - Faucet fitted at the bottom of the bucket
    - Bokashi bran

2. Pour a handful of bokashi bran followed by an inch of food waste then another handful of bokashi bran.

3. Cover the bucket ensuring that air cannot pass through to prevent growth of maggots and molds. This would also prevent odor.

4. Repeat Step 2 every time food waste is added. The compost should have a tinge of fermented and sweet smell.

5. Press down the compost once the bucket is half filled. You may use your hands (wearing gloves) or something heavy to compress the compost.

6. Put a date on the bucket once it is filled and wait two weeks before it is ready.

7. After two weeks, the bokashi juice may be extracted through the attached faucet. Mix the juice with 1-2 tsp molasses or brown sugar. To use the bokashi juice, measure two (2) tablespoons of bokashi juice and mix with one (1) liter of water. Spray the mixture on the soil around the plant.

8. After another two (2) weeks, the compost may be used. It may be buried together with traditional compost which can be used as potting soil. It may also be used in vermiculture.

Some Notes: In some cases, the bokashi may smell rotten but it can be fixed by adding more bokashi bran and ensuring that the bucket is airtight to prevent the growth of unwanted bacteria. It is also important to note that the presence of white molds is normal but the presence of green or yellow molds indicates unwanted mycelium growth. This can be easily fixed by adding more bran to the mix. Presence of maggots also indicates that the bucket is not airtight and should be sealed properly.

Attachment 1. Guide for "Sustainable Diary" activity.

The students may use this format as a guide for assumption of food and non-food wastes.

Dish	Ingredients/ Materials used	Amount used per day	Type of waste produced	Waste produced per day*	No. of operating days in 1 month	Total amount of waste generated in 1 month
Total amount of biodegradable waste generated						
Total amount of non-biodegradable waste generated						

**include all sources of wastes from spoilage, trimmings, possible surplus, cooking losses (burnt, uncooked, overcooked etc.), plate waste, and other non-food such as packaging, etc.*

Topic 2.5. Adopting Sustainable Dining as a Way of Life (Operations and Management)

Duration

30-45 minutes

Learning Objective

At the end of the activity, the students should be able to:

1. Develop a personal statement of commitment and establishment policy on sustainable dining; and,
2. Apply sustainable dining practices regularly.

Topic Inputs/Reflections

Am I ready to practice sustainable dining? How can I be more sustainable?

- Lecture-Discussion on recommended approaches, solutions, and promotions to sustainable dining
- Creating a personal statement of commitment and an establishment policy on sustainable dining
- Documenting day-to-day activities to showcase applied sustainable dining principles and to suggest for improvements

Materials

- Soft copy of the slide deck
- Laptop, projector, and sound system

Preparation Activities

- Prepare the slide deck
- Prepare the needed materials for oral reporting (Laptop, projector)
- Instruct the students to:
    a. **Listen:** The recommended approaches, solutions, and promotions to sustainable dining will be discussed.

b. **Reflect:** Am I ready to practice sustainable dining? How can I be more sustainable?

c. **Respond:** Create a personal statement of commitment and an establishment policy on sustainable dining and document day-to-day activities to showcase applied sustainable dining principles and to suggest for improvement.

Methodology

- Lecture-Discussion
- Activities

Process

1. **Lecture-Discussion:** The faculty-in-charge will discuss ways on how to embrace sustainable dining as a way of life in operational and management aspects. This also includes the importance of policy statements in encouraging the staff and customers of the food establishment in adopting such measures, thereby promoting collective efforts towards achievement of sustainable dining.

2. **Activity 1: *"Commitments"***

   The students will be asked to make the following:

   a. individual statement of commitment on sustainable dining following the guidelines discussed in the lecture; and

   b. an establishment policy on sustainable dining per group. The establishment policy should also include specific guidelines on how they are going to implement it among their staff, suppliers, and customers.

3. **Activity 2: *"Sustainable Diary"***

   The faculty-in-charge will provide instructions:

   a. After the Lecture-Discussion on sustainable dining principles in session 2.1, the students will already be asked to document their day-to-day activities wherein they were able to showcase and apply the said principles. They can take pictures and videos about it and write short content for each.

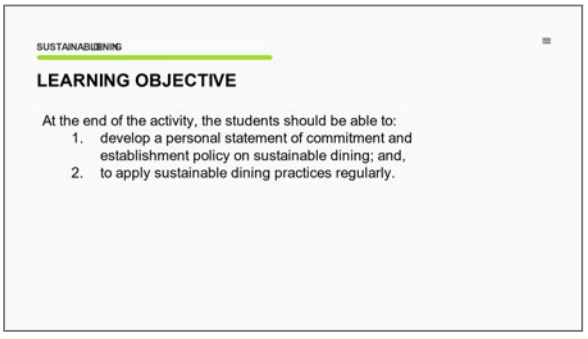
   b. As the class advances on this module, it is expected that more and more principles will be applied and documented by each student.

c. The students can be creative using videos by adding a story line or theme for it to be more engaging. The pictures and video clips will be consolidated in a 3–5-minute video presentation (with captions or narrations) and will be viewed in class on a specified date towards the end of the module.

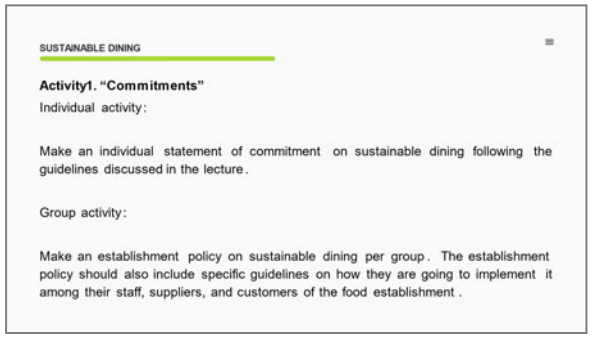
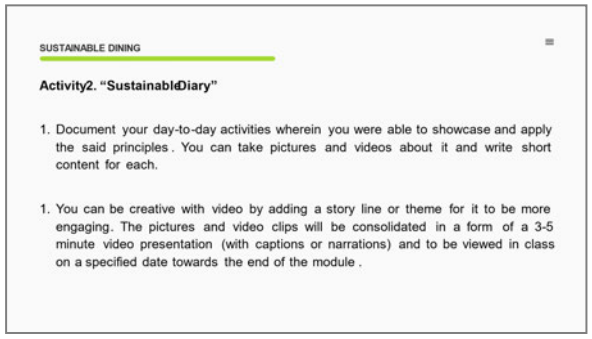
Expected Output

1. Statement of commitment (individual) on sustainable dining
2. Oral presentation per group on establishment policy (submit in MSWord format)
3. 3–5-minute video presentation of applications of sustainable dining principles in day-to-day activities (individual)

PRESENTATION OF POWERPOINT SLIDES

Slide #	PPT slide	Instructions
1		Welcome students and introduce Topic 2.5: Embracing sustainable dining as a way of life (operations management).
2		State the learning objective for this topic.

Slide #	PPT slide	Instructions
3	SUSTAINABLE DINING **Challenges in Promoting Sustainable Dining** The final aspect of sustainability lies in understanding how the organization or food establishment can contribute to poverty eradication and global equity enhancement. Food business actors face difficulties in promoting more sustainable solutions, one of which is the lack of consumer acceptance that raises the question of how to influence consumer behavior and bring about a transition to more sustainable consumption of food (Pfeiffer et al., 2017).	Discuss the challenges in promoting sustainable dining.
4-7	SUSTAINABLE DINING **Recommended General Approach and Solutions** As a responsible and sustainable food purchaser, prioritizing and buying from fair food trade schemes is also a great approach in embracing sustainability. Having fair terms of trade and higher social and environmental standards among the farmers and produces in developing countries is the main goal of fair movement. Those producers that ensure their products and food ingredients meet certain environmental, labour , and developmental standards for its production are being issued with fair trade certification (UNEP, 2015), which helps food purchaser in making sustainable decisions in buying food. SUSTAINABLE DINING **Recommended General Approach and Solutions**  Figure 3. Factors in implementation of sustainable food operations (Lund - Durlacher et al., n.d) EMBRACING SUSTAINABLE DINING **Recommended General Approach and Solutions** 01 Implement sustainable food in your mission statement 02 Build awareness 03 Continue education and staff training 04 Stimulate the change process 05 Set targets and monitor them regularly 06 Establish long-term relationships 07 Create and provide communication tools 08 Communicate continuously	Discuss the recommended general approach and solutions. Present Figure 2.3 and discuss each concept. You may refer to the discussion of Topic 2.5 in this manual for more details.

Slide #	PPT slide	Instructions
		
8		Discuss how to introduce the concept of sustainable dining and encourage collective actions.
9		Discuss the instructions for Activity 1.
10		Discuss the instructions for Activity 2.

A. Challenges in Promoting Sustainable Dining

The final aspect of sustainability lies in understanding how the organization or food establishment can contribute to poverty eradication and global equity enhancement. Food business actors face difficulties in promoting more sustainable solutions, one of which is the lack of consumer acceptance that raises the question of how to influence consumer behavior and bring about a transition to more sustainable consumption of food (Pfeiffer *et al.*, 2017).

One consumer behavior problem is that external factors such as busy lifestyles, mobility schedules and a perceived lack of time prompt the decision to dine out. Consumers prefer to adapt their intake habits to other facets of their everyday life, instead of doing things the other way around. Research shows that time and convenience are the leading factors on eating decisions while nutrition and sustainability knowledge have little impact. Eating away from home is largely influenced by work and schedule (Pfeiffer *et al.*, 2017).

Another problem is that consumers treat eating-out as an irregular activity even if this is done multiple times in a week. Due to this perception, consumers are sometimes unwilling to apply the same considerations used when choosing food to be eaten at home. This implies that consumers should be educated about sustainable consumption and how their consumption behavior and practices negatively affect the environment (Pfeiffer *et al.*, 2017).

This, in fact, also means that top-down methods are more likely to succeed, driving customers towards healthier or less ecologically impactful meal choices, such as through changes in the availability of less-sustainable choices or through pricing that favors sustainable choices (Pfeiffer *et al.*, 2017).

B. Recommended General Approach and Solutions

Business or institutional initiatives and charitable causes can be included in the top-down approaches in embracing sustainable dining principles throughout the operations and management. With these, the support and promotion of sustainability can be demonstrated well by your business and you, as a responsible citizen and food purchaser. Having such initiatives and charitable causes is also a positive way of strengthening support and commitment to your management, staff, suppliers, and other stakeholders at all levels of the business.

As a responsible and sustainable food purchaser, prioritizing and buying from fair food trade schemes is also a great approach in embracing sustainability. Having fair terms of trade and higher social and environmental standards among the farmers and producers in developing countries is the main goal of fair movement. Those producers that ensure their products and food ingredients meet certain environmental, labor, and developmental standards for its production are being issued with fair trade certification (UNEP, 2015), which helps food purchasers in making sustainable decisions.

Food service sectors such as hotels and restaurants play a crucial role in the adoption and promotion of sustainable food strategies and operations. These establishments are in close contact with the people in the supply, production, and demand side of the food path. Without proper knowledge, skills, and commitment from the top management of these establishments, the call for action towards a more sustainable dining operation will not happen. To guide the food service sector, several factors that should be considered for successful implementation of sustainable food operations were established (Figure 3).

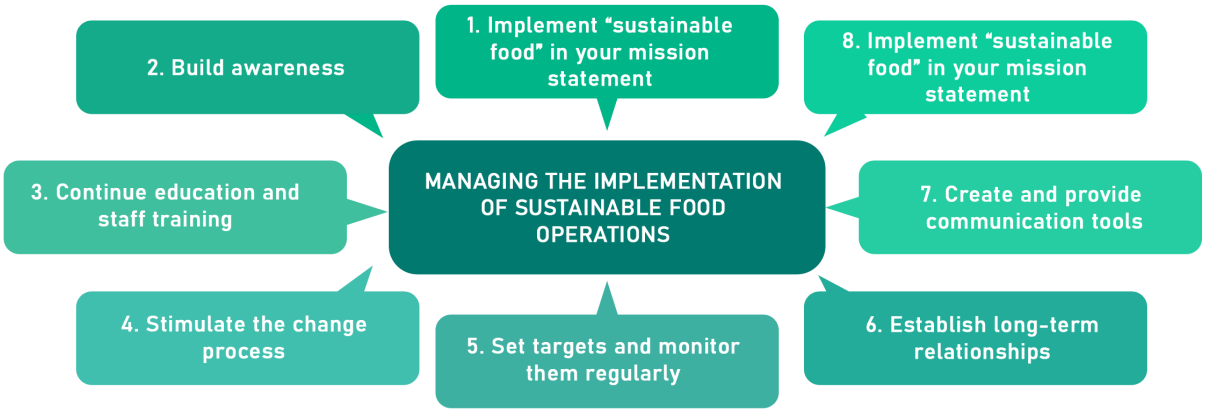


Figure 3. Factors in implementation of sustainable food operations (Lund-Durlacher *et al.,* n.d)

1. **Implement "sustainable food" in your mission statement** - First thing to do is to commit to sustainable food principles by implementing these in your mission statement and strategies. These will help you, your staff, customers, and other stakeholders in daily operations.

