



A Key **Ingredient** For Sustainable Tourism

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# BEYOND RESEARCH:

## Sustainability in the Food Service Sector

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A RESOURCE MATERIAL TOWARDS A LOW-CARBON INDUSTRY





# The Sustainable Diner's **9-STEP** Restaurant Guide



- ➊ Dine in sustainable restaurants often.
- ➋ Choose dishes made of ingredients that are in season.
- ➌ Be adventurous! Try plant-based dishes.
- ➍ Order only what you can finish.
- ➎ Ask about the dish and its ingredients.
- ➏ Don't be afraid to request for modifications.
- ➐ Bring your own reusable utensils.
- ➑ Segregate your waste properly.
- ➒ Educate your friends about sustainable dining.

Be **#TheSustainableDiner** today.

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## Sustainability in the Food Service Sector

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**"This could have been  
today's entrée."**

Published in the Philippines in 2020 by the World Wide Fund for Nature (WWF) Philippines.

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This publication of The Sustainable Diner project is under the World Wide Fund for Nature (WWF) Philippines' Sustainable Consumption and Production. This was made possible through the support of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

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.

Citation: 2020. WWF-Philippines. Beyond Research: Sustainability in the Food Service Sector. A Resource Material towards a Low-Carbon Industry.

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# Introduction

In support of the effort of the Philippine government and the private sector to establish sustainable consumption and production (SCP) strategies, the World Wide Fund for Nature (WWF) Philippines is implementing a project named “Establish Low Carbon Consumption and Production in the Philippines” also known as “The Sustainable Diner: A Key Ingredient for Sustainable Tourism” supported by the German Environmental Ministry through their International Climate Initiative. The project is currently assisting the food service sector in transitioning into a low carbon industry by advancing their capacities to adopt SCP practices. The project is also participating in the crafting of national and local SCP policies and raising consumer awareness with regard to SCP by engaging the dining public into discussion fora and platforms and through information, education, and communication campaigns.

The development of this knowledge resource, with the theme “Beyond Research: Sustainability in the Food Service Sector”, was conceptualized and written by The Sustainable Diner project team in collaboration with its consultants through intensive research, analysis, and learning experience from the project since its inception in 2017. The studies involve the food service industry, the government, and the civil society. This presents a compilation of digests of action research studies focused on establishing a low carbon food service industry in the Philippines, namely:

- 1) Environmental Teaching Manuals for Primary and Secondary School Teachers
- 2) National Eco-labelling Program – Green Choice Philippines (NELP-GCP) Revised Criteria for Food Service Establishments
- 3) Food-Sharing Network Program: A Feasibility Study
- 4) Hotel Kitchen Toolkit: A Pilot Study in the Philippines
- 5) Life Cycle Analysis for Food Service
- 6) Cost-Benefit Study of Integrating Sustainable Consumption and Production into Business Operations of Food Service Establishments

This resource material aims to increase the awareness of target stakeholders at the national and local levels to help better sustain and scale up the implementation of long-term SCP policies and strategies supported by scientific data and an evidence-based approach. This contributes to the Sustainable Development Goals, particularly Goal 12, which focuses on Sustainable Consumption and Production in the Philippines.

# Acknowledgments

We extend our appreciation and recognition for the participation and support of project partners from different sectors in the development of this resource material entitled, “Beyond Research: Sustainability in the Food Service Sector”. We also extend our sincerest gratitude to the following who contributed to the completion of this resource material:

To the German Environmental Ministry through their International Climate Initiative for their generous support to The Sustainable Diner Project of WWF-Philippines;

To the Climate Change Commission, Department of Tourism, Department of Environment and Natural Resources, National Economic and Development Authority, House of Representatives for helping the project promote the integration of SCP in the food service sector;

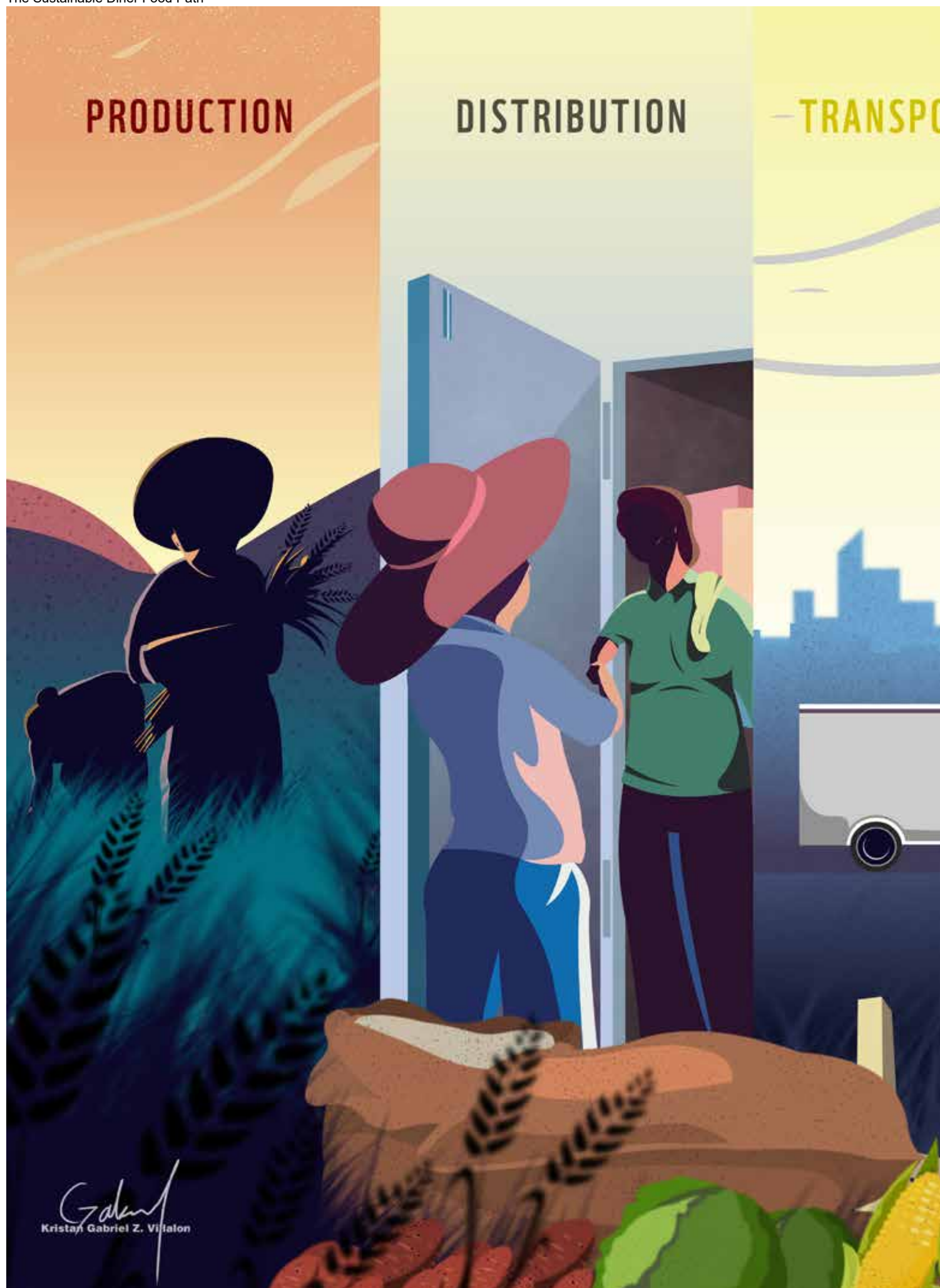
To the local government units of Cebu City, Quezon City, Tagaytay City; Department of Education, and The Sustainable Diner partner restaurants, for their active participation and meaningful collaboration in the creation of this resource material;

