

ECO BAKERY FOR FRIENDLY ENVIRONMENTS IN ECOLOGICAL - CASE STUDY FROM THAILAND

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Abstract : According to the United Nations of Sustainable Development Goal 2030 (SDG 2030) 17 topic concepts of which were announced and demonstrate the scale of the universal Agenda for seeking to build on the Millennium Development Goals to complete achievement in economic, social and especially in environmental.

The Goals and targets will encourage action in areas of critical importance for humanity and the planet; in social development sector in Bangkok, Thailand has setting up the developed project in the business training for bakery new entrepreneur based on the SDG2030 compositions which has combined within the concept by using the Eco techniques and practices. To issue healthy product for customer by the key success idea of production practices has realized for environment concerning, energy and reserving resource were saving, from the beginning to end of process; as raw material preparing such as; use the organic and non-hazardous which are the main materials and purified mixed such as; gluten-free, trans fat free, low sugar, low GI, low sodium and non-genetically engineered or non-injections products as the ingredients.

By selected the baking technique which has energy saving of less electricity power, gas, wind and water supplied and used the packaging which can be decomposed in naturally instated of foam packages types. To deliver the best qualities to customer and friendly environments till the last consumer in life-cycle chain as fish and other spicy in environment.

After the project has implementation, Eco bakery, the contribution of Eco bakery production has selected to evaluation by SDG2030 concept of No. 14 to ensure the products has friendly with the environment or not, , “Eco bakery” which has been created the problem pollutions for the river for long time ago by Thailand traditional yearly festival.

Eco bakery, which produces by SDG2030 concept as selected to be the treatment of the experimental research was launched into the rivers and the seas in Thailand. The research has operated to study the difference of water quality as BOD (Biological Oxygen Demand) Value and DO (Dissolved Oxygen) Value that have analyzed by Laboratory in Thailand . The research has operated found out the results has accepted the hypothesis at level with significance.

Therefore, ECO Bakery for Friendly Environments in Ecological – cased studied of Eco bakery in Thailand, has been the optional of the integrated and indivisible of SDG 2030 for water pollution solution in action for environmental matters.

Keywords: ECO Bakery, SDG 2030, Eco bakery, Friendly Environments in Ecological – cased studied, Cased studied of SDG 2030 for water pollution solution, Action for environmental.

Introduction

This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. That eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. These are universal goals and targets which involve the entire world, developed and developing countries alike. They are integrated and indivisible and balance the three dimensions of sustainable development in a balanced and integrated manner (UN SDG 2030 Agenda, 2015). The solving also to create conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account different levels of national development and capacities. All countries have acting in collaborative partnership, will implement this plan and environmental. It is important to recognize the link between sustainable development and other relevant ongoing processes in the economic, social and especially in environmental fields.



Figure1. UN SDG 2030

Because the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity, recognized by some cultures as Mother Earth, and noting the importance for some of the concept, that we focused on that part to develop the project on the matters addressed in this Agreement. (Paris Agreement, 2015)



Figure2. Sustainable Development Goal 2030 Articles

This is the concept of bakery business which has supported some topic base on UN SDG 2030 in several goals by applied. It's mention focus on friendly environments in Bakery business. Its segment functions by bakery technologies and bakery management by practices.



Figure3. Functional-concept framework.

The functions covers from the beginning till end of process. The specific needs and special situations of the developed countries with regard to funding and transfer of technology (Paris Agreement, 2015) by separated between Technical Term and Practice Management term both functions have related with SDG 2030 concepts and the contribution was the ECO Bakery Products. Each technic module based on SDG concept as follows:

Technical Term

Goal 7: Affordable, reliable, sustainable and modern energy.

By use several baking technique by hi-tech of multiple machines, modern with updated but not too expensive and saves power of electricity, wind, gas. Included the freezing technique of freezing par-bake good, slicing and packing by uses the automatic machines of wrapping or bagging by saving energy machines and multifunction usages by the concept of Goal 7 (Paris Agreement,2015).