2. **Build awareness** – To gain the support of your staff and members of the management, you should impart to them the importance and benefits of sustainable food operations to create awareness, and eventually turn it into practice.

3. **Continue education and staff training** – As part of the management, you should incorporate education and training activities to your staff regarding the different aspects of sustainable food operations throughout the operations, be it formal or informal. This can help to strengthen the staff's current awareness and will help to innovate and improve your operations.

4. **Stimulate the change process** – Once your staff are aware and well-equipped with the needed knowledge and skills in adopting sustainable food operations, you should continue reinforcing and stimulating the adoption of such practices to ensure that all your actions will move towards sustainability.

5. **Set targets and monitor them regularly** – to ensure that you and your business are on the right path to sustainability, you should set realistic and sustainable targets for all the parameters of the food operations and monitor the progress regularly. Specific sustainable targets should be set for each aspect of your operation from the suppliers, production, resource consumption, waste generation, etc.

6. **Establish long-term relationships** – To gain more support and minimize your risks while adopting such sustainable measures, you should establish long-term relationships with you suppliers, staff, and the community. This will help your operations offer and deliver high quality products and services sustainably.

7. **Create and provide communication tools** – there is also a need for constant and quality communication between you and your staff, guests, suppliers, and other stakeholders to successfully adopt sustainable measures in food operations. With this, you should create innovative ways on how you can constantly and clearly communicate with them, especially your commitment and actions toward sustainability.

8. **Communicate continuously** - use the innovative communications tools you developed in continuously communicating with all the people in your food service operations at every point of contact as much as possible. You can use both formal and informal ways of communication to vary your medium.

C. Embracing Sustainable Dining and Encouraging Others for Collective Actions

a. Developing food policy for sustainable dining

The food policies to be developed will guide the whole operation and management of the food establishment towards attainment of sustainable dining in terms of suppliers, staff, customers, and other stakeholders.

The following aspects should be taken into account in developing a food policy for sustainable dining and food consumption (Lund-Durlacher *et al.,* n.d):

- **Economic:** A sustainable food policy must be as resource efficient as possible, prioritizing the economic benefit of the local community.

- **Ecological:** There should be an emphasis in using local, seasonal, and organic food items in the policy. This will help address crucial ecological aspects including biodiversity (e.g., protecting endangered species), environmental protection (e.g., the CO2 footprint), animal welfare and environment-friendly production methods.

- **Societal:** Fair working conditions for all the stakeholders should be considered in the food policy. It should also encourage the operations to procure ingredients and other materials from small-scale, local producers and suppliers.

- **Health:** It is also a priority to always serve fresh, healthy and safe food using high quality ingredients to consumers.

- **Cultural**: To help protect local food cultures and support traditional producers, acquiring authentic food and ingredients has to be considered in the purchasing process.

b. Monitor performance and evaluating progress (UNEP, 2015)

It is important to review and report your progress as you integrate sustainable food measures in your food service operations. Monitoring should involve gathering data and information on all aspects of the food service operations from the suppliers, transportation, production, service, waste disposal, and other stakeholders. This is needed to evaluate the performance of each aspect of the operation, identify problems and potential problems, and to provide appropriate

solutions. This reviewing and reporting process is also part of the communication responsibility of you and your business to demonstrate success and achievement to stakeholders and a good opportunity to be transparent about both challenges and difficulties (UNEP, 2015).

In monitoring your progress, involve your key staff as they also need to understand where and how improvements could be made, and this could also help build and maintain their commitment towards sustainability. You should also update your monitoring reports regularly so that you have timely data of your progress and problems could be identified early and resolved. This could also help in planning your activities and other engagements in the operations the year ahead. Having timely monitoring reports is not enough since these should also be disseminated regularly to ensure that everyone in the operations side is updated with the progress and what still needs to be achieved. As operations continue, there will be a need to keep a database record of all the data and information.

Moreover, having a database could help in producing timely monitoring reports. Lastly, regularly meeting with the key individuals and/or the management should also be done to reinforce the importance of the monitoring processes and to strengthen existing relationships.

More specifically, the performance of the suppliers needs to be assessed and monitored, particularly their delivery and services against contract standards. There are several ways to do the assessment, and these could include: checklists, questionnaires, site visits and/or customer feedback, as appropriate. Below are some suggested activities in dealing with your suppliers (UNEP, 2015):

- In developing your approach and procedures with your suppliers, make sure to keep the process simple, and if possible, integrated into existing systems.

- Specify in the contract the minimum performance standards for the food items and services, and include preventive measures on food wastes.

- To ensure compliance, those suppliers with substandard goods and services should be dealt with through established legal procedures.

To further your commitment towards sourcing local and fair food trade for your ingredients and other materials, periodical measurement of some key performance indicators (KPI) could also help in evaluating your progress, identifying shortcomings, and targeting necessary measures and solutions. Some KPIs suggested to be measured are:

- the percentage of food sourced from the local area;
- the percentage of food purchased during the growing season in the home country, region, province, or local city; and
- the percentage of eligible food and drink purchased from fair trade suppliers.

c. Communicate with the people from all aspects of the food operation (UNEP, 2015)

From selling products to celebrating achievements, effective and consistent communication is very important and delivers positive impact to businesses. Communication is important with every stakeholder including staff, suppliers, and business partners. Understanding the target audience identifies the appropriate message and media channels. Business aspirations can be delivered through proactive communication, and some ways to communicate achievements include:

- Be proactive with posters, brochures, the website and relevant media and events.
- Use stories and pictures to bring to life the hard work you have put into developing your business and purchasing food sustainably.
- Publicize your quantitative success in reducing food waste and encourage customers to help you keep up the good work.
- Be creative and subtle in your communications, using all forms of communication (publicity, events, newsletters, media, etc.) to encourage buy-in and positive public relations.

1. Communicating with your customers

Reaching this stage means embracing the concepts and practicalities of sustainable hospitality. Communicating the concept to anyone is a big step. Communicating this commitment to the customers has a two-fold effect: first is that it "reinforces your identity and gives your business a point of difference in a competitive market, bringing business benefits"; and second, "it can have a positive impact by educating your customers and encouraging them to subscribe to the mindset of responsible food."

Communicating with customers by utilizing your local expertise and supplier connections can improve your efforts in environment protection and resource conservation. Sharing your pool of local producers and cooperatives may also be a good marketing strategy.

Other specific ways to communicate with the customers include providing enough information about the menu such as (Lund-Durlacher *et al.,* n.d):

- Information on food production methods, sourcing strategies, calorie and nutritional values, labor practices, animal welfare, environmental impact, etc.

- Place informative food tags including the main ingredients of the dishes (this will prevent trials and food waste), dietary and allergen information (following any regulatory framework that is in place), vegan/vegetarian, organic and fair-trade food.

- In addition, put information on the tables in the dining room or on digital displays if available.

- Use the technique of storytelling (e.g., name specific farms and reference growing practices like organic production) rather than actively marketing single attributes.

- Try to inform your guests in a positive way. Your guests are on vacation and want to enjoy their stay. Therefore, it is very important to create a positive environment. It is important not to exaggerate and to over-dramatize when it comes to sustainable food; your clients should not feel guilty or link their food experience with negative emotions.

- Organize special weeks (days) as part of your communication strategy.

- More sustainable menu formats will give your guests a total culinary and dining experience; they will remember and tell friends.

Other ways of communicating with the customers and encouraging them to practice sustainable dining include highlighting important dishes and creating a pleasant eating atmosphere by (Lund-Durlacher *et al.,* n.d):

- Arranging buffets (if any) so that more sustainable food is at the center

- Present as many attractive vegetarian and/or vegan alternatives as possible. Play with the color and texture of dishes. This helps to make them look special and to draw your guests' attention to them.

- Installing special areas (e.g., tables with organic food and/or local specialties) can also encourage customers to consume locally grown food items.

- Present raw ingredients next to certain dishes (for example, local tomatoes next to spaghetti with tomato sauce). This helps to foster an understanding among your guests of the origin of the foods you use.

- Train your staff to recommend sustainable dishes (especially for à la carte restaurants).

2. Communicating with your suppliers

Maintaining regular communication with the suppliers is important, especially regarding new contract clauses or policies. This can also be an avenue to help the supplier understand your business culture and work out strategies to achieve continuous improvement together.

Help the suppliers raise their sustainability performance by raising their awareness on sustainability and sustainable purchasing. Explaining and demonstrating the importance of sustainability may be one of the first steps. Think of ways to clearly convey information to current and prospective suppliers. Here are some suggestions on how to communicate with the suppliers:

- Seek and use feedback from staff, partners, existing suppliers and stakeholders about the most effectively designed messages and the most appropriate channels for raising awareness – these might be mailshots, personal visits, workshops or a combination of all three (3).

- Keep messages simple and sincere.

- Focus on the issues that are most relevant and those that will strike the appropriate chord with your supplier.

- Understand and empathize with your suppliers, their values and priorities, concerns and aspirations.

- Regular site visits can help you better understand a supplier's or grower/ producer's sustainability and business challenges.

Although this requires time investment, it will improve the relationship with the supplier and will ensure the support of the supply chain to your sustainable purchasing objectives. Make sure to include a personal touch in whatever means you will use to reach out to them. With the advantages of being timely and up-to-date and showing a real commitment to sustainability, personal contact is often the most successful.

Personal communication with suppliers will also help you identify areas in which they may need support, be it with capacity building or staff training, or in networking with other suppliers who already have appropriate experience in a particular area, or simply in identifying external sources of information, support, or best practice.

3. Communicating with your staff/colleagues

Conducting staff training sessions in tandem with the supplier engagement effort will improve staff's capabilities and ensure that all relevant stakeholders are up to speed. Empower the staff in assisting suppliers in enhancing efficiency and sustainability performance, with continuous progress monitoring. It is also important to develop or integrate new staff training modules and awareness-raising activities into current training programs. It could also help build awareness of the value of sustainable food by setting up a service and communication strategy for employees.

Changes to individual staff roles and responsibilities are sometimes required for the implementation of a sustainable supply chain strategy. However, these changes should be negotiated with the relevant departments, and necessary services and support should be offered, such as training, written guidelines, technical information, and advice.

It can also help to inspire workers to support and enforce a new sustainability agenda by keeping staff members aware of the progress by simply publishing updates on staff notice boards and intranet pages, or providing information in staff newsletters.

TIP: Cooking at home allows you to make better and more sustainable choices. The more you approach cooking and dining with sustainability, the more you can help the environment and save money.

TIP: Take only what you can eat, whenever, wherever.

MODULE 03

CONDUCTING RESEARCH ON SUSTAINABLE DINING

This module is designed to develop among the students and faculty the knowledge and skills on designing and undertaking research on sustainable dining.

DURATION

60 minutes

LEARNING OBJECTIVE

At the end of the module, the students and faculty should be able to develop a research proposal on sustainable dining.

COMPETENCIES TO BE DEVELOPED

- Knowledge on the importance of conducting research on sustainable dining
- Knowledge and skills on how to prepare a research proposal on sustainable dining

TOPIC INPUTS/REFLECTIONS

- Information from the provided reading materials (online and offline)
- Guide Questions: Why is it important to conduct research on sustainable dining? What are the essential elements in preparing a research proposal?

MATERIALS

- Manual
- Handouts, resource materials
- Soft copy of PowerPoint presentation

PREPARATION ACTIVITIES (for the instructor)

1. Prepare session guide for a detailed instruction of activity (should contain link of activity sheet).
2. Prepare and upload PowerPoint presentation.
3. Read the handouts/resource materials provided.

METHODOLOGY

A combination of lecture, writeshop and presentation-critiquing will be used. Students and faculty members have the option to work on an individual research or a small group that consists of up to three (3) members per group.

PROCESS

1. Discuss using the PowerPoint presentation for this module.
2. Instruct the participants to:
    a. **Read:** Resource materials provided including the uploaded PowerPoint presentation
    b. **Reflect:** What are the essential elements and requirements in developing a research proposal?
    c. **Respond:** Develop a research proposal on sustainable dining.