To all the project consultants responsible for the studies included in this resource material, Philippine Center for Environmental Protection and Sustainable Development, Inc. (PCEPSDI), GECC Environmental Services, The Wallace Business Forum, and Mr. Alfred Johann Lee for their contributions;

To World Wide Fund for Nature (WWF) Philippines through the leadership of its Executive Director, Mr. Jose Angelito Palma;

To The Sustainable Diner project team of WWF-Philippines composed of Melody Melo-Rijk, Liezl Stuart del Rosario, Alexa Jeanne Lasch, Lorayne Roque, Jenette Callada, Jonna Ellaine Jordan, and Kristan Gabriel Villalon for the overall conception, creation, design, and layout of the resource material;

And to those who in one way or another contributed to making this resource material possible, thank you!



References:

FAO and International Food Waste Coalition. 2018. Do Good: Save Food! Education material package on food waste reduction in primary and secondary  
International Institute of Rural Reconstruction (IIRR). 1987. Primary Health Care Family Planning Women in Development: Training Resource Book









### Engaging Young Minds

The future of sustainable ecosystems depend on our youth today.

# Environmental Teaching Manuals for Primary and Secondary School Teachers

WWF team leads a fun and engaging icebreaker activity for the teachers participating in the pilot test training.



At the beginning of the project, it was important to gauge how Filipinos understand the concept of sustainability and how it relates to their food choices and dining habits. The Nielsen Company was tasked to conduct a qualitative and quantitative market research study to obtain this information. From this study, it was discovered that there was an existing knowledge gap on what sustainability, in general, means and what sustainability aims to achieve. Without this, it would be impossible to even attempt to connect food and dining with sustainability. It was from this discovery that the idea of creating an environmental teaching manual for primary and secondary school teachers was born.

Introducing environmental sustainability concepts early on in a child's education would lead to better knowledge retention and habit formation. The Sustainable Diner team sought the expertise of Mr. Alfred Johann

Lee, to create, test, and review this teaching manual. He was previously a senior high school teacher at St. Patrick's School, and a part-time freelance writer, editor, and graphic designer. The goal of the teaching manual is to equip primary and secondary school teachers with the right knowledge and tools in order to integrate environmental concepts into existing lessons and curricula of any subject. Integration would make it undemanding to supplement the existing curricula, instead of creating a whole new subject. It would also make it easier to convince teachers to include these concepts since it would not be such a heavy addition to their current workload.

The team worked closely with Mr. Lee in determining and reviewing the teaching manual's content. The team then coordinated with the Department of Education Schools Division in the partner cities for endorsement to conduct the pilot testing in public schools.





Teachers prepare for the teaching demo competition during the pilot test training of the environmental teaching manuals.

Once the manuscript was finalized, teachers from Barrio Luz Elementary and High School of Cebu City, Justice Cecilia Munoz Palma High School, San Francisco Elementary School of Quezon City, and Tagaytay Montessori School of Tagaytay City were given instructions on the teaching manual's content and use. They then pilot tested the teaching manual for two months in their respective classrooms. After the pilot test period, the team and Mr. Lee went back to the schools to conduct a focus group discussion with select teachers. Afterwards, a case study was created and, along with the teaching manual, was submitted to a panel of peer reviewers. Insights from the focus group discussions and peer review were used to finalize the teaching manual.

The layout of the teaching manual was designed to make it easy to read and navigate.



From these discussions, it was realized that teachers cared about the environment, and they were supportive of including environmental lessons in their curriculum. The manuals provided them with the academic rationale behind why they engage in community and school programs geared towards environmental care. Since the teaching manual was designed to be integrated, teachers felt more encouraged to use it because it would not force them to alter their lesson plan schedule to accommodate a new inclusion. The content of the teaching manual was also written in a way that would be easiest to understand, so the teachers felt it was appropriate to use excerpts directly from the manual for student exercises. The teachers also expressed that they would have been able to maximize the manual if they were given the entirety of the school year instead of just the short two-month pilot test period. In terms of the format, there were mixed results on whether a soft or hard copy would be preferred. Some teachers preferred the soft copy because it would be more portable, but some preferred the hard copy because they have classroom rules prohibiting the use of gadgets during school hours. In terms of the language used, very few expressed interest to use a non-English manual, but it was “nice to have on hand”.

The layout of the teaching manual was formatted for easy navigation and will be published as a singular book. It will be distributed to the partner schools included in the pilot testing and other interested schools that the project will work with in the future. This teaching manual will also be presented to the Department of Education (DepEd) Central Office for formal nationwide endorsement as a supplementary teaching material for primary and secondary school teachers.





### Supporting Local Farmers

Sustainable agriculture contributes to resilient livelihoods, food security, and nutrition.







# National Eco-labelling Program – Green Choice Philippines (NELP-GCP) New Criteria for Food Service Establishments

People from different parts of the world have initiated critical steps in order to respond to the ongoing climate crisis. This includes taking actions in reducing greenhouse gas emissions in relevant areas such as energy, transportation, manufacturing and processing, among others. But how we eat, what we eat, and where we eat also impact the planet. This is why food must be included in the forefront of climate-related campaigns.

