

## ASSISTANCE ON SUSTAINABLE ASPECTS ASSESSMENT OF MILKFISH CANNING PRODUCTION IN BANJARMASIN, SOUTH KALIMANTAN

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### ABSTRACT

Community service aims to provide assistance to local governments and MSMEs in conducting academic studies on various aspects of sustainability on objects selected as research or pre-feasibility studies (Pra FS) which are then compiled in the form of reports that will be useful for stakeholders (investors, communities, governments, private entrepreneurs and others) which aim to improve the investment climate in the South Kalimantan region and Indonesia which is getting better, especially in the downstreaming of milkfish derivative products and other fish which are potential for MSMEs in the Banjarmasin area of South Kalimantan. The method of implementing this work is carried out using primary data collection techniques (interviews) from related parties and secondary (data or documents related to sustainability aspects) which are compiled based on the SDGs (Sustainable Development Goals) concept guidelines which were carried out in March 2024. The results of this work are then presented in the form of a report that is still related to the Pre FS (Pre Business Feasibility Study) study on the downstreaming of milkfish products and other fish that adopt the sustainability aspects of the SDGs.

**Keyword:** bandeng fish, sustainability, SDGs, kalimantan selatan

### INTRODUCTION

Any industry that is conducted by a company will have both good and bad, positive and negative impacts on the environment. The milkfish processing industry that is carried out in the village of SYG Tn. Bumbu Banjarmasin. Bumbu Banjarmasin South Kalimantan as an industry that supports the people's economy also has a significant impact on the community in increasing their per capita income and regional income. However, just like the fish processing industry carried out in other places, it also has an impact on the ecosystem where the production takes place, such as in the Muncar sub-district, Banyuwangi district, the growth of the fish processing industry which is growing every year also affects fish production in Muncar, which is increasing, which has an impact on the environment, such as on the road which makes the remaining fish water fall, making the road wet and slippery. Other impacts such as rivers that become waste disposal sites, coupled with the waste of decomposing fish remains make rivers and coasts produce unpleasant odors, these wastes are the main contributing factors to the impact of industry on the polluted environment with people's homes smelling bad always smell, then continue to cause diseases to come such as shortness of breath or allergies which are finally troubling as by Kumparan.com (Budi, 2024). This phase is indeed common, because every industry whatever is done more or less brings consequences to the polluted environment (Prihanto, 2018). For this reason, in handling this industry, it would be better to start from the beginning when it was formed, and proclaimed to be built through a number of concepts that pay attention to social and environmental aspects, not just profit or economic orientation (Elkington, 1997).



Figure 1. Triple Bottom Line

John Elkington identified the concept of the "Triple Bottom Line" (People, Planet, Profit) as a sustainability concept that addresses the balance or harmony between economic sustainability, social sustainability, and environmental sustainability within the life of a country or region with various stakeholders such as the government, society, businesspeople, and others (Freeman, 1984). The project area is located in Banjarmasin Regency, South Kalimantan, with the site described as follows:



Figure 2. Region with various stakeholders

### Objective

A study of the environment is necessary to maintain a balanced ecosystem between nature and humans, where people live. This study provides an overview as well as a management concept for the milkfish canning industry in Banjarmasin in SYG village from an economic, social, and environmental perspective (Elkington, 1997; Muchtadin, 2022).

### Benefits

This study is beneficial in recommending to business operators how to run a successful milkfish processing business with good financial performance while maintaining a healthy environment without causing harm. Additionally, the project contributes to the social aspect, where the community also benefits from the existence of the project. This sustainability study is useful for business operators, investors, the government, and other stakeholders involved in the project..