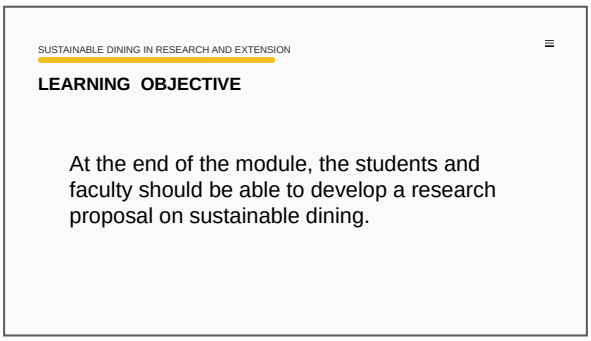
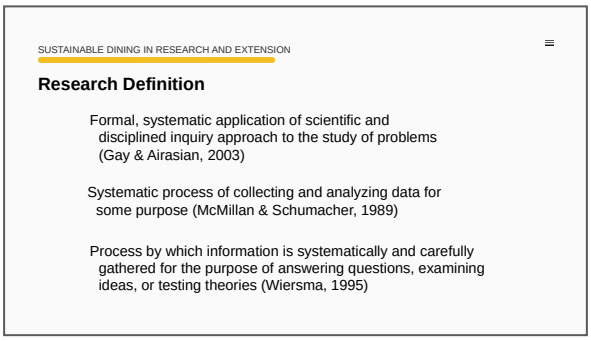
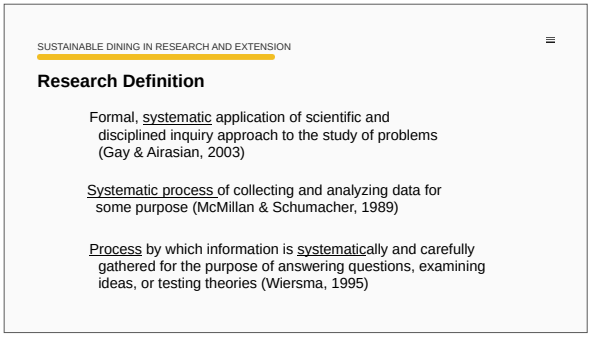
EXPECTED OUTPUT

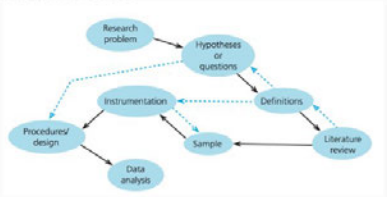
Research proposal on sustainable dining

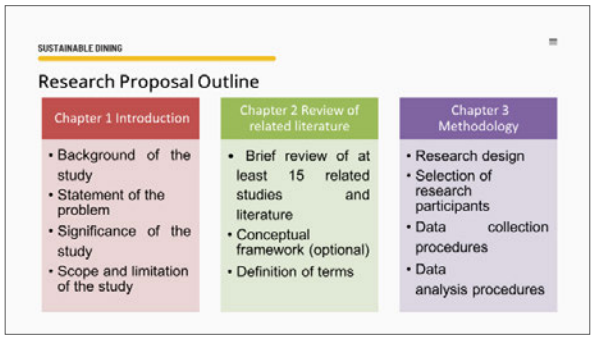
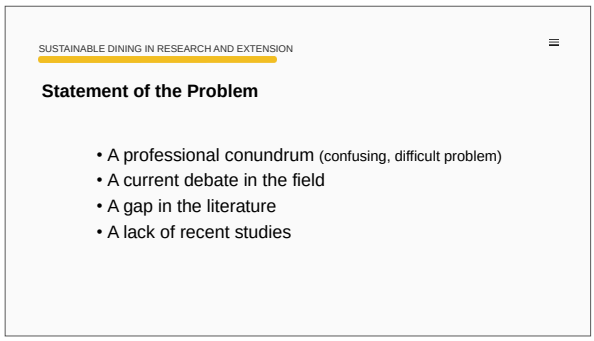
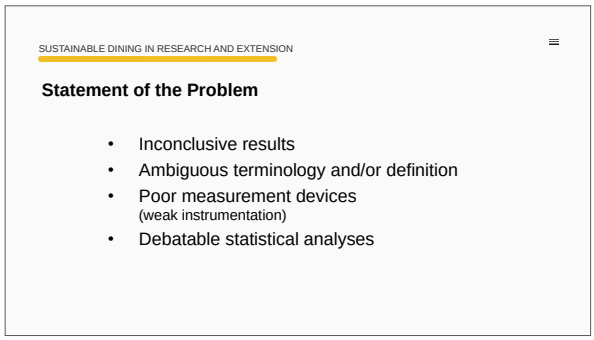
OBJECTIVE	CONTENTS	LEARNING EXPERIENCE	SCHEDULE AND TIME ALLOTMENT	ASSESSMENT TOOLS
To develop a research proposal on sustainable dining	♦ Introduction of Module 3 ♦ Definition of terms ♦ The research process ♦ The research proposal outline ♦ Sample research proposal on sustainable dining	♦ Read the handouts and resource materials provided ♦ Study the PPT file ♦ Attend the scheduled Zoom meetings ♦ Participate in class activities	60 minutes	♦ Participation in scheduled Zoom meetings ♦ Preparation of a draft research proposal on sustainable dining ♦ Submission of the draft research proposal

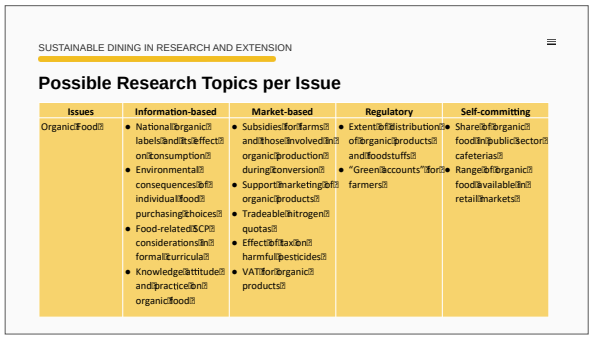
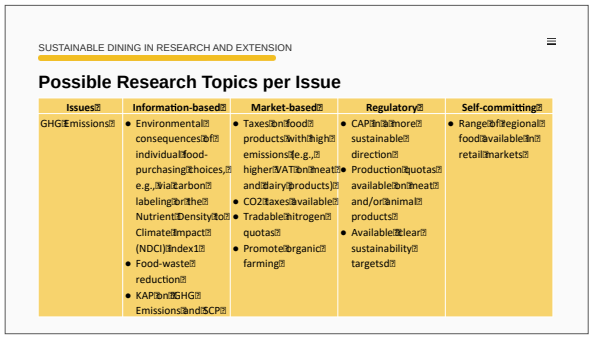
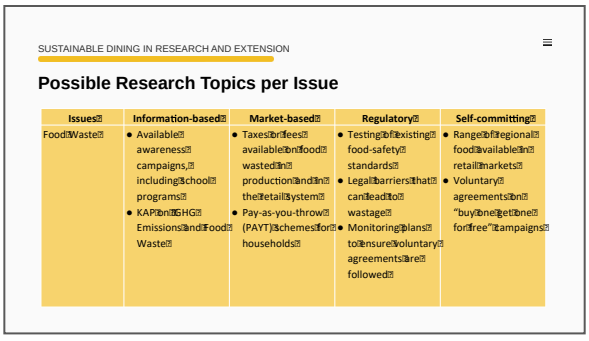
PRESENTATION OF POWERPOINT SLIDES

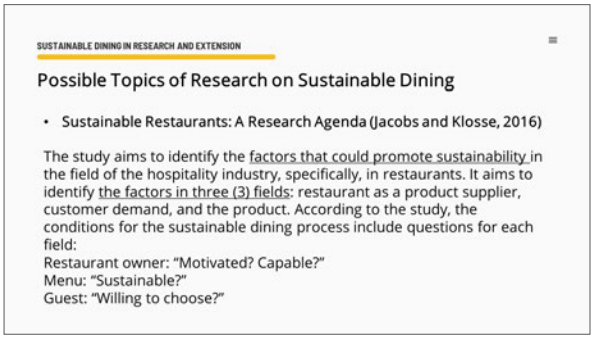
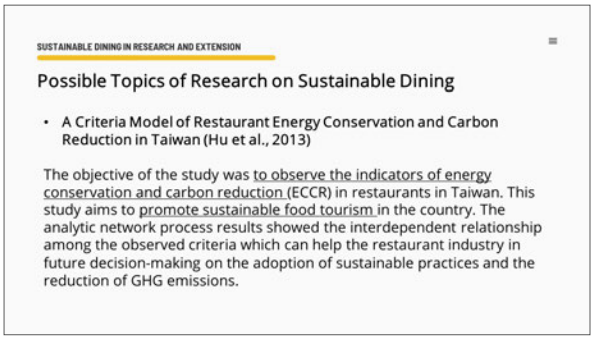
Slide #	PPT slide	Instructions
1		Introduce Module 3 by reading the title "Conducting Research on Sustainable Dining"

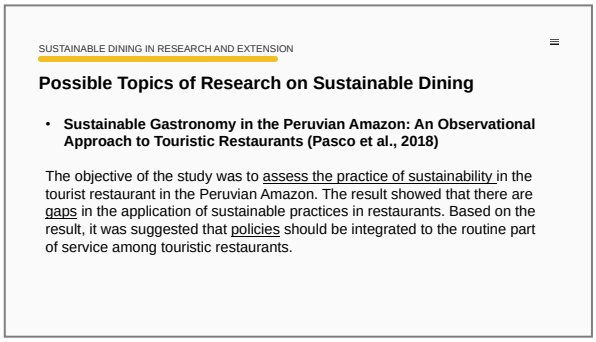
Slide	PPT slide	Instructions
2		Describe what Module 3 is all about.
3		Present the learning objective. Discuss that it is the expected learning outcome of Module 3.
4		Present some common definitions of research. Explain that providing these definitions is important before the lecture-discussion proper to have a common perspective on research as a concept.
5		Highlight the underlined words. Discuss that these are the common terms in the definitions presented. Explain that research is a systematic process because it involves a series of activities or steps and it is methodical.

Slide #	PPT slide	Instructions
6	SUSTAINABLE DINING IN RESEARCH AND EXTENSION **Importance of Research on Sustainable Dining** • Roles played by faculty and students to enrich data or generate knowledge on sustainable dining • Limited literature on effectiveness of sustainable dining • Growing interest in sustainable dining in the tourism, hospitality industry, and nutrition and dietetics • Research can be along identifying or analyzing factors, motivators, opportunities or challenges to achieve the goals of sustainable dining	Continue the discussion by connecting research with sustainable dining. Focus on the various reasons why doing research on sustainable dining is important. More discussions can be found in the Manual. You may also share your personal insights and experiences.
7	SUSTAINABLE DINING IN RESEARCH AND EXTENSION **Sustainable Dining Definition (Module 1)** "the integration of sustainable practices in the operations of food-related businesses, or our own actions as consumers. Sustainable practices are as follows: use of local and seasonal produce, eating or serving more plant-based dishes, conserving water and energy in food-related operations or scenarios, minimizing food waste, and reducing overall waste related to food (e.g. single use plastic utensils)." WWF-PH	Briefly provide a review session about the concept of sustainable dining by recalling its definition provided in Module 1. Connect the discussions again about the importance of doing research in sustainable dining and for what purpose it is done. Once in a while, you can encourage participation of the students by asking them about what they can recall from the previous modules that are related to what are discussed in Module 3.
8	SUSTAINABLE DINING The Research Process  Figure 3.1. The Research Process Fraenkel, Wallen & Hyun (2019)	Discuss the different steps in the research process. Explain the connections between each step and how one step leads to another. More discussions about Figure 3.1 are provided in the Manual.

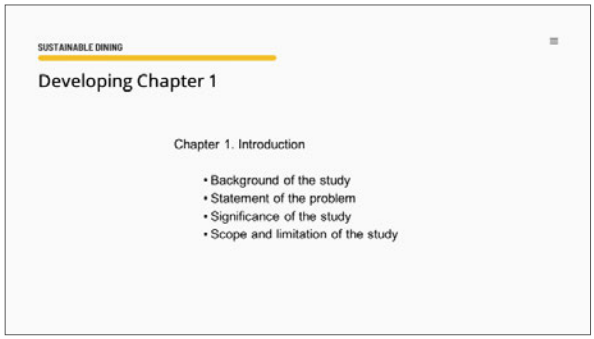
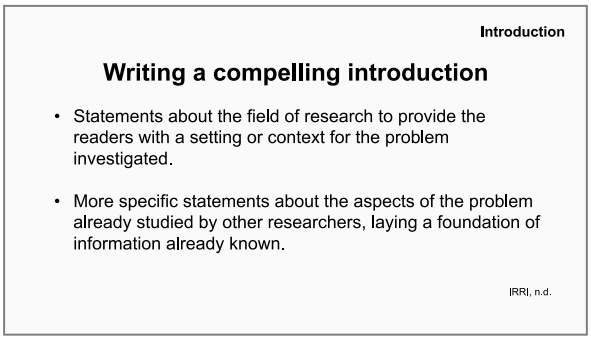
Slide #	PPT slide	Instructions
9		Explain the different parts of a research proposal. Focus on the specific activities and expected output/s in each part.
10		For slides 10 and 11, provide a review that every research starts with a research problem; discuss what is a research problem and its possible sources. You may also share your personal insights, examples, and experiences.
11		For slides 10 and 11, provide a review that every research starts with a research problem; discuss what is a research problem and its possible sources. You may also share your personal insights, examples, and experiences.
12-15		For slides 12 to 15, discuss possible research topics on sustainable dining per issue pertinent to the topic. You may point out the more familiar ones as far as your knowledge of your students. You may also share your personal insights, examples, and experiences. Encourage students to also share their insights and experiences.