While the climate crisis is expected to heighten food insecurity on one hand, food and agriculture also greatly take part in the emissions of greenhouse gases on the other. In fact, the Intergovernmental Panel on Climate Change or IPCC (2019) reports that food production, a resource-intensive endeavor, accounts for 21 to 37 percent of total greenhouse gas (GHG) emissions. Land

conversion for food production causes deforestation and biodiversity loss. Food production and consumption, meanwhile, generates a large amount of waste and demands high water usage.

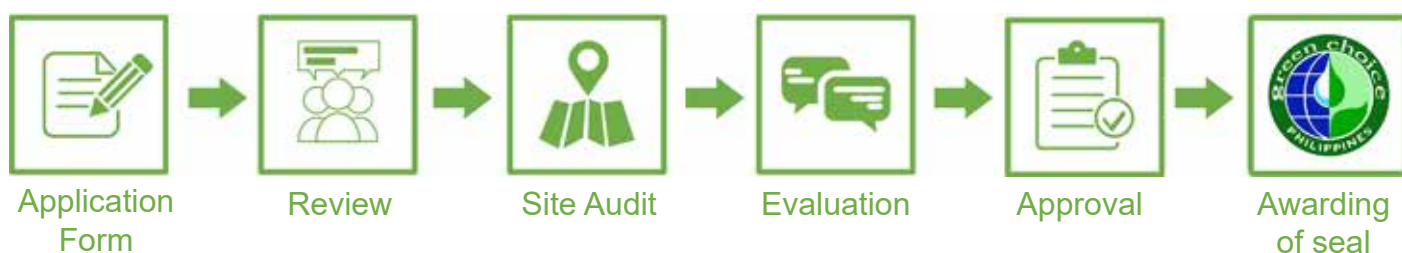
In the Philippines, the restaurant industry provides a fair share of income to the country amounting to 10% of the GDP and 51.2% of gross value added in the manufacturing industry, and generates 68% of total employment in the accommodation and food service industry (PSA, 2018). However, as the industry grows, so are the environmental problems it entails. This is what the National Eco-Labeling Program-Green Choice Philippines (NELP-GCP) aims to address—to guide consumers in the selection of environmentally-preferable products and services.

**Scoring Sheet** - All GCP mandatory requirements and at least 60% of innovative performance indicators should be complied with:

Innovative Performance Requirements	Maximum Points	Weight (%)	Restaurant Actual Points	Weighted Actual Score (%)	Innovative Performance Level	Range
1. Food and Health Safety	5	20			1	60-69%
2. Nutrition	6	20			2	70-79%
3. Environmental Management	8	30			3	80-89%
4. Resource Efficiency	6	15			4	90-95%
5. Other Sustainability Initiatives	5	15			5	96-100%
Total Points Score	30	100				



## Application Process



The NELP-GCP criteria for food service establishments (FSE) was created in 2013 and was revisited in 2019 to encourage a higher uptake among food service establishments. The technical committee for the criteria review was composed of representatives from the Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB), Pollution Control Association of the Philippines, Inc. (PCAPI), Philippine League of Local Environment and Natural Resources Officers, Inc. (PLLENRO), Bureau of Agriculture and Fisheries Standards Divisions - Department of Agriculture, World Wide Fund for Nature (WWF) Philippines, De La Salle – College of Saint Benilde, and Max’s Group, Inc. The scope of the criteria includes FSEs serving prepared or already cooked meals within the following restaurant types: (1) Quick Service restaurants; (2) Canteens and Cafeterias; (3) Catering Services; (4) Casual Dining establishments; and (5) Fine-dining restaurants.

Under the mandatory requirements, the criteria require food service establishments to comply with relevant regulations and laws under the four main categories— (1) Food and Health Safety; (2) Nutrition; (3) Environmental Management; and (4) Resource Efficiency. The new criteria also encourages continuous advancement of sustainability practices within the establishment’s operations. It also highlights innovative performance

indicators in the four (4) main categories and acknowledges other sustainability initiatives especially in the areas of green procurement, greenhouse gas emissions monitoring, and educational campaigns and capacity development activities. These are voluntary, and the presence of these practices would signify a higher sustainability level for the restaurant.

This sustainability seal is beneficial for all relevant stakeholders. The restaurants receive recognition for their sustainability efforts, and ensure that their operations are efficient and compliant with the regulations set by the national government. The government, in turn, promotes green initiatives such as NELP-GCP through prioritizing environmentally preferable products and services towards a more sustainable country, in line with the national interest of protecting the country’s natural resources and compliant with international environmental agreements. It also presents an opportunity for them to incentivize restaurants that are doing business operations as responsible environmental stewards. As the demand for sustainable products and services is continuously increasing, consumers are also informed on sustainability and encouraged to purchase from restaurants promoting safe and nutritious food produced in a resource-efficient manner to reduce negative environmental impacts.

## Main Categories under Mandatory and Voluntary Requirements:



1 Food and Health Safety



3 Environmental Management



2 Nutrition



4 Resource Efficiency

## Additional Voluntary Innovative Performance Indicator:

### Other Sustainability Initiatives



Green Procurement Program



Greenhouse Gas (GHG) Emission



Continuous Education and Capacity Building





## Growing Your Own Garden

Let's start gardening for cost-efficient, healthier, and sustainable food systems.





# Food Sharing Network (FSN) Program



Restaurants can cut down on food waste and help feed those in need by giving away their surplus breads and pastries.

Food waste is a pressing global and national crisis. Approximately \$1 trillion worth of food is lost or wasted every year—accounting for roughly one-third of the world’s food. According to the U.N. Food and Agriculture Organization, reversing this trend would preserve enough food to feed 2.1 million people (SWS Q4, 2019).

As tons of food are wasted every day, 2.5 million Filipino families experience involuntary hunger at least once in 3 months (SWS, Q2 2019). While it is a social issue, food waste is also an environmental concern. It comprises 86.2% of biowaste in the country, which ends up in landfills and produces methane—a greenhouse gas that is 25 times more powerful than carbon dioxide (NSWMC, 2015). WWF-Philippines’s The Sustainable Diner Project believes that a food donation program (FDP), among other strategies, could be a way to respond to the food waste issue while mitigating hunger and lowering carbon emissions in the country at the same time.