### Literature

The environment is closely related to ecology. A philosopher who played a role in environmental studies is Ernst Haeckel, a German biologist who studied and introduced the relationship between living organisms and their surrounding environment, as well as how the interactions between them form a complex and dynamic ecosystem (Haeckel, 1869). Furthermore, leadership also contributes to shaping a green and sustainable environment, promoting environmental sustainability and preservation in the context of business and organizations (Sange., 2008) because leaders play a significant role in achieving goals and performance. Besides that is necessary for integration between programs initiated by companies and those launched by the government within the framework of the SDGs or Sustainable Development Goals (Gunawan et al., 2020; Marrone et al., 2020) which consist of 17 aspects agreed upon and committed during the United Nation General Assembly in September 2015, with the following achievements:

(1) No Poverty; (2) Zero Hunger; (3) Good Health and Well-being; (4) Quality Education; (5) Gender Equality; (6) Clean Water and Sanitation; (7) Affordable and Clean Energy; (8) Decent Work and Economic Growth; (9) Industry, Innovation, and Infrastructure; (10) Reduced Inequality; (11) Sustainable Cities and Communities; (12) Responsible Consumption and Production; (13) Climate Action; (14) Life Below Water; (15) Life on Land; (16) Peace, Justice, and Strong Institutions; (17) Partnerships for the Goals.



Figure 3. Sustainable Development Goals

All of these concepts share a similarity in their implementation with the 'land ethic' concept, which emphasizes that humans must treat land, water, plants, and animals as part of a broader moral community (Leopold, 1989).

## METHOD

The mentoring work on the preparation of this sustainability document was carried out in January - March 2024 in Banjarmasin, South Kalimantan. The participants were local government officials (OPD) from Banjarmasin, South Kalimantan who were given the task of making a Pra FS (Pra Feasibility Study) on fish products which are the mainstay products produced by the study location, and including aspects of SDGs sustainability. The method of delivery to participants was carried out through lectures, questions and answers, case studies, discussions and presentations carried out by all participants who attended the training event to prepare a business feasibility study.

## RESULTS AND DISCUSSION

The discussion in this article is based on two aspects that present problems (negative aspects) due to the project, followed by providing an interpretation of problem-solving based on applicable concepts, as follows:

### Environmental Impact

It is important to recognize and understand the environmental impacts caused by various industries, including the following:

1. Dissolved Oxygen, This refers to the amount of oxygen present in water in the form of dissolved gas, which is a crucial parameter for determining water quality. Dissolved oxygen is necessary for aquatic organisms such as fish, invertebrates, and microorganisms for respiration and survival..
2. Carbon Dioxide (CO<sub>2</sub>), Excessive CO<sub>2</sub> in the atmosphere is one of the main causes of global warming. CO<sub>2</sub> is a greenhouse gas that traps heat in the atmosphere, causing the Earth's temperature to rise. The continuous accumulation of CO<sub>2</sub> accelerates climate change, leading to extreme weather events, rising sea levels, and ecosystem shifts.
3. pH Levels, Changes in pH levels indicate how acidic or basic a solution is, measured on a scale of 0 to 14. It is an important concept in chemistry, biology, environmental science, and many aspects of daily life..
4. Alkalinity, Adequate alkalinity is crucial for the health of aquatic ecosystems, including fish and other organisms. Water with low alkalinity is more susceptible to pH changes, which can cause stress or death for aquatic organisms..
5. Air Quality (Visibility), This relates to environmental conditions in the air and sky, typically affected by industrial emissions, such as smoke released through chimneys as a byproduct of combustion processes.
6. Air Temperature: Heat from industrial activities can cause discomfort for humans and other living organisms. High temperatures can lead to stress, and in extreme cases, death for organisms that cannot survive in hot conditions.
7. Ammonia and Nitrites. Ammonia, in its free form (NH<sub>3</sub>), is highly toxic to fish and other aquatic organisms. Even low concentrations of ammonia can cause stress, tissue damage, and death in fish. High levels of ammonia lower water quality and disrupt aquatic ecosystems, including food chains. At higher pH levels,

ammonia is more toxic because free ammonia (NH<sub>3</sub>) is present in higher concentrations. At lower pH, ammonia is mostly in the form of ammonium (NH<sub>4</sub><sup>+</sup>), which is less toxic.

Nitrites are also highly toxic to aquatic organisms, especially fish. Nitrites can impair the ability of fish blood to transport oxygen, leading to a condition known as "brown blood disease" or methemoglobinemia. In humans, nitrites in drinking water can also be harmful, particularly for infants, as they can cause methemoglobinemia, or "blue baby syndrome," where blood loses its ability to carry oxygen effectively.

8. Water Color: The water around industrial areas may turn murky and become unsuitable for drinking and everyday use. In this situation, local communities may face a shortage of clean water for consumption by humans, animals, and plants.