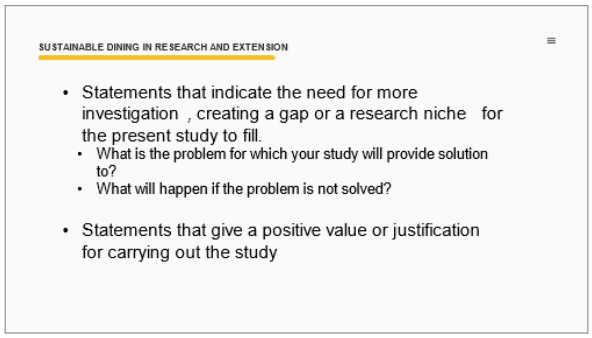
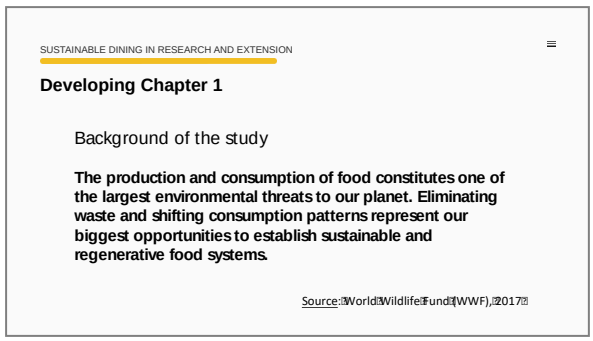
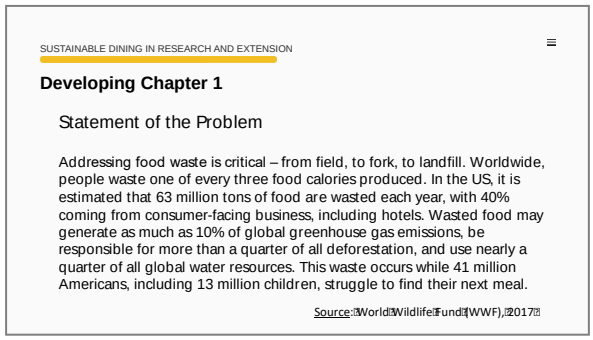
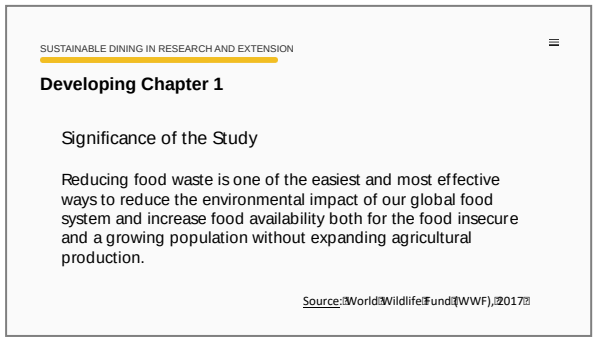
Slide #	PPT slide	Instructions
	  	
16-25		Slides 16 to 26 are actual sample studies related to sustainable dining. Important points in each study are underlined for emphasis. Devote some time in discussiong these important points. You may also share your personal insights, examples, and experiences. Encourage students to also share their insights and experiences. Refer to Table 3.2 for the details of these sample studies.

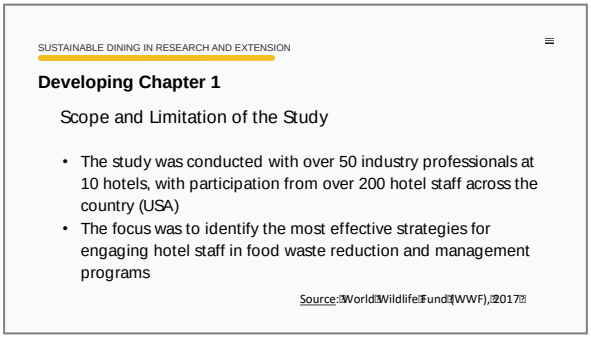
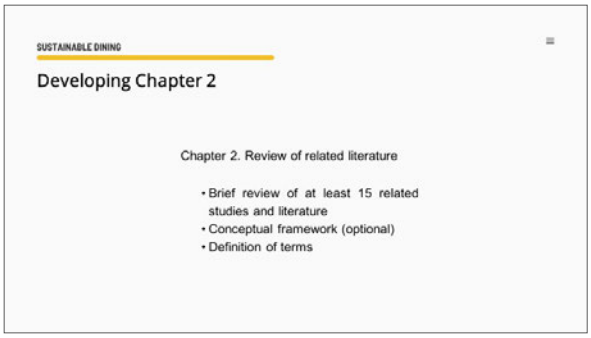
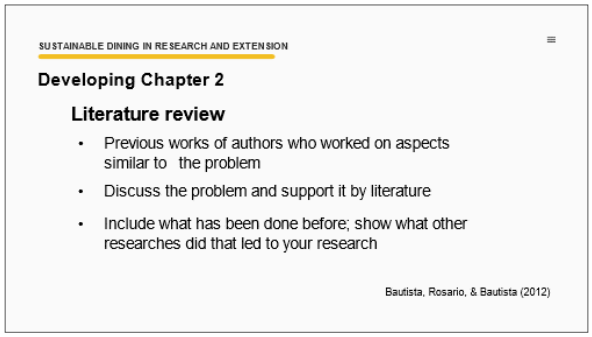
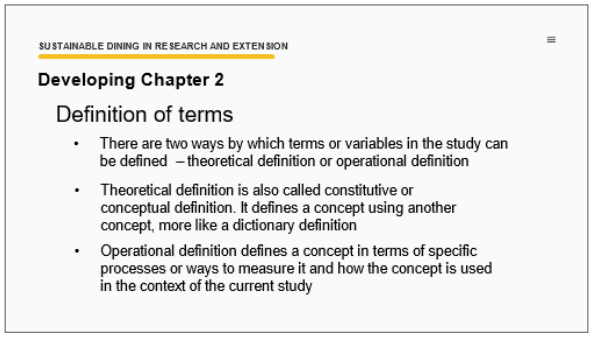
Slide #	PPT slide	Instructions
	   	

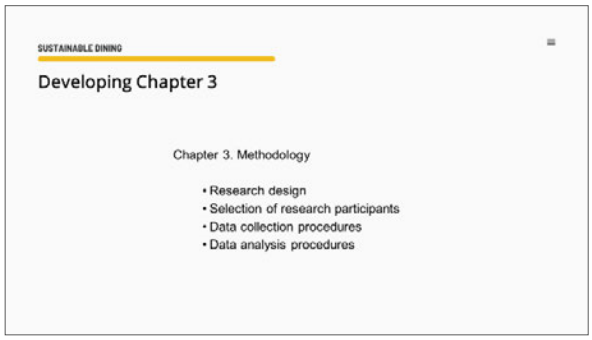
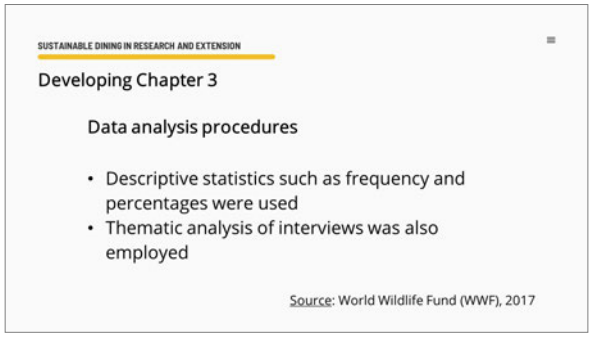
Slide #	PPT slide	Instructions
	   	

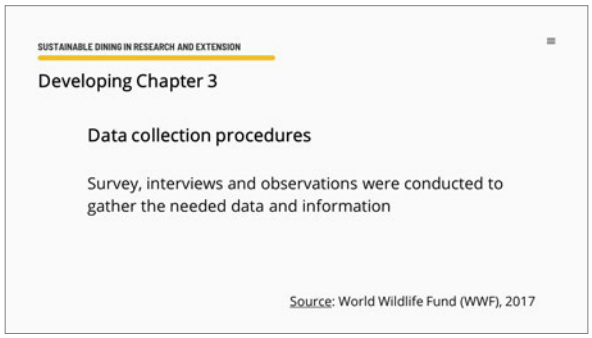
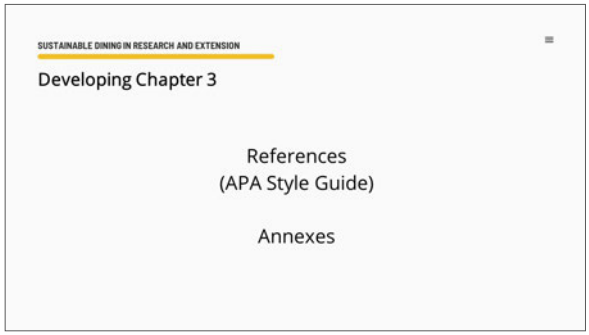
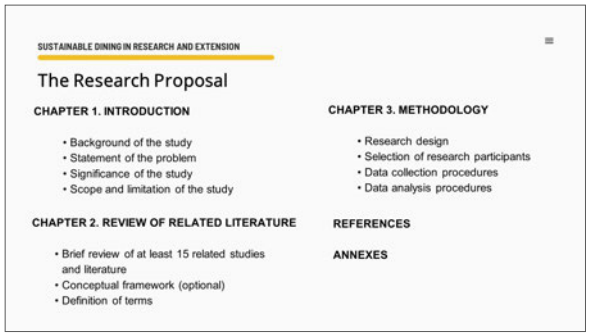
Slide #	PPT slide	Instructions
	SUSTAINABLE DINING IN RESEARCH AND EXTENSION **Possible Topics of Research on Sustainable Dining** • **Effects of Restaurant Green practices: Which Practices are Important and Effective? (Jeong and Jang, 2010)** The trend on sustainability has caused a change in the expectations of consumers. The objective of the study was to determine if the "green" practices adopted by sustainable restaurants have significant effects on the image of the company and the behavioral intentions of the customers. The result showed that green practices have a positive effect on the image of the restaurant and the ecological behavioral intention of customers.	
26	SUSTAINABLE DINING IN RESEARCH AND EXTENSION **Think of a Problem** (15 minute-exercise)  Individual  By pair  Small group	PAUSE! At this point, wrap up the discussions, summarize and highlight important points. Instruct the students that there will be a 15-minute exercise on identifying a potential research problem related to sustainable dining. The exercise can be done by pair, by a small group of not more than three (3), or by an individual.
27	SUSTAINABLE DINING IN RESEARCH AND EXTENSION **Think of a Problem** (15 minute-exercise) • What is the problem? • Why is it a problem? • What is my/our motivation for choosing it? (provide some statistics, if possible) • How can my/our study provide solution to it?	For slide 28, guide the students to use the discussion questions provided as they work during the 15-minute exercise. At the end of 15 minutes, allot some time to discuss the outputs of the students. You may ask for volunteers, if there is time constraint. Or call on everyone to share their output, if time permits.

Slide #	PPT slide	Instructions
28		After processing the student outputs, it will be helpful at this point to present and discuss a sample research proposal on sustainable dining.
29		Present the title of the sample proposal and its source
30		Discuss the different sections in Chapter 1. Emphasize the importance of clearly identifying the research problem, the motivation for doing the research, and how the research can address or provide solution to the problem.
31-32		For slides 31 to 32, emphasize the importance of writing a good introduction. It is a compelling statement that provides the setting or context for the problem being investigated. You may also share your personal insights, examples, and experiences. Encourage students to also share their insights and experiences.

Slide #	PPT slide	Instructions
		
33		Slides 33 to 36 present the various sections for Chapter 1 using the sample study conducted by the World Wildlife Fund. Discuss each section thoroughly using the example. More discussions can be found in the manual.
34		
35		

Slide #	PPT slide	Instructions
36		
37		Discuss the different sections in Chapter 2.
38		Emphasize that the review of literature is not simply a summary of earlier studies related to the research problem but should help provide focus to it.
39		Discuss the ways by which key concepts in the study can be defined. Differentiate these ways. You may also share your personal insights, examples, and experiences. Encourage students to also share their insights and experiences.

Slide #	PPT slide	Instructions
40		Discuss the different sections in Chapter 3. Explain the requirements of the common research designs and when it is appropriate to use a particular design. It is also important to discuss how to properly select the research participants, the research instruments to be used, and appropriate the analytical tools to be employed.
41-44	  	Slides 41 to 44 present the various sections for Chapter 3 using the sample study conducted by the World Wildlife Fund. Discuss each section thoroughly using the example. More discussions can be found in the manual. You may also share your personal insights, examples, and experiences. Encourage students to also share their insights and experiences.

Slide #	PPT slide	Instructions
		
45		Discuss the importance of proper citation of references and resource materials used. The American Psychological Association (APA) style guide is ideal to be used. Explain that the documents to be included in the Annexes should be properly labelled. This may include, but not limited to, the permits, research instruments, research protocols, informed consent, among others.
46		End the lecture-discussion by summarizing Module 3 and providing the salient learning points and take-aways. Show again the different parts of a research proposal.