The Project commissioned the research firm GECC Environmental Services to conduct a feasibility study on an FDP in the Philippines. The firm assessed various existing FDPs in

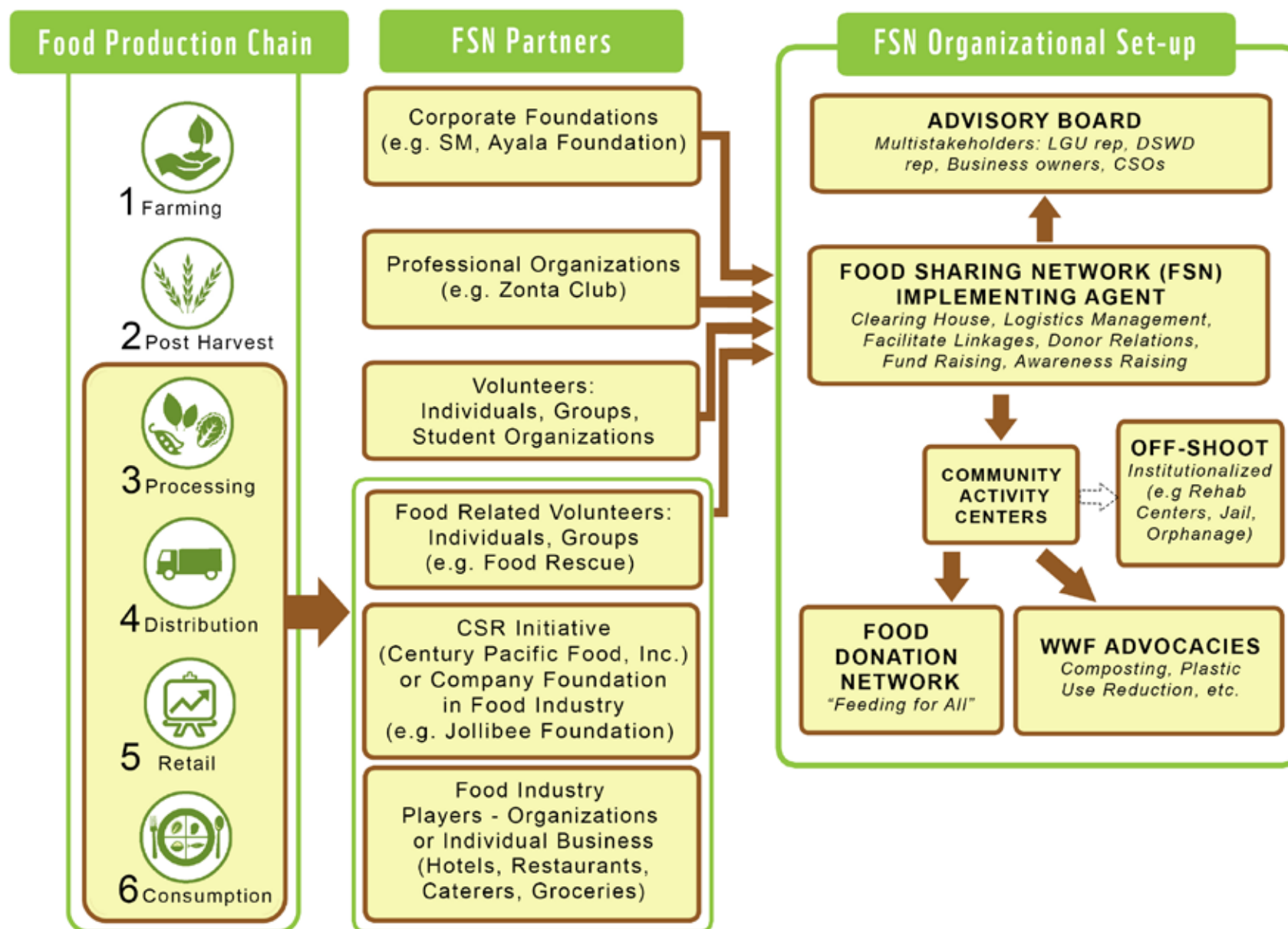
terms of their impact, technical soundness, and social and political acceptability. It also conducted a needs assessment activity; reviewed national laws and policies related to and that will support the implementation of food donation program; analyzed feeding programs and similar services led by the government, non-government organizations and private institutions to address hunger and food insecurity; and scanned the available resources (donated food, funds, and donors) vital for a viable food donation program model.

After almost a year of primary and secondary research, GECC Environmental Services has come up with a conceptual framework that highlights “food sharing” instead of “food donation” due to these key findings:

1. The biased notion of donated food as waste, excess, and/or recycled are not fit for human consumption.
2. The resistance of government agencies to patronize and incorporate food recovery and collection drives in existing feeding programs.
3. The importance of socializing Filipino values into food programs in the country in ways that tap into its culture of sharing and community around food.

The food collection and redistribution program featured here is therefore named as the Food Sharing Network (FSN) program. Please see the conceptual model.

# Key Elements of the Food Sharing Network (FSN) Conceptual Model





## 1. Sources

Excluding the farming and post-harvest stages in the loop, the food surpluses or food that is still safe for consumption shall ideally be derived from the food preparation up to the consumption stages in the food production chain. Examples of these are fresh fruits and vegetables; breads and pastries that have not been served, and canned or bottled food—all from markets, manufacturers, retailers, and restaurants.

## 2. Partners

In food-sharing terms, “partners” include individuals donating their time (e.g. collect/deliver donated food) and talent (e.g. develop an application to track the delivery and distribution of donated goods, information materials to increase awareness that food sharing contributes to food security and climate change mitigation); groups (e.g. Zonta International providing warehouse for donated food, student organizations organizing food drives or food rescue); and corporate entities (e.g. Century Pacific Food, Inc. donating canned tuna products). Similarly, volunteers may be individuals or groups who may be paid or not.

## 3. Implementing Agent

The Implementing Agent (IA), on one hand, is in charge of the following tasks:

- 1) Serves as clearinghouse for donated food items;
- 2) Manages the logistics to ensure food safety, proper storage, and timely distribution;
- 3) Facilitates linkages and donor relations;
- 3) Conducts fundraising drives;
- 4) Oversees awareness-raising activities;
- 5) Provides feedback to the FSN Advisory Board

The FSN IA must be a Civil Society Organization (CSO) with extensive experience in organizing food donation or feeding programs with collateral programs

(e.g. livelihood programs, skills training, values formation); has established long-term partnerships with corporations and/or other CSOs; and ideally, has demonstrated knowledge of government programs related to food donation and familiarity with Food Donation Act and other related policies.