Practice Management Term

Goal 2: Nutrition Agriculture and Goal 12: consumption and production patterns, this will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

By raw materials and ingredients management: By selected the raw materials and ingredients by using the organic and non-hazardous, purified ingredients from non-genetically engineered animals and none injections.

Select the whole grain, cereal and seed for the mixing with zero-trans shortenings and Trans fat- free oil, which has made from high oleic soybean oil and keep clean for the all machines. It should be support Gluten free Flour, Non-Pho Shortening production.

Goal 15: Protect ecosystems, halt and reverse land degradation and halt biodiversity loss:

By select the safety packaging for the ecological system. That's can be decomposed naturally use non-foam type package, recycle paper instead of Plastic or foamed pattern.

Goal 8: Promote sustained economic growth, higher levels of productivity and technological innovation, full and productive employment and decent work for all.

By run bakery business for job creation, employs the disable person, gives a chance to unemployed, reduced inequalities and manage the other business parts as marketing, display, accounting and inventory by systematic and run business by fair price and fair job support the inclusive economic growth.

Materials and Methods

After implement, the bakery product were created as ECO product based on the concept of UN SDG # 14 (For ecological of river) to product the eco bakery product which friendly environment. Eco bakery, it’s produced by gluten free four and healthy ingredients , were selected to evaluation by SDG2030 to ensure the products has friendly with the environment as the treatment of the experimental research was launched into the rivers and the river before the seas in Thailand.

Research Methods:

The study was conducted by using experimental research methodology by mixed method of qualitative and quantitative.

Population: Sampling by random

The sample of water 319 Samples from 3 rivers in northern and central and southern (before go out to the sea) each river 10 samples of water in 11 times with 100 treatments per each river.

The research has operated to study the difference of water quality as BOD (Biological Oxygen Demand) : Standard method for indirect measurement of the amount of organic pollution (that can be oxidized biologically) in a sample of water. BOD test procedure is based on the activities of bacteria and other aerobic microorganisms (microbes), which feed on organic matter in presence of oxygen. The result of a BOD test indicates the amount of water-dissolved oxygen (expressed as parts per million or milligrams per liter of water) consumed by microbes incubated in darkness for five days at an ambient temperature of 20°C. Higher the BOD, higher the amount of pollution in the test sample. For the contaminants that cannot be oxidized biologically, chemical oxygen demand (COD) method is used. And DO (Dissolved Oxygen) value: Oxygen is measured in its dissolved form as dissolved oxygen. If more oxygen is consumed than is produced, dissolved oxygen levels decline and some sensitive animals may move away, weaken, or die. To prove by Laboratory that fish and other aquatic animals under the river can also be eaten and can also be decomposed in nature. (Jan Sendzimir, 2014).

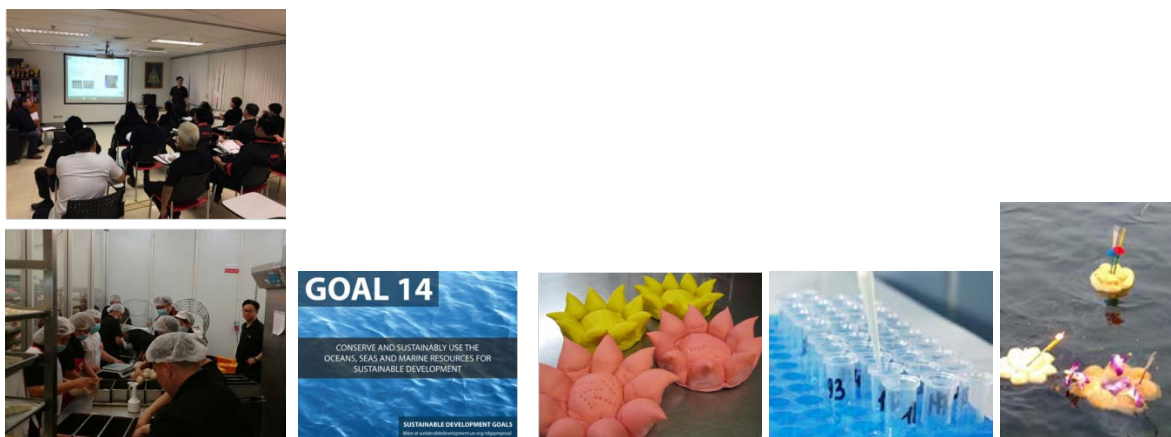


Figure4. Research Operation: Experimental.