A. Importance of conducting research on sustainable dining

The students and faculty have a role to play in enriching the data about sustainable dining. Research is also needed as there is growing interest in sustainable dining within the tourism, hospitality industry, and nutrition and dietetics. There is not much known about the effectiveness of sustainable dining. Research can be along identifying factors or motivators or opportunities or capacity that could promote or obstruct individuals or families or establishment/restaurant owners in coming up with a sustainable menu, consumer behavior regarding sustainable dining, among others.

B. The research process

The general research process can be used in the area of sustainable dining. All research endeavors share a common goal of furthering one's understanding of the problem. The basic stages of the research process are listed below (Figure 3.1).

1. Stating the research problem.
2. Formulation of the hypothesis.
3. Definition of terms.
4. Reviewing literature.
5. Identification of research participants.
6. Instrumentation.
7. Collecting data.
8. Processing and analyzing data.

The solid line arrows in Figure 3.1 indicate the order in which the steps are usually described in research proposals and reports, or the useful sequence for research planning (Fraenkel, Wallen and Hyun, 2019). The broken line arrows indicate the most likely departures from this sequence (for example, consideration of instrumentation sometimes results in changes in the sample; clarifying the question may suggest which type of design is most appropriate). The broken line pattern is intended to point out that, in practice, the process does not necessarily follow a precise sequence. Most of the time, experienced researchers consider many of these components simultaneously as they develop their research plan.

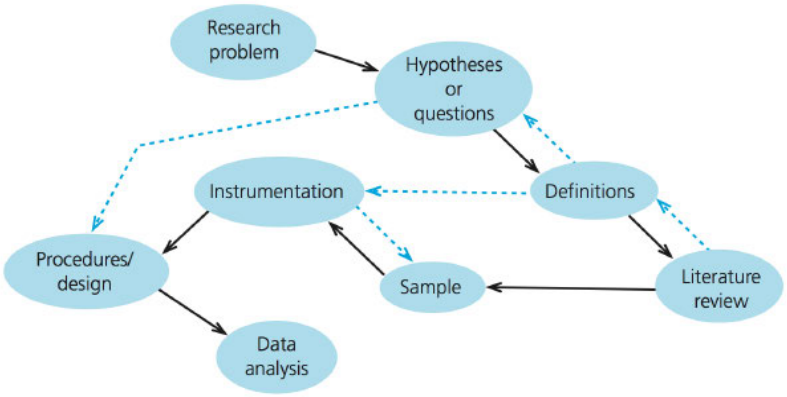


Figure 3.1. The Research Process Fraenkel, Wallen & Hyun (2019)

1. Statement of the research problem

The problem of a study sets the stage for everything else. The problem is what the research is all about, what the researcher wishes to solve, and the purpose of the study (Bautista, Rosario, & Bautista, 2012). It may be, but not limited to, a professional conundrum (confusing, difficult problem), a current debate in the field, a gap in the literature, or an absence or lack of recent studies on sustainable dining (Tables 3.1 and 3.2).

Table 3.1. Possible research topics per issue

Issues	Information-based	Market-based	Regulatory	Self-committing
Health Aspects	♦ Current meat and dairy consumption levels ♦ Integration of food-related SCP considerations into formal curricula ♦ SCP knowledge, attitude, and practice	Tax measures on meat products of fat (fat tax, junk-food tax)	♦ Advertising and other forms of stealth marketing for unhealthy food and drink ♦ Knowledge, attitude, and practice on regulations for SCP	♦ Aspects on reducing the number of meat dishes in public sector cafeterias ♦ Share of organic and vegetarian food in public sector cafeterias ♦ Voluntary agreements with retailers and main industry players on choice editing ♦ Knowledge, attitude and practice

Continuation of Table 3.1.

Issues	Information-based	Market-based	Regulatory	Self-committing
Organic Food	♦ National organic labels and its effect on consumption ♦ Environmental consequences of individual food purchasing choices ♦ Food-related SCP considerations in formal curricula ♦ Knowledge attitude and practice on organic food	♦ Subsidies for farms and those involved in organic production during conversion ♦ Support marketing of organic products ♦ Tradeable nitrogen quotas ♦ Effect of tax on harmful pesticides ♦ VAT for organic products	♦ Extent of distribution of organic products and foodstuff ♦ "Green accounts" for farmers	♦ Share of organic food in public sector cafeterias ♦ Range of organic food available in retail markets
GHG Emissions	♦ Environmental consequences of individual food-purchasing choices, e.g., via carbon labeling or the Nutrient Density to Climate Impact (NDCI) index ♦ Food-waste reduction ♦ KAP on GHG Emissions and SCP	♦ Taxes on food products with high emissions (e.g., higher VAT on meat and dairy products) ♦ CO_2 taxes available ♦ Tradable nitrogen quotas ♦ Promote organic farming[1]	♦ CAP in a more sustainable direction ♦ Production quotas available on meat and/or animal products ♦ Available clear sustainability targets	♦ Range of regional food available in retail markets

Continuation of Table 3.1.

Issues	Information-based	Market-based	Regulatory	Self-committing
Food Waste	♦ Available awareness campaigns, including school programs ♦ KAP on GHG Emissions and Food Waste	♦ Taxes or fees available on food wasted in production and in the retail system ♦ Pay-as-you-throw (PAYT) schemes for households	♦ Testing of existing food-safety standards ♦ Legal barriers that can lead to wastage ♦ Monitoring plans to ensure voluntary agreements are followed	♦ Range of regional food available in retail markets ♦ Voluntary agreements on "buy one get one for free" campaigns
"Mind markets" gap between food consumption and production	♦ Integrate food-related SCP considerations into formal curriculum		♦ Export subsidies	♦ Level and range of regional food available in retail markets ♦ Retailers sustainable food strategies

The problem statement should be accompanied by a background of the problem, rationale or justification for studying it, and the reasons why it is considered a problem, for which some statistical data may be presented to support the statement. Any legal or ethical ramifications related to the problem should be discussed and resolved at this stage.

2. Formulation of an exploratory question or a hypothesis

Research problems are usually stated as questions, and often as hypotheses. A hypothesis is a prediction, a statement of what specific results or outcomes are expected to occur. The hypothesis of a study should clearly indicate any relationships expected between the variables (the factors, characteristics, or conditions) being investigated and be so stated that they can be tested within a reasonable period. Not all studies are hypothesis-testing studies. This section is optional for the purpose of this Module. It is also at this point that research objectives are identified. The research objectives illustrate what the researcher expects to accomplish in solving the problem. These are statements of what will be done with the data rather than how to collect the data.

3. Definition of terms

All key terms in the problem statement and hypothesis should be defined as clearly as possible. The operational definition of terms is commonly preferred. Operational definitions provide a clear, concise description of how the term or a variable is measured and used in the context of the study. The use of this is important, particularly when the variable is subjected to quantitative analysis.

4. Review of the related literature

Other studies related to the research problem should be briefly discussed. The review of literature should not be a mere summary of the related studies, but should enable the researcher to connect the key findings to provide an analysis of how these earlier studies relate to the current problem being studied. The literature review should shed light on what is already known about the problem and should indicate logically why the proposed study would result in an extension of this prior knowledge.

5. Sample

The subjects (the sample, research participants) of the study should be clearly identified and described. It is also necessary to describe the larger group or population to whom results are to be generalized in the case of inferential analysis. The sampling procedures by which the subjects will be selected should be

described. The selection may be through random sampling of non-random sampling techniques.

6. Instrumentation

Each of the measuring instruments that will be used to collect data from the subjects or research participants should be described in detail. These may include, but not limited to, survey questionnaire, interview guide, focus group discussion guide, or observation tool. The rationale for the use of the instrument should be provided. It is important to pretest the research instruments with a similar group as the target subjects to ensure the validity and reliability of the data gathered.

7. Procedures

The actual procedures of the study – what the researcher will do (what, when, where, how, and with whom) from beginning to end, in the order in which they will occur—should be spelled out in detail (although this is not written in stone). This, of course, is much less feasible and appropriate in a qualitative study. A realistic time schedule outlining when various tasks are to be started, along with expected completion dates, should also be provided. All materials (e.g., textbooks) and/or equipment (e.g., computers) that will be used in the study should also be described. The general design or methodology (e.g., an experiment or a survey) to be used should be stated. In addition, possible sources of bias should be identified, and how they will be controlled should be explained.

8. Data analysis and writing the research results

Identification of appropriate analytical tools is of prime importance. Any statistical techniques, both descriptive and inferential, to be used in the data analysis should be described. Note that there is a limitation on the use of inferential analytical tools when the sample of study was not randomly selected. Choice of appropriate analytical tools to process qualitative data and information should also be discussed. The research results should be written and presented in a forum where people can learn from the results.

C. Activity on development of research proposal

The main output of this module is the development of a research proposal. The outline below can be followed in drafting the proposal.

Chapter 1. Introduction

- Background of the study
- Statement of the problem
- Significance of the study
- Scope and limitation of the study

Chapter 2. Review of related literature

- Brief review of at least 15 related studies and literature
- Conceptual framework (optional)
- Definition of terms

Chapter 3. Methodology

- Research design
- Selection of research participants
- Data collection procedures
- Data analysis procedures

References. Follow the American Psychological Association style guide

Annexes. These may include, but not limited to, the permits, research instruments, research protocols, informed consent.

D. Possible topics of research on sustainable dining

Table 3.2 presents studies related to environmental sustainability and sustainable dining in other countries. These could be used to aid the students in their research activities.

Table 3.2. Current and Relevant Research on Sustainable Dining and Practices

Article Title	Journal	Brief Summary
Sustainability Indicators in Restaurants: The Development of a Checklist (Maynard et al., 2020) - Brazil	Sustainability	The study evaluated a checklist that verifies the sustainability indicators in foodservice based on ISO 14000, ISO 14001, ISO 14004, Sustainable Restaurant Association (SRA) Certification, Green Seal Certifications, Green Restaurant Association (GRA) certification, and American Dietetic Association (ADA) position.
Environmental Sustainability Management in The Foodservice Industry: Understanding the Antecedents and Consequences (Yoon, 2016) - Korea	Journal of Foodservice Business Research	The study identified the factors and the effect of adopting sustainable management practices in the performance of a restaurant. Results showed that top management commitment and public concern were significantly related to the sustainable practices in restaurants. The performance of restaurants was also significantly affected by two (2) sustainable practices which were energy/water efficiency and sustainable policy.
Sustainability Assessment of Food Waste Prevention Measures: Review of Existing Evaluation Practices (Goossens et al., 2019) - Germany	Frontiers in Sustainable Food Systems	The study focuses on the assessment of impact of food waste prevention measures that have been proposed and implemented through the use of a pre-defined assessment framework with quantitative evaluation criteria. Based on the result, implemented measures tend to have incomplete economic, environmental, and social assessment while efficiency was only seldom assessed. The study also showed that proposed measures with projected outcomes tend to have a more thorough assessment.

Continuation of Table 3.2

Article Title	Journal	Brief Summary
Sustainable Restaurants: A Research Agenda (Jacobs and Klosse, 2016) - Netherlands	Research in Hospitality Management	The study aims to identify the factors that could promote sustainability in the field of the hospitality industry, specifically, in restaurants. It aims to identify the factors in three (3) fields: restaurant as a product supplier, customer demand, and the product. According to the study, the conditions for the sustainable dining process includes questions for each field: Restaurant owner: "Motivated? Capable?" Menu: "Sustainable?" Guest: "Willing to choose?"
A Criteria Model of Restaurant Energy Conservation and Carbon Reduction in Taiwan (Hu et al., 2013) - Taiwan	Journal of Sustainable Tourism	The objective of the study was to observe the indicators of energy conservation and carbon reduction (ECCR) in restaurants in Taiwan. This study aims to promote sustainable food tourism in the country. The analytic network process results showed the interdependent relationship among the observed criteria which can help the restaurant industry in future decision-making on the adoption of sustainable practices and the reduction of GHG emissions.
Design Opportunities for Organic Waste Recycling in Urban Restaurants (Vinck et al., 2019) – Flanders, Belgium	Waste Management & Research: The Journal for a Sustainable Circular Economy	Due to the continuous problems on food waste, the research aims to identify a restaurant design that could improve the problem on food waste. The current food waste collection and even the workflow of various urban restaurants were observed. The author concludes that the "design requirements for the optimization of food-waste recycling systems, which are related to the cost of the system, the effort that is needed, the lack of space, potential bad odor, hygiene matters, integration in the workflow, organization of the workspace and use of additional resources and energy."