## 4. Advisory Board

To provide guidance on the general operation of the FSN, a multisectoral advisory board shall be formed. It includes representatives from national agencies like Department of Social Welfare and Development (DSWD), Department of Interior and Local Government (DILG), Department of Education (DepEd), local government chief executives, heads of private businesses, and CSOs.

## 5. Community Activity Centers

Designed by the DSWD and governed by the LGUs, the Community Activity Centers (CAC) are the heart of the FSN program. This is where the beneficiaries are fed and the FSN collateral programs are conducted. FSN implementation in CACs can be documented, standardized, and replicated in institutions like orphanages, rehabilitation centers, and prisons.

In conclusion, a food redistribution scheme as demonstrated here by the FSN model can help address the issue of food waste in the country. It can help feed a great portion of the population who would otherwise undergo involuntary hunger. At the same time, it will curb carbon emissions originating from rotting food in landfills. What makes this initiative more worthwhile is it harnesses certain core values of the Filipinos—sense of community (“bayanihan”), generosity, and service, among others. While the FSN program promises these gains to the people and the environment, it strongly communicates to the businesses that is not enough to just do well, but to also do good. Absolutely, it will raise their social responsibility and sustainability quotient.





C.U. AL CANTARA, RND

#### Developing Sustainable Recipes

Efficient use of ingredients can provide better impact to the environment.





## Hotel Kitchen Toolkit: A Pilot Study in the Philippines

Food is inarguably one of the most important natural resources on earth. It is linked to our cultures and traditions. Moreover, it is our basic need for survival, thus constituting food as a fundamental human right. Yet, despite the fact that food is an integral part of life, the way we harvest, package, transport, cook, consume, and dispose of food contributes to the global climate crisis our world is currently addressing.

**Food waste presents both a challenge and an opportunity for the hospitality sector,** particularly the food service sector. According to the Philippine Statistics Authority (2018), hotels and restaurants comprise 87% of the food service industry, and initial information from actual observation on their volumes of

food waste is necessary in order to design more appropriate food waste diversion and reduction strategies. **In the Philippines, more than 80% of biodegradable waste is food waste (DENR, 2015).** This can be addressed if measures to cut food waste are in place such as reduction interventions in the pre- and post-service operations, food recovery and diversion away from landfills.

Given these challenges, WWF is working to transform sectors such as the food service industry where it sees potential to make the biggest impact. It is estimated that 40% of food waste happens in customer-facing businesses like restaurants, hotels, supermarkets and other food service-related businesses (WWF,





2018). 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, WWF-Philippines provides capacity development to private businesses to begin their own food waste tracking system. The training is based on the toolkit developed by WWF-US in collaboration with the American Hotel and Lodging Association (AHLA), with support from The Rockefeller Foundation. The 66-pager toolkit was simplified and localized by WWF-Philippines to further provide technical support to the project partners.

## TIMEFRAME

**Our demonstration study saw measurable results after only four months, but these achievements took leadership, commitment, and sustained effort both from the properties and WWF.** Applying a food waste management strategy requires 5 to 10 hours of total staff time per week to get the program started; and reinforcement by leadership, staff meetings, and monitoring visits to sustain it. A truly successful strategy requires a cultural shift in the way food is valued and managed by staff, which evolves over time with daily reinforcement of better habits.

## The Process



**1** Partnership with two (2) SM Hotels and Conventions Corp. properties



**4** Separation, Measurement, Recording, and Initial Data Analysis



**2** Presentation of the Philippine Situation on Food Waste/ Hotel Kitchen Toolkit



**5** Interventions to reduce food waste



**3** Creation of the Food Waste Management Team and Food Waste Mapping



**6** Data Analysis



Food waste can come from post service operations — plate waste from guests and leftovers from buffet tables.

## RESULTS

### 1. Food Waste Reduction

For the four-month demonstration in the two properties, **an average reduction of 10% in the total food waste per guest served** was observed in the implementation of interventions given by WWF, and from the result of the interventions workshop done in the property. This provided a significant amount of monetary savings for the properties.

### 2. Employee Engagement and Education

In a survey conducted by WWF, **more than 95% of the employees expressed their desire to take action on the food waste problem of their respective properties.** Furthermore, employees themselves took the lead and stayed committed during the implementation proper.

### 3. Guest Awareness

A campaign spearheaded by WWF and the marketing units of the respective properties was launched through the form of communication materials, such as tent cards and videos.

### 4. Institutionalization in Business Operations

The reporting of food waste data was eventually included in the monthly reports of the SMHCC properties. SMHCC has been diligently monitoring their food waste as part of their sustainability initiatives.



# SOME INTERVENTIONS ADOPTED BY THE PROPERTIES

## Pre-service



**1** Review and revision of their menu and portion sizes



**2** Strict implementation of purchasing and receiving protocols of the properties



**3** Composting



**4** Strict maintenance of storage facilities and equipment



**5** Menu planning and proper forecasting



**6** Food waste mapping



**7** Staff training



**8** Proper implementation of food safety and food handling procedures

# SOME INTERVENTIONS ADOPTED BY THE PROPERTIES

## Post Service



**1** Provision of consumption cues for guest awareness in buffet tables (tent cards/ table cards)



**2** Customization of orders initiated by the servers



**3** Removal of garnishes that are not being eaten



**4** Review of portion sizes



**5** Minimal refilling of food in the buffet





### Reducing Food Waste

Educating Filipino diners on key principles of sustainable dining is essential to lessen food waste.





# Life Cycle Analysis for Food Service



Nowadays, a growing number of restaurants, among other enterprises, are incorporating sustainable consumption and production (SCP) practices both in the front and back end of their operation as concerns over environmental impacts and reduction of our world's natural resources become important to consumers (Hollis, 2018). However, as of 2018, there is no baseline information and clear guidance yet for the food service sector in the Philippines to reduce their environmental impacts and carbon footprint. The food service industry's inappropriate processes and violations put the country's natural resources in jeopardy.