### Waste Management System


To prevent pollution and environmental damage, risk mitigation must be implemented through a good waste management system in the project environment, with preparation and strengthening in the following areas:

1. Production Waste Management System. This can be classified as: a) Waste from fishing activities; b) Fish washing, fish bones, rotten fish, and other similar wastes..
2. Physical Water Quality Management: Pre-treatment and Primary Treatment The initial steps in water treatment aim to remove large particles and contaminants that could damage treatment equipment or interfere with the next processes. These include: Screening, Grit Removal, Coagulation and Flocculation, and Sedimentation. Primary treatment is the first further treatment stage after pre-treatment, aiming to remove organic material and suspended solids from pre-treated water, including: Sedimentation (Primary Clarification) and Flotation.
3. Physical Water Quality Management: Secondary Treatment and Tertiary Treatment. Secondary treatment is a biological process designed to reduce organic material and nutrients still present in water after primary treatment. This includes: Activated Sludge Process, Trickling Filter, Moving Bed Biofilm Reactor (MBBR), Sequential Batch Reactor (SBR). Tertiary treatment is an additional treatment step after secondary treatment to further improve water quality to meet stringent standards for specific applications, such as water to be reused (recycling) or discharged into sensitive environments. This includes: Advanced Filtration, Chemical Treatment, Adsorption with Media, as well as Denitrification and Phosphorus Removal.
4. Physical Water Quality Management: Coagulation, Flocculation, and Sedimentation. This is important in water management, especially in the pre-treatment and primary treatment stages. The main objective of this process is to remove suspended particles and contaminants in water, which includes:
  - a) Coagulation: The addition of coagulant chemicals to cause small particles in water to stick together.
  - b) Flocculation: Gentle mixing to form larger flocs from the coagulated particles.
  - c) Sedimentation: The process of separating the formed floc by allowing it to settle at the bottom of the tank, resulting in cleaner water at the top..
5. Bios Water Quality Management: Through Bioremediation, Biostimulation, and Phytoremediation:
  - a. Bioremediation: The process of using microorganisms (bacteria, fungi, or algae) to break down or remove pollutants from water or soil.
  - b. Biostimulation: A technique that enhances the activity of microorganisms in contaminated environments by adding nutrients or other necessary substances to accelerate the bioremediation process.
  - c. Phytoremediation: A technique that uses plants to address pollutants in water, soil, or sediments. Plants can absorb, accumulate, or transform pollutants into less harmful forms

### Analysis of SDGs Implementation in the Project Area.

The implementation of the SDGs is based on feasibility and the possibility of being realized in the near or long term, adjusted to the needs and conditions in the project environment. Some steps that can be attempted and implemented in the project are:

Table 1. Implementation of the SDGs

1	<p>The project will encourage economic growth in both the cultivation and industrial areas, as well as surrounding regions. This contribution, especially through the growth of SMEs, stems from the Integrated Milkfish Cultivation Project with its Processing Industry. In this dimension, it promotes entrepreneurship and job creation, reducing unemployment and increasing per capita income, which ultimately contributes to the regional income (GRDP) of Banjarmasin, South Kalimantan.</p>	
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<p>The project can also promote food security and healthy living (zero stunting). Despite relatively stable economic growth in the pre-COVID-19 period, Indonesia still faces critical issues in food security and nutrition in several regions. According to research by the Smeru Research Institute, access to food has increased and malnutrition has continued to decline over the past few years, but according to national standards, the nutritional status of Indonesians remains low, meaning that growth has not been proportional to improvement.                  (Source: <a href="https://www.kompasiana.com/nur75904/6089aa0fd541df1e2330ba12/pencapaian-agenda-2030-untuk-mengakhiri-kelaparan-dan-malnutisi-sdgs-2-di-masa-pandemi-covid-19">https://www.kompasiana.com/nur75904/6089aa0fd541df1e2330ba12/pencapaian-agenda-2030-untuk-mengakhiri-kelaparan-dan-malnutisi-sdgs-2-di-masa-pandemi-covid-19</a>).</p>	
<p>The Integrated Milkfish project in Banjarmasin has the potential to increase climate change action through mitigation and adaptation in sustainable consumption and production, circular economy, and sustainable land ecosystems in the production system and environmentally friendly factory building designs (Prihanto, 2021). It must be understood that the current consequences of climate change include severe droughts, water shortages, large-scale fires, rising sea levels, floods, polar ice melt, powerful storms, and biodiversity loss in various locations.</p>	
<p>The Milkfish project operations are estimated to create innovation in Milkfish processing industries through partnership models with snakehead fish farming groups and feed factories, with the Company as the off-taker for live fish harvested by farmers, to be further processed into albumin and gelatin, which benefit the health sector and help many people.</p>	
<p>Integrated Milkfish farming operations with processing industries absorb 30% female labor for administration, finance, and daily feeding. With the growing gender equality issue that calls for equality in professions (Alvinus et al., 2017; UNDP, 1997), this project contributes to enhancing gender equality.</p>	
<p>Next, The Milkfish project is also expected to protect, restore, and promote the sustainable use of terrestrial ecosystems, such as sustainable forest management, combating desertification, halting and reversing land degradation, and halting biodiversity loss through knowledge and technology transfer (Bontis &amp; Fitz-enz, 2002).</p>	