Continuation of Table 3.2

Article Title	Journal	Brief Summary
Sustainable Innovation Behavior in Restaurants (Salzberg et al., 2019) -	Journal of Foodservice Business Research	The objective of the study was to evaluate the sustainability level of restaurants through the use of a path analysis model. This was also used to predict future sustainability pattern of restaurants. According to the results, three (3) predictors have been identified which implies if a restaurant would adopt sustainability practices in the future which includes past experience, perceived behavioral control, and perceived innovation characteristics.
Sustainable Gastronomy in the Peruvian Amazon: An Observational Approach to Touristic Restaurants (Pasco et al., 2018) - Peru	Journal of Tourism & Leisure Studies	The objective of the study was to assess the practice of sustainability in the tourist restaurant in the Peruvian Amazon. The result showed that there are gaps in the application of sustainable practices in restaurants. Based on the result, it was suggested that policies should be integrated to the routine part of service among touristic restaurants.
Sustainability Through Food and Conversation: The Role of an Entrepreneurial Restaurateur in Fostering Engagement with Sustainable Development Issues (Moskwa, E. et al., 2015) - Australia	Journal of Sustainable Tourism	A case study that focuses on the evolution of a sustainable café in Australia. The case study aims to observe the possibility of using sustainable cafes or restaurants as a platform to promote and educate the community regarding sustainability.
Effects of Restaurant Green practices: Which Practices are Important and Effective? (Jeong and Jang, 2010)	Caesars Hospitality Research Summit (Formal Paper Presentation)	The trend on sustainability has caused a change in the expectations of consumers. The objective of the study was to determine if the “green” practices adopted by sustainable restaurants have significant effects on the image of the company and the behavioral intentions of the customers. The result showed that green practices have a positive effect on the image of the restaurant and the ecological behavioral intention of customers.

MODULE 04

PROMOTING SUSTAINABLE DINING

Students and faculty have a big role to play in promoting sustainable dining. The more sustainable dining is promoted, the more people can be reached and will be interested in it. In some higher education institutions, promotional activities such as this are referred to as an extension activity, particularly if it involves the community. This module covers strategies on how to promote sustainable dining.

DURATION

45 minutes

LEARNING OBJECTIVE

At the end of the session, the students should be able to:

- Define a communication plan; and
- Develop a communication plan for the promotion of sustainable dining.

COMPETENCIES TO BE DEVELOPED

The students should be able to acquire knowledge and skills in developing a communication plan for the promotion of sustainable dining to different types of audience.

TOPIC INPUTS/REFLECTIONS

How can sustainable dining be promoted to different types of audience?

MATERIALS

- Soft copy of PowerPoint presentation

PREPARATION ACTIVITIES (for the instructor)

- Review this guide for a detailed instruction of activities.
- Prepare and upload the PowerPoint/Slide presentation.
- Review the sample communication plan.
- Instruct the students to:
    a. **Listen**: The importance and steps in creating a communication plan will be discussed.
    b. **Reflect**: How can sustainable dining be promoted to different types of audience?
    c. **Respond**: Make a communication plan following the steps discussed or create an infographic with environmental sustainability and sustainable dining messages.

METHODOLOGY

- Lecture-Discussion
- Develop communication plan

TEACHING AND LEARNING PROCESS

- Read the handouts/resource materials provided.
- Study the uploaded PowerPoint presentation.

PROCESS

- **Lecture-Discussion:** The faculty in-charge will discuss the importance of promoting sustainable dining, define communication, and explain how a communication plan is developed.
- The faculty in-charge can choose between these two activities based on available resources:

    Activity 1: *"One Step at a Time"*

    The faculty-in-charge will provide the instructions:

    a. After the lecture-discussion on developing a communication plan, instruct the students to find a partner.

b. The students will be asked to apply what they have learned by filing up the action plan matrix. Provide the guide questions:

- How can you promote environmental sustainability and sustainable dining?
- What is its purpose?
- How will you deliver your message to your target audience?
- How often will this be implemented?
- Who are you communicating with?
- Who will lead the implementation of your communication plan?
- How much will it cost?

Activity	Objective	Medium/ Channel	Frequency	Target Audience	Person in-charge	Budgetary Requirement

c. The pairs will present their work in class.

Activity 2: *"Making an Impact"*

The faculty-in-charge will provide the instructions:

a. This activity can be done individually.

b. Create an infographic promoting environmental sustainability and sustainable dining. Examples can be found in:

WWF-Australia. (2018). *Shop sustainably.* https://www.wwf.org.au/get-involved/change-the-way-you-live/shopping#gs.upn6ft

Yogurt in Nutrition. (2020, June 15). *Sustainable healthy diets: from science to your plate!* https://www.yogurtinnutrition.com/infographic-sustainable-healthy-diets-from-science-to-your-plate/

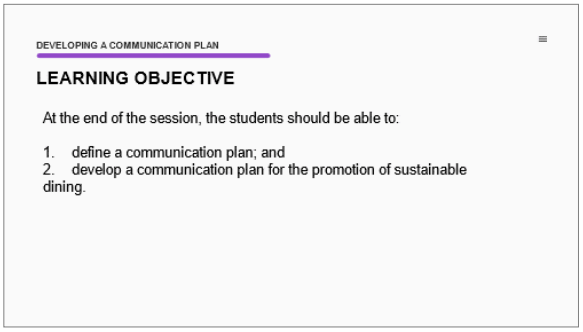
Mah, V. (2019, April 17). *Food waste – A major worldwide problem*. Andatech distribution. https://www.andatechdistribution.com.au/blogs/news/food-waste-infographic

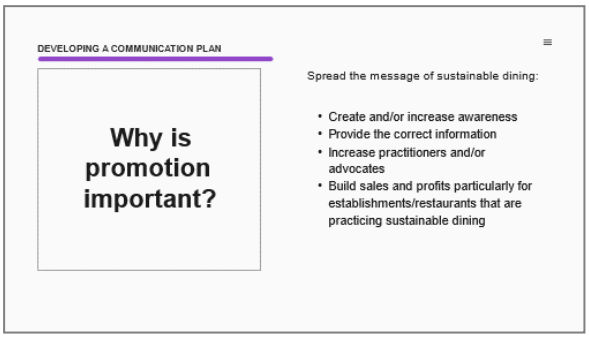
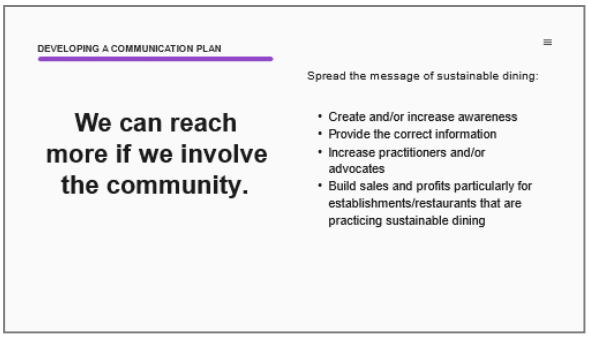
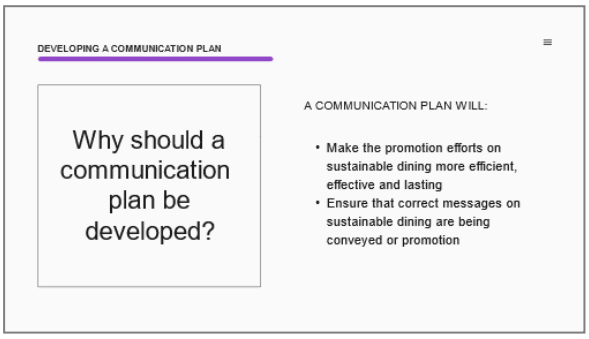
c. The student may present his/her infographic in class or post in any online learning or social media platform.

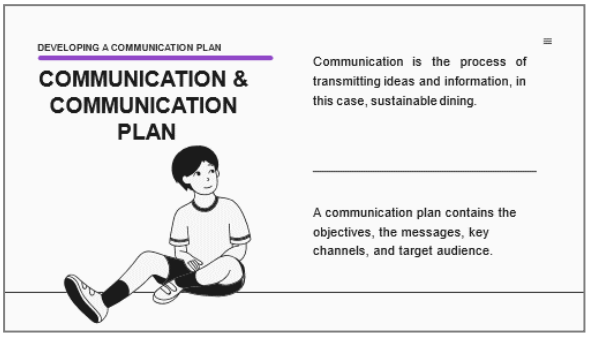
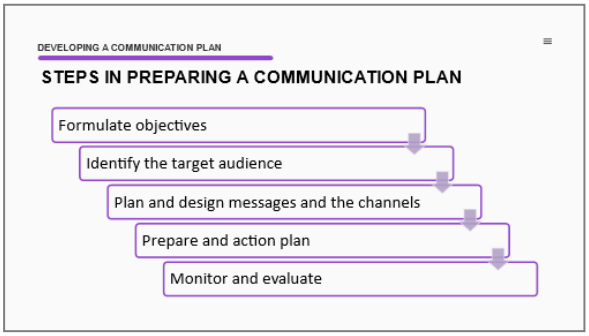
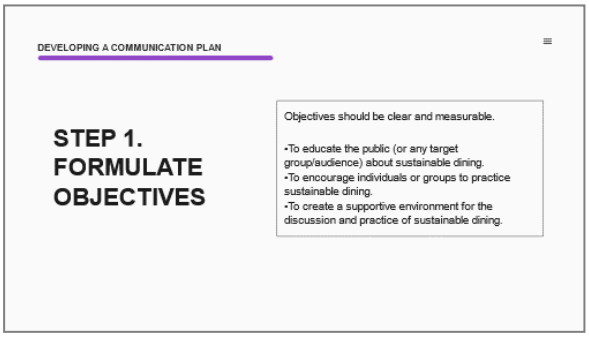
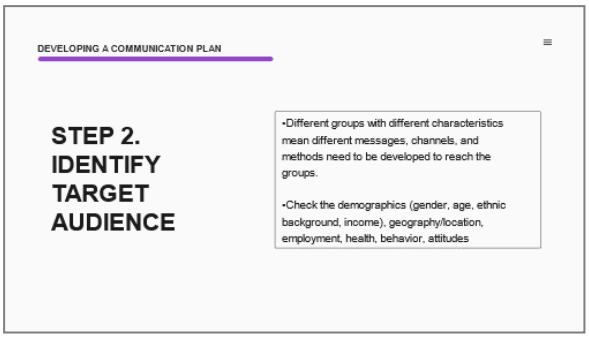
EXPECTED OUTPUTS

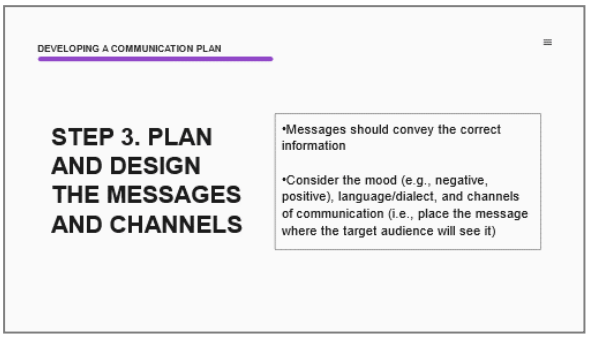
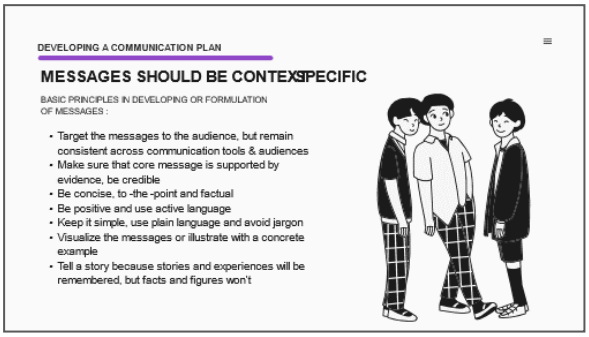
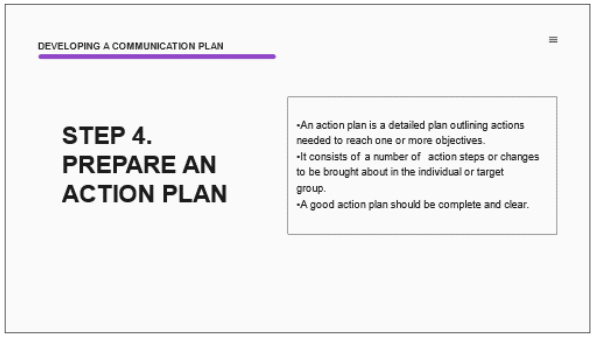
Communication plan or infographic on environmental sustainability and sustainable dining