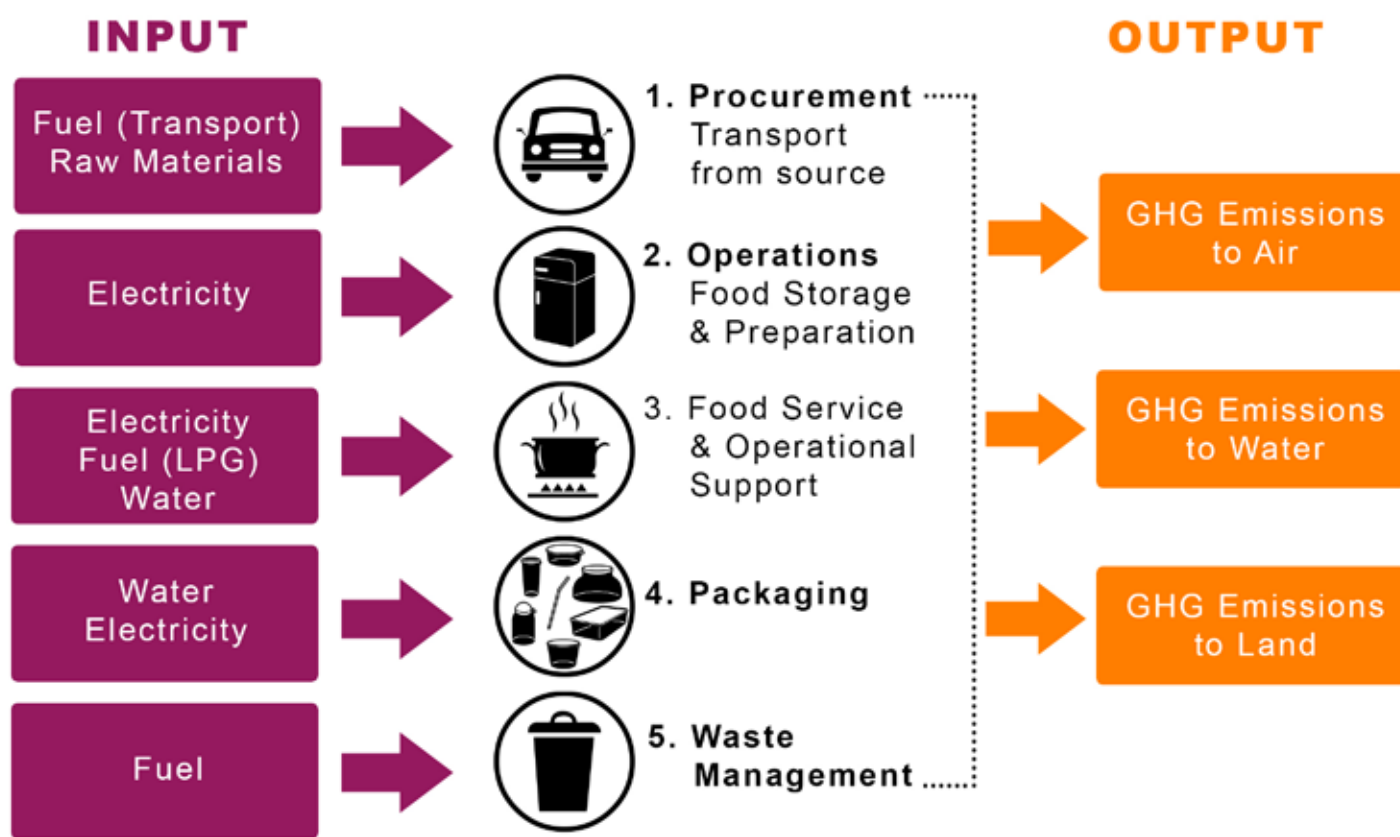
One of the tools considered in making appropriate environmental policy decisions to achieve SCP is the Life Cycle Assessment (LCA). Through the LCA, there is an evaluation of the environmental impacts of a product system covering all its life stages, including its social and economic impacts. It is also an information tool that informs consumer decisions using product declarations and

environmental performance indicators. SimaPro, a commercial LCA software, was used to determine the life cycle impacts of the restaurant operation and monitor the sustainability performance data of a company's products and services.

The Sustainable Diner Project of WWF-Philippines commissioned the Philippine Center for Environmental Protection and Sustainable Development Inc. (PCEPSDI) to conduct the LCA study involving six of its partner restaurants from the project's pilot cities namely, Cebu City, Tagaytay City and Quezon City, to define the industry's impacts and environmental priorities. The carbon footprint of the top dishes was also calculated to measure its contribution to climate change. The study scope covered the six restaurants' activities — from purchasing to waste disposal. A model was developed to categorize the numerous operational activities of the food service establishment into four (4) subsystems: procurement, operations, packaging, and waste management.



# System Boundaries for the LCA Study of the Food Service Establishments



## Procurement

1. Transport from the source – the energy used in the transfer of goods from one place to another by any mode of product procurement. For imported goods, their sources were identified to determine the specific distance and mode of transport from one country to another.

## Operations

2. Food storage and preparation – energy and water used in storing and preparing food, beverages, and other products in the restaurant
3. Food service and operational support – energy used for lighting, heating, ventilation and air conditioning, and water use

## Packaging

4. This includes the energy and raw materials used in packaging the food produced in the food service establishments. The materials used for packaging the food products are corrugated board box, polyethylene, and kraft paper. The extrusion process to transform polyethylene into the packaging material is also accounted for.

## Waste Management

5. This includes the energy used in the transfer of food waste to landfills. Other forms of waste management were also considered such as recycling, reusing, composting, and wastewater treatment.



The LCA study showed that procurement of ingredients and raw materials has significant impacts on land use and has a relatively high potential to contribute to global warming. Thus, it is recommended that the food service establishments source them from local, responsible, and sustainable sources. Moreover, local sourcing accompanied with a responsible transport system is vital to the reduction of emissions. The study also showed that vegetarian salad dishes have significantly lower carbon footprint than the average meat-based dishes.

Another hotspot identified in the study was the packaging of materials used — because the production and materials used for the packaging itself require intensive use of non-renewable energy and extraction of natural resources. Food service establishments that serve bottled water definitely have higher environmental impacts. Reducing the use of single-use plastics, and eventually replacing them with reusable alternatives is an effective strategy for minimizing wastes. Restaurants should encourage diners to only order what they can finish so that there will be no need for takeout packaging.

In terms of waste, the study implied that it is necessary to identify the specific sources and amount generated by the restaurants. This can help the restaurants in minimizing their trim waste, and portioning their dishes properly. Curbing food waste and diverting the organic wastes from landfills through composting will reduce the methane-generating materials that go to landfills; thereby, reducing the impacts to soil and water quality, and methane emissions.

Food service operations, on the other hand, proved to have very high environmental impacts. Hence, it is recommended for restaurants to practice energy management. This can be done through effective energy use planning, proper maintenance of devices and equipment, and the use of energy-efficient devices and equipment. Energy audits are also important to monitor energy efficiency and performance.