## CONCLUSION

Based on the analysis of sustainability support for Milkfish in Banjarmasin, South Kalimantan, it can be concluded that the project contributes to individuals, society, and the country in various aspects that can currently be identified, although in the next stages, it may provide additional benefits or conversely, decrease its benefits. However, the existence of the project must be accompanied by various risk mitigations, especially against environmental and social risks that may erode due to environmental damage (water, air, and soil).

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## REFERENCES



- Alvinius, A., Johansson, E., & Larsson, G. (2017). Job satisfaction as a form of organizational commitment at the military strategic level: A grounded theory study. *International Journal of Organizational Analysis*, 25(2), 312–326. <https://doi.org/10.1108/IJOA-10-2015-0919>
- Bontis, N., & Fitz-enz, J. (2002). Intellectual capital ROI: A causal map of human capital antecedents and consequents. *Journal of Intellectual Capital*, 3(3), 223–247. <https://doi.org/10.1108/14691930210435589>
- Budi, D. N. S. (2024). *Dampak Limbah Pengolahan Ikan Terhadap Lingkungan dan Ekonomi Masyarakat Muncar*. Kumparan.com. <https://kumparan.com/della-novi-setiya-budi/dampak-limbah-pengolahan-ikan-terhadap-lingkungan-dan-ekonomi-masyarakat-muncar-22gafXTIcwi/full>
- Elkington, J. (1997). *Cannibals with Forks : The Triple Bottom Line of 21st Century Business*. Oxford.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach* (Pitman (ed.)).
- Gunawan, J., Permatasari, P., & Tilt, C. (2020). Sustainable development goal disclosures: Do they support responsible consumption and production? *Journal of Cleaner Production*, 246, 118989. <https://doi.org/10.1016/j.jclepro.2019.118989>
- Haeckel, E. (1869). *History of Ecology*. German zoologist.
- Leopold, A. (1989). *A Sand County Almanac*. OXFORD UNIVERSITY PRESS.
- Marrone, M., Linnenluecke, M. K., Richardson, G., & Smith, T. (2020). Trends in environmental accounting research within and outside of the accounting discipline. *Accounting, Auditing and Accountability Journal*, 33(8), 2167–2193. <https://doi.org/10.1108/AAAJ-03-2020-4457>
- Muchtadin, M. (2022). Hubungan Manajemen Sumber Daya Manusia Hijau dan Kinerja Berkelanjutan: Tinjauan Literatur. *Jurnal Doktor Manajemen (JDM)*, 5(1), 54. <https://doi.org/10.22441/jdm.v5i1.14786>
- Prihanto, H. (2018). *Etika Bisnis dan Profesi: Sebuah Pencarian*. Rajawali Pers.
- Prihanto, H. (2021). Government Efforts To Implement The Green Buildings Market In Dki Jakarta. *Moestopo International Review on Societies, Humanities, and Sciences (MIRSHuS)*, 1(2).
- Sange., P. (2008). *The Necessary Revolution: How Individuals and Organizations are Working Together to Create a Sustainable World*.
- UNDP. (1997). Human Development Report, 1990. Human Development Report, 1991. *In Industrial and Labor Relations Review* (Vol. 46, Issue 2).