PRESENTATION OF POWERPOINT SLIDES

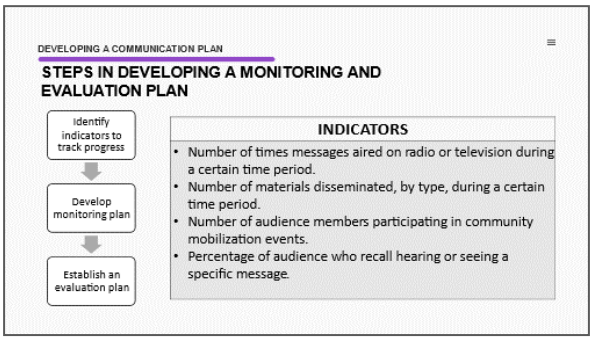
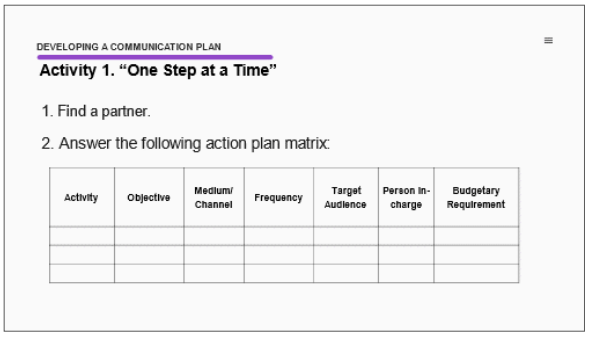
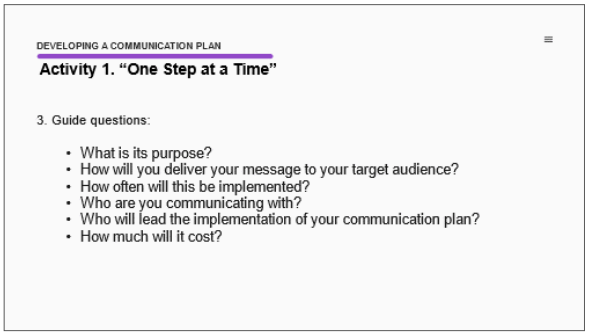
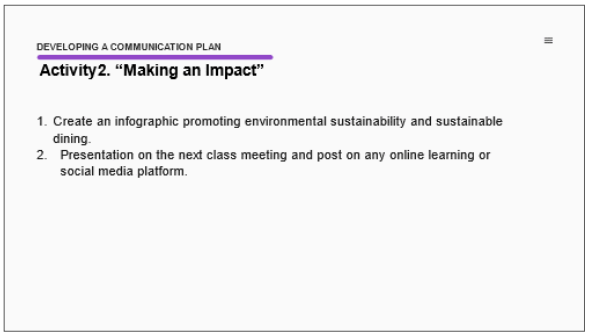
Slide #	PPT slide	Instructions
1		Welcome the students to Module 4: Developing a Communication Plan.
2		Present the objectives of the module.
3		Mention that their field has a big role in the promotion of sustainable dining.

Slide #	PPT slide	Instructions
4		Discuss the importance of promoting sustainable dining.
5		Discuss that an effective strategy in promoting sustainable dining is to involve the community.
6-7	 	Promotion of sustainable dining can be done through developing a communication plan.

Slide #	PPT slide	Instructions
8		Define communication and communication plan.
9-12	  	Discuss the steps in preparing a communication plan.

Slide #	PPT slide	Instructions
		
13		Discuss the things to consider when choosing the type of media or channel that will be used in the communication plan.
14		Note that the messages should be context specific. Discuss the basic principles in developing or formulation of messages.
15-17		Discuss Step 4. Prepare and Action Plan. Discuss the definition of an action plan and give examples.

Slide #	PPT slide	Instructions
	DEVELOPING A COMMUNICATION PLAN **EXAMPLE OF AN ACTION PLAN** Activity: Launching of sustainable dining in the university Objective: To introduce sustainable dining to students Medium/ Channel: Email blast Frequency: Once every start of semester Target audience: Tourism, hospitality management and nutrition students; All freshman students DEVELOPING A COMMUNICATION PLAN **EXAMPLE OF AN ACTION PLAN** Activity: Launching of sustainable dining in the university Person in-charge: Team A Schedule/ Frequency: Once every semester Budgetary Requirements: P5,000 (includes supplies, meals, personnel)	
18	DEVELOPING A COMMUNICATION PLAN **People don't plan to fail. Instead, they fail to plan.** Inspirational adage (University of Kansas) 	Discuss Step 4. Prepare and Action Plan. Discuss the definition of an action plan and give examples. Discuss why it is important to plan, or more specifically, to develop a communication plan if one would want to promote sustainable dining.
19-20	DEVELOPING A COMMUNICATION PLAN **STEP 5. MONITOR AND EVALUATE** Helps determine what works, what does not, when and for whom. • **Monitoring**- measure progress during the implementation of the communication plan. • **Evaluation**- done after the completion of the communication program.	Discuss Step 5. Monitor and Evaluate. Continue by discussing the definition of 'monitoring' and 'evaluation.'

Slide #	PPT slide	Instructions
		
21-22	 	Discuss the instructions for Activity 1: One Step at a Time. Show the action plan matrix and guide questions.
23		Discuss the instructions for Activity 2: Making an Impact. Show examples through the given link.

Importance of sustainable dining

- Students and faculty have a big role to play in promoting sustainable dining.
- The more sustainable dining is promoted, the more people can be reached and will be interested in it.
- In some higher education institutions, promotional activities or information campaign are referred to as extension activity, particularly if it involves the community.
- Promotion is a means of spreading the message of sustainable dining.
- The aim is to create and/or increase awareness, provide the correct information, increase practitioners and/or advocates, and build sales and profits particularly for establishments/restaurants that are practicing sustainable dining.
- Promoting sustainable dining is important in encouraging more individuals, families, communities, and institutions/establishments to practice sustainable dining for more people to experience its beneficial effects.
- It is best to prepare a communication plan to promote sustainable dining because it will identify who you need to reach, tell them what you want them to know, and how you will reach them.

Why should a communication plan be developed?

- A plan will make the promotion efforts on sustainable dining more efficient, effective and lasting.
- A plan will ensure that correct messages on sustainable dining are being conveyed or promotion.

What is communication and communication plan?

- Communication is the process of transmitting ideas and information, in this case, sustainable dining.

- A communication plan contains the objectives, the messages, key channels, and target audience.

Steps in preparing a communication plan

1. Formulate the objectives
    - Objectives should be clear and measurable
    - Examples of objectives
        - To educate the public (or any target group/audience) about sustainable dining.
        - To encourage individuals or groups to practice sustainable dining.
        - To create a supportive environment for the discussion and practice of sustainable dining.
2. Identify the target audience.
    - Different groups have different characteristics hence, different messages, channels, and methods need to be developed to reach the groups.
    - Check the demographics (gender, age, ethnic background, income), geography/ location, employment, health, behavior, attitudes
3. Plan and design the messages and the channels.
    - Messages should convey the correct information
    - Consider the mood (e.g., negative, positive), language/dialect, and channels of communication (i.e., place the message where the target audience will see it)
        - Posters, brochures, comic books, newspapers
        - TV, movies, theater
        - Social media
        - Community or national events, e.g., nutrition month, World Food Day

- In selecting the media or channels, take note that certain media:
    - Have better reach than others
    - Cost much less than others
    - Are more participatory than others
    - Are more complex than others
    - Are better of attracting and holding the audience's attention than others
- The formulation of the right message depends on the objective of the communication, but also on the audience and the communication channel that is chosen.
- Basic principles in developing or formulation of messages is highly context-specific
    - Target the messages to the audience, but remain consistent across communication tools & audiences
    - Make sure that core message is supported by evidence, be credible
    - Be concise, to-the-point and factual
    - Be positive and use active language
    - Keep it simple, use plain language and avoid jargon
    - Visualize the messages or illustrate with a concrete example
    - Tell a story because stories and experiences will be remembered, but facts and figures won't

4. Prepare an action plan

- *People don't plan to fail. Instead they fail to plan.* (inspirational adage, University of Kansas)

- An action plan is a detailed plan outlining actions needed to reach one or more objectives. It consists of a number of action steps or changes to be brought about in the individual or target group.

- A good action plan should be complete and clear.

Example of an action plan:

Activity	Objective	Medium/ Channel	Frequency	Target audience
Launching of sustainable dining in the university	To introduce sustainable dining to students.	Email blast	Once every start of semester	Tourism, hospitality management and nutrition students All freshman students

Example of a work and financial plan

Activity	Person-in-charge	Schedule/ Frequency	Budgetary Requirements
Launching of sustainable dining in the university	Team A	Once every semester	P5,000 (includes supplies, meals, personnel)

5. Monitor and evaluate

- Monitoring and evaluation is important to ensure that the communication plan was implemented according to plan, help to understand and learn from what works, what does not, when and for whom.

- Monitoring is important to monitor progress during the implementation of the communication plan.

- Evaluation is done after the completion of the communication program.

- Steps in developing a monitoring and evaluation plan

    1. Identify indicators to track progress

    2. Develop monitoring plan

    3. Establish an evaluation plan

- Criteria to ensure that each indicator is:

    1. Valid: Does the indicator measure what it is intended to measure?

    2. Reliable: Does the indicator produce similar results when used in other contexts?

    3. Specific: Does the indicator measure a single topic or challenge?

    4. Sensitive: Does the indicator reflect changes in what is being studied?

    5. Operational: Is the indicator measurable or quantifiable with developed and tested definitions and reference standards?

- List indicators for each of activities.

    1. Number of times messages aired on radio or television during a certain time period.

    2. Number of materials disseminated, by type, during a certain time period.

3. Number of audience members participating in community mobilization events.

4. Percentage of audience who recall hearing or seeing a specific message.

APPENDIX A. INTEGRATION OF ENVIRONMENTAL SUSTAINABILITY AND SUSTAINABLE DINING IN TERTIARY COURSES/CURRICULUM

This appendix presents an overview of the curricular programs where the concepts of environmental sustainability and sustainable dining can be integrated, the general procedures in integrating the topics in existing courses, and applying and monitoring the teaching of the integrated course. The process of integrating the concepts and monitoring the teaching of the integrated course should be done by a team of faculty or the unit/ department.

A. OVERVIEW OF CURRICULAR PROGRAMS AND COURSES

Three (3) curricular programs where environmental sustainability and sustainable dining can be integrated are BSc Tourism/BSc Tourism Management, BSc Hospital Management, and BSc Nutrition and Dietetics. These programs have been recently revised in accordance with the provisions of Republic Act (RA) No.7722, otherwise known as the *"Higher Education Act of 1994",* in pursuance of an outcomes-based quality assurance system as advocated under CMO No. 46 s. 2012 entitled "Policy Standards to Enhance Quality Assurance (QA) in Philippine Higher Education Through an Outcomes-Based and Typology-Based QA", and by virtue of Commission en banc Resolution No. 231-2017 dated March 28, 2017, the corresponding policies, standards, and guidelines (PSGs) were adopted and promulgated by the Commission of Higher Education (CHED). Appendix Table 1 shows a summary of the PSGs for the three (3) curricular programs including the program outcomes and professional courses.

The PSGs for each of the programs specify the learning outcomes expected from graduates of the programs. The updating of the programs was based on the concept that higher education programs must always be abreast with the current times. The updated programs have incorporated various inputs from the different stakeholders such as industry professionals and organizations, other government and non-government agencies, and members of the academic community. Each curricular

program is composed of General Education courses, professional courses, elective courses, and practicum. The professional courses are required to allow for specialization. The longer practicum training will be a required component for completion of the programs.

Appendix Table 1. Summary of curricular programs

	BSc Tourism Management and BSc Hospitality Management	**BSc Nutrition and Dietetics**
CHED CMO	CMO No. 62, series of 2017 Series of 2017 POLICIES, STANDARDS AND GUIDELINES FOR BACHELOR OF SCIENCE IN TOURISM MANAGEMENT (BSTM) AND BACHELOR OF SCIENCE IN HOSPITALITY MANAGEMENT (BSHM)	CMO No. 14, series of 2017 POLICIES, STANDARDS AND GUIDELINES FOR BACHELOR OF SCIENCE IN NUTRITION AND DIETETICS (BSND)
Program	1. Bachelor of Science in Tourism Management 2. Bachelor of Science in Hospitality Management	Bachelor of Science in Nutrition and Dietetics
Nature of the field of study	The programs related to the fields of hospitality and tourism education will equip students with competencies that are needed to execute operational tasks and management functions in food production (culinary), accommodation, food and beverage service, tourism planning and product development, events planning, transportation services, travel and tour operations and other emerging sectors of hospitality and tourism industry.	The Bachelor of Science in Nutrition and Dietetics is a four-year program consisting of general education and professional courses. The first and second semesters of the fourth year is devoted to field practice in hospital dietetics, food service, and community nutrition/public health nutrition.