Overall, the operations phase (food storage, food preparation, food service and operational support) is the main contributor to the Global Warming impact category. All these findings strengthen the scientific basis of the NELP-GCP food service criteria. Ultimately, they can assist the food service establishments to reduce their environmental impacts.







### Advocating Sustainable Dining

The Sustainable Diner project of WWF-Philippines supports the restaurant partners in establishing sustainable habits using Information, Education and Communication materials and campaigns.





# Cost-Benefit Study of Integrating Sustainable Consumption and Production into Business Operations of Food Service Establishments

Doing more and better with less— this is the primary goal of the industrialized world to transform its make-use-dispose linear production system. The planet now suffers the consequences of the consumerist and unsustainable lifestyle of people. By 2050, three planets would be necessary to fulfill the needs and desires of its 9.6 billion population (UN, 2016).

In food production, numerous problems also persist within its life cycle, such as a high percentage of land conversion, greenhouse gas emissions, overproduction, and food waste generation. Every stage of the process that food products go through involve costs and impacts, may it be financial, economic, social, or environmental.

Successfully getting the commitment of states, businesses, and individuals to the 17 Sustainable Development Goals (SDGs) is a monumental strategy that has been explored to achieve a balance between economic growth and environmental protection. Specifically, SDG 12: Responsible Consumption and Production tackles this global issue by promoting efficiency along the whole value chain of products and services. It encourages the use of less raw materials, energy, water, fuels, and other inputs. It also prioritizes the cutting down of waste by advocating for a circular economy.

In businesses, efficiency is also an important consideration since it involves expenses and profit. The Sustainable Diner project highlights restaurants as it looks into the costs and benefits of integrating sustainable consumption and production (SCP) practices into their business operations. The project tapped the expertise of the Wallace Business Forum for this ongoing study. This report outlines the progress and the initial findings of the research.

## Study Framework (CBA Model and Indicators)

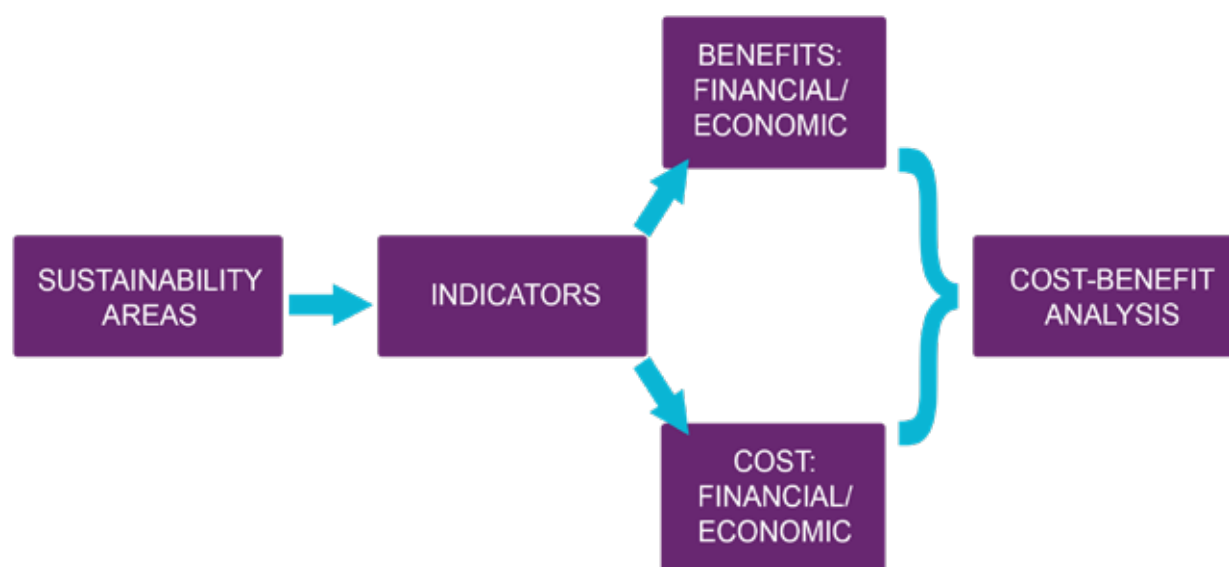
### Extended Cost-Benefit Analysis (eCBA)

This study is an extended version of the usual CBA as it does not only consider the project's financial costs and benefits but also its 'externalities' or its social and environmental impacts. In this study, these externalities have been monetized and are labelled as 'economic costs and benefits.' To elaborate, it aims to present two viewpoints—

- 1 From the standpoint of the restaurants, which provides an overview of the financial costs and benefits associated with implementing SCP practices; and
- 2 From the outlook of society, which monetizes economic, social, and environmental externalities, whether positive or negative.



Below is the illustration of the Cost-Benefit framework employed in the study:



### Sustainable Consumption and Production (SCP) Practices and Study Indicators

SUSTAINABILITY AREA	SCP PRACTICES	INDICATORS
<b>Energy</b>	Use of energy-efficient equipment in the kitchen	Reduced electricity bill ( $\text{Kw-H} \downarrow \times \text{Cost/Kw-H}$ )
	Use of certified energy-efficient appliance	Reduced electricity bill ( $\text{Kw-H} \downarrow \times \text{Cost/Kw-H}$ ), based on energy rating or % difference of its energy efficiency versus the conventional models
	Allow innovative, energy-efficient technologies to address food preparation, sanitation, and refrigeration consumption	Reduced electricity bill ( $\text{Kw-H} \downarrow \times \text{Cost/Kw-H}$ ) directly attributable to the practice
	Offset non-renewable energy use with carbon-offsetting scheme	Kg of $\text{CO}_2$ equivalent reduced with Kw-H of energy produced by non-renewable source vs same Kw-H produced by conventional (fossil fuel-based) energy source
	Track energy data	Kw-H of electricity consumption