Result and Discussion:

Data analyzed by SPSS statistical program when t-test is applied in determining the significant of the difference between pretest 3 times and posttest 3 times of each river by kept record or data for evaluation. The measurement used science parameters as BOD and DO (International Soil and Water Conservation Research, 2016)

Biological Oxygen Demand (BOD)

Table1: Mean of Posttest BOD3 level has the maximum of average score = 1.94 with SD = 0.23 and Posttest

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Posttest BOD1	319	1.49	0.50	0.02
Posttest BOD2	319	1.71	0.45	0.02
Posttest BOD3	319	1.94	0.23	0.01

BOD1 level has the minimum average score = 1.49 with SD = 0.50

Table2 :The descriptive show the statistic of posttest BOD of Eco bakery has Significant (α) > 0.05 % or 95% in posttest BOD3 level = 1.94 and critical $t < 1.91$ to $t > 1.96$

One-Sample Test						
Test Value = 0						
	t	df	Sig. (2 tailed)	Mean Diff	Lower	Upper
Posttest BOD1	53.33	318	0.00	1.49	1.44	1.55
Posttest BOD2	68.07	318	0.00	1.71	1.66	1.76
Posttest BOD3	150.20	318	0.00	1.94	1.91	1.96

Dissolved Oxygen (DO)

Table 3: Mean of Posttest DO 1 has the maximum of average score = 1.92 with SD = 0.52 and Posttest DO 3 level has the minimum average score = 1.52 with SD = 0.23

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
PosttestDO1	319	1.52	0.50	0.02
PosttestDO2	319	1.74	0.43	0.02
PosttestDO3	319	1.92	0.23	0.01

Table 4: The descriptive show the statistic of Pretest DO of Eco bakery has significant (α) > 0.05% or 95% in Pretest DO 3 level = 1.92 and critical $t < 1.89$ to $t > 1.95$

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
PosttestDO1	54.26	318	0.00	1.52	1.46	1.57
PosttestDO2	71.53	318	0.00	1.74	1.69	1.79
PosttestDO3	132.91	318	0.00	1.92	1.89	1.95

Research Result

This contain of overall data analysis, presentation, interpretation and explanation of the data. Tables and figures are given in order to make the data analysis clear. Outcomes are clearly interpreted. Data collected included pretest and posttest scores as mean test and t-test were performed as follows:

1. The results of the research have accepted the hypothesis with significance level.
2. The result of research found out that the water quality after the experimental was not so good and getting better after 3 days later and after 7 days has getting into normal value.
3. It mean that the treatment has not create the river pollution and not harmful to the fish and other species under the river, that can be eaten the eco bakery products and it has decomposed in naturally.

Conclusion

Eco bakery for friendly Environments in Ecological can be the optional model which has supported the sustainable development goal 2030 in action and practices.

The result of research found out the difference of water quality as BOD value of pre-test and post-test of the experimental research by using, ECO bakery as the treatment to evaluate that the treatment has not create the pollution to the river and not harm to fish and aquatic species under the river and can be decomposed in naturally.

By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans. (Rights of Nature for Peace and Sustainable Development, United Nations, Geneva, 2017)

Acknowledgements:

Limitation

1. We cannot count the fish population in the river for testing, it cannot be confirmed the number of fish population which effected and related with Eco bakery. (Sustainable Management of Water and Fish Resources in Burkina Faso, 2014).
2. The balance of DO has lower value in the big River might be effected from the boat traffic and organic compounds in water. (Oceans and the Sustainable Development Goals, 2011).
3. Time has Limited.

Future work:

1. It should be test in other material as leaf wood for comparison the result.
2. It should be test again in every year to keep data and monitoring water qualities.

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