Continuation of Appendix Table 1

	BSc Tourism Management and BSc Hospitality Management	BSc Nutrition and Dietetics
Program outcomes common to all programs in all types of HEIs	The graduates have the ability to: 1. Articulate and discuss the latest developments in the specific field of practice; 2. Effectively communicate orally and in writing using English, Filipino, mother tongue language, and an appropriate foreign language required by the industry; 3. Work effectively and independently in multi-disciplinary and multi-cultural teams; and 4. Act in recognition of professional, social, and ethical responsibility to preserve and promote "Filipino historical and cultural heritage" (based on RA No. 7722)	
Common to discipline	**Business and Management** 1. Perform the basic functions of management such as planning, organizing, leading and controlling. 2. Apply the basic concepts that underlie each of the functional areas of business (marketing, finance, human resources management, production and operations management, information technology, and strategic management) and employ these concepts in various business situations 3. Select the proper decision-making tools to critically, analytically and creatively solve problems and drive results 4. Apply information and communication technology (ICT) skills as required by the business environment	**Nutrition and dietetics** 1. Theoretical knowledge and skills in health science 2. Communication skills 3. Research-oriented 4. Interpersonal skills and leadership 5. Lifelong learning 6. An ability to work effectively either independently or in multi-disciplinary and multi-cultural teams

Continuation of Appendix Table 1

	BSc Tourism Management and BSc Hospitality Management	**BSc Nutrition and Dietetics**
	5. Work effectively with other stakeholders and manage conflict in the workplace 6. Plan and implement business-related activities 7. Demonstrate corporate citizenship and social responsibility 8. Exercise high personal, moral and ethical standards	
	Tourism and Hospitality 1. Demonstrate knowledge of tourism industry, local tourism products and services 2. Interpret and apply relevant laws related to tourism industry 3. Observe and perform risk mitigation activities 4. Utilize information technology applications for tourism and hospitality 5. Manage and market a service-oriented business organization 6. Demonstrate administrative and managerial skills in a service-oriented business organization 7. Prepare and monitor industry specific financial transactions and reports 8. Perform human capital development functions of a tourism-oriented organization 9. Utilize various communication channels proficiently in dealing with guests and colleagues	

Continuation of Appendix Table 1

	BSc Tourism Management and BSc Hospitality Management	BSc Nutrition and Dietetics
Specific to the program	**BSc in Hospitality Management** 1. Produce food products and services complying with enterprise standards 2. Apply management skills in F & B service and operations 3. Perform and provide full guest cycle services for front office 4. Perform and maintain various housekeeping services for guest and facility operations 5. Plan and implement a risk management program to provide a safe and secure workplace 6. Provide food & beverage service and manage the operation seamlessly based on industry standards **BSc Tourism Management** 1. Plan, implement and monitor tours and sales activities 2. Research, plan and conduct various tour guiding activities 3. Develop appropriate marketing programs and arrange the required travel services 4. Plan/ Organize, implement and evaluate MICE activities 5. Plan, develop and evaluate tourism sites and attractions	6. Promote the role of nutrition and dietetics for human well-being in relation to the needs, resources and potentials of individuals, groups and families 7. Practice comprehensive nutritional care for the total wellness of individuals in a multidisciplinary and multi-cultural setting 8. Integrate nutrition concerns with local and national development efforts 9. Manage nutrition programs for individuals, groups and institutions 10. Manage a food service unit in hospital or other settings 11. Implement an economically viable activity related to nutrition and dietetics 12. Design and/or conduct a scientific study on food, nutrition and related topics 13. Uphold ethical standards of the profession 14. Engage in lifelong learning activities

Continuation of Appendix Table 1

	BSc Tourism Management and BSc Hospitality Management	**BSc Nutrition and Dietetics**
Professional courses	**BSTM** 1. Global Culture and Tourism Geoqraphy 2. Sustainable Tourism 3. Tour and Travel Management 4. Applied Business Tools and Technologies 5. Supply Chain Management in Hospitality Industry 6. Introduction to Meetings Incentives, Conferences and Events Management (MICE) 7. Ergonomics and Facilities Planning for the Hospitality Industry 8. Foreign Language 1 9. Foreign Language 2 10. Research in Hospitality	**BSND** 1. Basic Foods I 2. Basic Foods II 3. Foodservice Systems I 4. Foodservice Systems II 5. Basic Nutrition 6. Food and Nutrition Research I 7. Food and Nutrition Research II 8. Meal Management 9. Fund of Food Tech 10. Nutritional Assessment 11. Nutrition Care Process 12. Nutrition in the Life Stages I 13. Nutrition in the Life Stages II 14. Nutrition Therapy I 15. Nutrition Therapy II 16. Nutrition Education 17. Public Health Nutrition

B. STEPS TO INTEGRATE TOPICS IN THE CURRICULUM AND COURSES

In this manual, integrating environmental sustainability and sustainable dining will be done through an interdisciplinary approach, i.e., the three (3) disciplines – tourism, nutrition and dietetics, and hospitality management – are connected by common concepts and skills (Figure 4.1). In this approach to integration, the faculty will organize the curriculum and/or courses around common learnings across disciplines (Drake and Burns, 2004). The role of the faculty is to be a facilitator of learning.

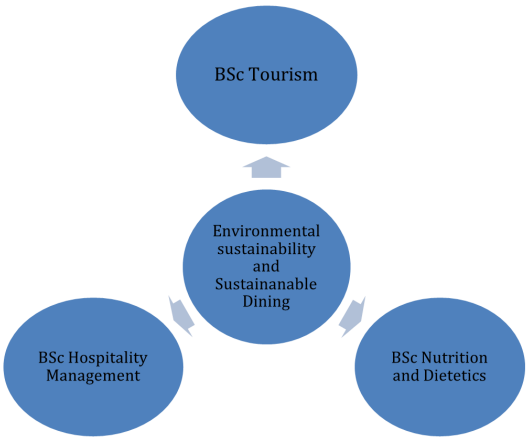


Figure 4.1. Interdisciplinary approach to integrating environmental sustainability and sustainable dining

For many faculty members, the topics on environmental sustainability and sustainable dining are probably new. However, for others, this session could serve as a review. Depending on the HEI's policy, a group of faculties within a unit/department or individual faculty can plan together to implement the steps as listed in Figure 4.2. The general steps in integrating the topics on environmental sustainability and sustainable dining are as follows:

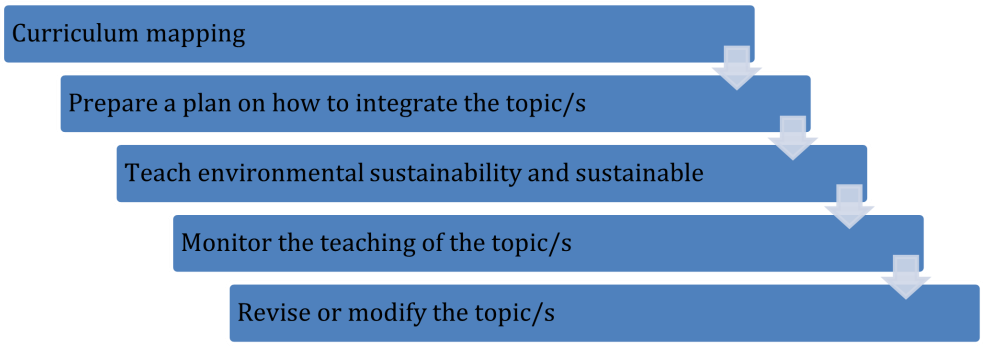


Figure 4.2. General steps in integrating the topics in existing courses

1. **In curriculum mapping,** have copies of the curricular programs (i.e., tourism, nutrition and dietetics, hospitality management) and the corresponding course syllabus per program. While in the preparation of this manual a review of curricular programs of tourism, nutrition and dietetics, and hospitality management was done, it would still be a good practice for each unit/department to review the curricular programs. Specifically, check the course objectives and topics per course syllabus to determine which course/s is/are best to integrate the topics on environmental sustainability and sustainable dining. Make sure that the course objectives are aligned with the program outcomes. Also, the unit/department can validate if integrating the topic/s will contribute to the achievement of the vision and mission and program outcomes.

   The template #1 below can be used in mapping and sequencing the course where the topics will be integrated. The first step is to determine the existing knowledge of students on sustainable dining. Then identify the possible courses where the topics on sustainable dining can be integrated. This will show what the students will learn, how the course will be structured to promote the learning, and how student learning will be assessed. The results of the assessment can be used to make changes the next time that the course will be taught and the results could be compiled across sections of the course to evaluate the course and curricular program learning objectives.

Template #1: Identifying the appropriate courses

What students know about sustainable dining	Possible courses where sustainable dining can be integrated

**Note that this manual has sessions by which the faculty can choose from depending on the results of the review of the curricular program and course/s.*

Note: It is encouraged that the planning process is a collaborative effort of the concerned faculty members following the interdisciplinary approach principle.

2. **In planning on how to integrate the topic/s on environmental sustainability and sustainable dining,** assess the knowledge and skills that the students need and make a list of the gaps. Consequently, the results would comprise the rationale for integrating the topic/s and serve as reference for formulating the objectives and selecting and prioritizing the course/s where the topic/s will be included. The plan should also include the course/s where the topic/s will be integrated, faculty who will teach the integrated course, and how to monitor the teaching of an integrated course (i.e., course with topics on environmental sustainability and sustainable dining). The template below could be used.

Template #2 Plan how to integrate topics

Course number and title	Course description	Sessions/ Topic/s	Faculty in-charge	Monitoring activities

3. **In teaching,** the faculty who will be assigned to teach the integrated course will deliver the topic/s using this teaching manual as the main reference. The faculty should read the sessions before the presentations and practice the implementation of activities as may be necessary. If there will be demonstration of skills, the faculty should practice several times. The assessment activities such as quiz/quizzes should be implemented as may be appropriate. The template below can be used in developing a session/lesson plan.

   The learning objectives should be defined with "action verbs," to describe knowledge, skills, and values that students should acquire. Bloom's taxonomy can be used in formulating objectives. To create objectives, finish the sentence: "At the end of this course students will be able to . . ." The characteristics of effective objectives include: 1) describe what you want your students to learn in the course; 2) are aligned with program goals and objectives and the rest of the students' curriculum; 3) tell how you will know a teaching goal has been achieved; 4) use action words that specify definite, observable behaviors; 5) can be assessed through one or more indicators (papers, quizzes, projects, presentations, journals, portfolios, etc.); 6) are realistic and achievable; and 7) use simple language.

Template #3 Session/Lesson Plan

Course Title: _____

Topics	Learning objectives	Content Resource/s	Individual and Collaborative Learning Activity/ies	Assessment

4. **In monitoring,** the unit/department head can monitor the faculty teaching the integrated course. At the same time, the faculty can record and document his/her experiences in teaching the topic/s. At the end of the semester, the unit/ department head and all faculty who taught the course can conduct meeting/s to share experiences and lessons learned.

5. **The revision or modification of topic/s and activities** can be done based on the results of the monitoring meetings of the unit/department. The modifications should also be done by the whole unit.

C. APPLYING AND MONITORING THE USE OF TOPICS

The true measure of the effectiveness of the topics is seen when the faculty and their students apply their new knowledge and skills. Some activities that can be done by unit or department to determine if the topics have been integrated or if the topics are being taught correctly include:

- Asking faculty to demonstrate specific activities in the teaching manual;
- Observing faculty in classroom and provide feedback on their performance; and
- Determining the knowledge and skills acquired by the students.

In providing feedback to the faculty, the following sequence is recommended:

- Ask the faculty to describe the positive aspects of the presentation.
- Allow the faculty to identify the effective skills demonstrated during the presentation.
- Ask the faculty to identify any changes that she or he would make for future presentations. This allows the faculty to identify the areas for improvement.
- Offer only suggestions for improvement that have not been identified by the faculty and help him/her to set goals for future presentations.

In monitoring the teaching of the topics, the faculty or the unit/department can have meeting/s to share experiences and lessons learned in teaching the topics and monitor the effectiveness of the topics in the four (4) aspects of teaching namely, content, context, process, and outcomes. Consider the questions within each area to monitor the teaching of the topics.

Content	♦ Do the topics match the expected outcomes for the course (e.g., tourism, nutrition, hospitality management)? ♦ Do the topics build on existing knowledge, skills, and attitudes of the students? ♦ Do students believe that the new topics are useful and applicable?
Context	♦ Are necessary facilities, resources, and equipment available for teaching? ♦ Is teaching consistent with what is taught in other related courses? ♦ Is there a clear link between the theoretical and practical portions of topics? ♦ Do the teachers teaching the topics follow the same procedures as those taught in the course?
Process	♦ Were the topics organized and taught in a logical way? ♦ Was the information presented clear and understandable? ♦ What methods and materials were used for teaching and student assessment?

	♦ How did teachers and students react to the topics? ♦ How could the teaching methods and materials be improved? ♦ Were students able to practice essential competencies and receive feedback on their performance? ♦ How much time was needed to complete the topics? Were they enough? ♦ How many students enrolled for the course? ♦ How many students completed the course? ♦ How much time was spent in the classroom? In hands on activities?
Outcomes	♦ What have students achieved as a result of the course? ♦ Were the learning objectives achieved? ♦ Do students demonstrate the expected competencies (e.g., knowledge, skills, and attitudes?)

Adapted from WHO, 2005

Based on the results of the feedback and monitoring, the topics can be revised. The modifications might include:

- Reorganizing the sequence of topics or activities
- Revising learning objectives
- Identifying new methods for teaching and assessment or refining existing methods
- Choosing new materials or revising existing materials
- Selecting new practice facilities or upgrading existing ones
- Improving the coordination with other teaching units or courses

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