SUSTAINABILITY AREA	SCP PRACTICES	INDICATORS
Water	Install low-flow fixtures in the kitchen and restrooms	Reduced water bill (cubic meter↓ x Cost/cubic meter)
	Use aerators, water-efficient pre-rinse spray valves, water-saving washers and waterless urinals in men's toilet	Reduced water bill (cubic meter↓ x Cost/cubic meter)
	Use equipment that are certified to be water-efficient	Reduced water bill (cubic meter↓ x Cost/cubic meter), based on efficiency rating or certification as to the % less water usage than conventional equipment
	Track water data	Cubic meter consumption of water
Waste	Follow "reduce, reuse, recycle" approach, train staff and encourage suppliers to also do the same	Number of hours of training and no. of staff trained; direct amount spent on training (trainers' fees, training materials, venue, etc.)
	Put in place sorting and collecting system for waste using separate bins	Number and sizes of bins; type of waste disposed per bin; sorting and tracking systems and facilities acquired; training and deployment of personnel for waste management
	Use recyclable paper	Quantity of paper (kg) recycled
	Minimize if not avoid the use of plastic, aluminum and polystyrene foam	% of materials – plastic, aluminum, polystyrene, paper, etc. (either by weight or number) used as packaging; serving containers; utensils; straws
	Reuse and compost organic waste	Quantity of food waste (kg) used for composting





SUSTAINABILITY AREA	SCP PRACTICES	INDICATORS
<b>Food Source</b>  (Note: only indicators/ practices applicable to local conditions are listed down)	Purchase a percentage of organically certified food products	% (by weight) of organic ingredients in meals served; quantity (kg) of organic food procured
	Purchase a percentage of locally-sourced food products, and food products purchased directly at the local farms in fair prices	% (by weight) of locally sourced ingredients in meals served; quantity (kg) of locally sourced food procured
	Adjust menu to seasonal food products	% (by weight) of seasonal food in meals served; quantity (kg) of seasonal food procured
	Purchase a percentage of sustainably sourced seafood	% (by weight) of sustainably sourced seafood in meals served; quantity (kg) of sustainably sourced seafood procured
	Options of vegetarian, meat and fish dishes are on the menu	Menu specifies options of vegetarian, meat and fish dishes
	Option of meals that cater to specific dietary needs and food allergies (gluten-free/lactose-free choices)	Menu specifies option of meals for specific dietary needs and food allergies
	Menu is labelled in regard to menu choices, e.g., “low fat”, “vegetarian”, “gluten-free”, “vegan”, etc.	Menu specifies various healthy choices for diners - “low fat”, “vegetarian”, “gluten-free”, “vegan”, etc.
	Menu communicates sustainable practices and initiatives of the restaurant	Restaurant has signages or prominently written announcements to inform diners of its sustainable practices and initiatives

## Scenario Description

SCP Scenario	SCP Level Definition
<b>Scenario 0 (Baseline)</b>	The real business as usual scenario represents restaurants that are unaware that they are practicing SCP principles, and whose management, ownership or leadership have never considered the application of SCP practices or is grossly unaware of it.
<b>Scenario 1</b>	Restaurants have low awareness of SCP and are only starting to apply SCP principles in its operations.
<b>Scenario 2</b>	Restaurants are aware of the importance of SCP and are in the process of observing them in its operations. It also has plans for investment or has just started investing in tools in aid of SCP application.
<b>Scenario 3</b>	SCP practices are present in most of the four areas and are actually incorporated in the vision, plans, programs and operations of the business. SCP principles are integrated in its business model.

### Initial Findings

The study is still ongoing and all data have to be validated first before the presentation of numerical figures. Additional visits to the restaurants are also necessary to complete the gaps in the data. Given this, only the general results will be presented.

### Financial Costs and Benefits

Available figures on financial benefits and costs indicate that SCP practices in energy use will yield the highest benefits. As for SCP practices relating to water use, there are fewer restaurants adopting these practices, and the financial benefit is also lower. Examples of these practices include regularly maintaining faucets and pipes to avoid leaks, saving water for reuse, and water-saving methods to clean the dishes. For in-restaurant water

purification/filtration systems, there appears to be significant potential financial savings.

Managing food waste, especially through composting and converting to animal feed, appears to have low benefits, primarily because of the low volume involved. Instead of focusing on diversion practices, interventions to manage food before it becomes waste might be more beneficial. The same could be true for the restaurants' own farm production, where based on initial findings, harvests as declared by the restaurants do not seem commensurate with the cost of labor and materials. This raises some issues on the productivity of farms due perhaps to lack of scale economies (the literature shows yield for a particular crop to be at least four times higher than the claim of one restaurant), understated production



(some harvests have not been declared as they could be sold elsewhere other than delivered to the restaurant), or farmers/gardeners performing other tasks other than tending to the restaurant's small plot.

Recycling of non-food waste, especially paper, seems to have few advocates. Although the results indicate that the financial benefit outweighs the cost, the market value of the paper by-products need to be validated further by comparing it to the market price of similar items in the market.

### **Economic, Environmental, and Social Costs and Benefits**

Generally, what was termed in the study as economic benefits are mostly related to the environment. Greenhouse gas (GHG) emissions, shown as carbon emissions (CO<sub>2</sub>-e), were avoided because of the saved resources and improved waste management. Also, new value-adding goods were created through recycling and reusing. The analysis of these new goods took into consideration the positive benefits gained, like the additional compensation for workers, and the additional profit for suppliers.

The adoption of SCP practices resulted in financial benefits and carbon emission avoidance. Benefits derived from carbon

emission avoidance was expectedly lower than the financial benefits because this is only a residual effect (or secondary benefits).

The full economic benefit of recycling and reusing in the study could have been understated due to the use of market price instead of social price. To get the social price, either a survey on people's willingness to pay for the good or a deeper study on the weighted average of various prices of the good is needed. Second, this CBA study is limited to the social gain coming from the direct impact on the business finances, direct emission, and economic valuation of output. Other social benefits that were not captured are beyond the limits of this study.

The results of the economic cost-benefit comparison follow a similar pattern as the financial assessment. SCP in energy was most beneficial, followed by water filtration/purification. Food waste management, notably diversion to animal feed and composting, yielded benefits. However, these were again overshadowed by costs that might be overinflated. Data validation is still ongoing. On the other hand, local sourcing recorded positive net benefits.



# THE SUSTAINABLE DINER

A Key **Ingredient** For Sustainable Tourism



## Project Goal

To support the Philippines's capacity to integrate sustainable consumption and production (SCP) strategies in government policies, private sector practices, and civil society considerations as a means of establishing a low-carbon industry and contributing to the fulfilment of the national climate strategies



## Project Locations



Cebu City



Quezon City



Tagaytay City

## Target Groups



Government



Private Sector



Consumers

## Project Partners





**World Wide Fund for Nature (WWF) - Philippines**  
also known as **Kabang Kalikasan ng Pilipinas Foundation Inc.**



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