

# Environmental Advocacy and Entrepreneurial Motivation as Predictors of Profitability of Seaweeds Industry in Caraga Region: Basis for Strategic Operational Plan

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**ABSTRACT:** The study was conducted to explore the influence of environmental advocacy and entrepreneurial motivation to the profitability of seaweeds industry in Caraga Region. This research used a quantitative non-experimental design employing the descriptive-predictive approach. A total of 300 seaweeds industry farmers and owners from the different provinces of Caraga Region were surveyed using adapted standardized questionnaires. The study's findings showed that farmers and owners in the seaweed sector had very high levels of entrepreneurial motivation, environmental advocacy and profitability. Also, the profitability of the seaweed industry is significantly influenced by the combined as well as individual capacities of environmental advocacy and entrepreneurial motivation. A strategic operational plan was developed based on the findings.

**Keywords:** business profitability, environmental advocacy and entrepreneurial motivation, influence & significance, Philippines

## I. INTRODUCTION

A growing number of investors are drawn to the seaweed sector nowadays because of its numerous industrial and commercial applications. Throughout the world, seaweed has held an important role in culture and society (Delaney et. al., 2016). One of it is that it is a business that can be found throughout the Philippines, especially in CARAGA Region. Seaweeds industry builds a sense of community and strengthens family ties, as it gives opportunities for community members to connect with each other. In many coastal communities, seaweed farming also has proven its value to help address poverty, and has proven to be a promising solution for farmers and workers and provides work chances particularly for those unemployed laborers in coastal communities (Fisheries Statistics Survey 2008, Stanley 2020). Despite the advantages of seaweed farming, challenges and issues were considered that hinder the profitability of the seaweed industry, such as illegal, unreported, and unregulated fishing (IUUF), and degradation of the quality of habitat for endangered marine life. Climate change that triggers seaweed disease and pest problems are becoming a threat to this industry. In the Caraga region, seaweed farmers need a seaweed solar dryer and storage facility that will help seaweed farmers achieve business profitability (Fabro 2022; Staff Report 2020).

Environmental issues include environmental advocacy that needs support from society and government agencies (Cornish 2019). One sector that supports environmental advocacy is the seaweed industry and seaweed farmers. Seaweed aquaculture contributes to climate change adaptation by damping wave energy and protecting shorelines, and by elevating pH and supplying oxygen to the waters, thereby locally reducing the effects of ocean acidification and de-oxygenation (Duarte et al. 2017). This awareness motivates seaweed farmers to engage more in seaweed production which contributes to the profitability of seaweed farmers that are environmental advocates. They are people who work to protect the environment in many ways including protecting natural habitats and marine life.

Seaweed farmers find it a necessary path for environmental stewardship and biocultural conservation for creating environmental, social, and economic sustainability. (Waters 2018). Motivation is one of the factors that coastal communities venture into the seaweed industry. The development of the seaweed cultivation business has a positive impact on the economy of coastal families in most of developing countries. Seaweed cultivation has improved the standard of living of households in terms of access to education, and housing improvements. This shows that seaweed farming could provide for the need of families financially (Godin 2020; Hassan 2020).

Also, the result of this study would be of great interest to researchers, entrepreneurs, and academician, as it can provide valuable implications to a growing body of knowledge and contribute to the innovation and entrepreneurship

literature. Thus, making this undertaking will be a matter too of social relevance (Abubakar 2017; Subair & Haris2017). It is in this context that the researcher realized that there is a need to explore the problem of environmental advocacy and entrepreneurial motivational factors as predictors to profitability. This study is conducted to understand how environmental advocacy and entrepreneurial motivational factors influence profitability in the seaweed industry. This is an important stride in the area of business as well as in the rapid growth of the seaweed industry in the Caraga region and in learning to help the seaweed industry face the different obstacles and challenges that hinder the seaweed industry to success. In the same manner, after acquiring the knowledge in undertaking factors as the constructs of profitability. the seaweed industry now identifies what factors and environmental advocacy need to be developed and learned. Through this study, the seaweed farmers and ownershas knowledge of how to improve the industry upon finding and discovering the profitability of the industry.

Furthermore, it is important for the seaweed industry to identify the factors which have a big contribution to the seaweed industry's profitability. The government programs and financial aid for the seaweed industry are a great help to seaweed farmers. Successful seaweed farmers will encourage students who take up marine industry courses, and will be more motivated and will have additional knowledge about the seaweed industry. Friends and co-business associates will have additional background and understanding of the business they venture and choose and they will be aware of the solution on how to be successful in the seaweeds industry.

Being aware of the importance of the seaweed industry for farmers' profitability, pervasive research has been made on this topic to establish a correlation between measures. The variables were found to be significant in the manner of environmental advocacy (Martin,2017). Entrepreneurial motivation (Machmud & Sidharta, 2016) are to be linked to profitability (Blueyou Consulting LTD, 2016). Environmental advocacy is an environmental issue, and the seaweed industry provides marine ecosystem support by contributing to increased fish habitat and marine biodiversity, as well as ocean restoration. Seaweed could potentially serve as the basis of a new integrated multi-trophic aquaculture with fish and shellfish to increase production while decreasing environmental impact (Giercksky&Doumeizel, 2018).

In response to the critical ecosystem such as seaweeds, a technique was developed to produce fast-growing seaweeds as local production continues to dwindle. New and innovative approaches to the management of the region's coastal resources motivate the seaweed industry to cooperate (Simeon, 2016; Robledo& Daniel, 2013). Because of the advocacy to protect the environment, the seaweeds owner become more motivated to venture into the seaweed industry. Sustainable production of seaweeds through cultivation could contribute to the welfare of society through the creation of jobs. The high profit and fast return on investment for the seaweed culture motivate farmers to shift from fishing to farming. most successful and sustainable seaweed business.

According to Jennifer Fetter Martin (2017), environmental advocacy consists of the following indicators, empathy, civic duty, personal responsibility, intentions, and advocacy. On the other hand, entrepreneurial motivational factors were anchored on the theory about the motivation that drives the seaweed industry to give attention to environmental advocacy. The following indicators are achievement, risk propensity self-efficacy, and external environment. These Identified indicators may help the seaweed industry and policymaking in general (Machmud & Sidharta, 2016).

Profitability in the seaweed industry is anchored on the theory about the industry that is deemed important for profitability. If the industry will be more concerned on the environment this will lead to a more profitable industry, the following indicators are Institutionalization, productivity increased unit value, and conservation (Blueyou Consulting LTD, 2016)

Considering the main features of the study shows environmental advocacy and entrepreneurial motivational factors as the independent variables and profitability as the dependent variable. Environmental advocacy the independent variable of the study has indicators, empathy refers to the ability to sense other people's emotions, coupled with the ability to imagine what someone else might be thinking or feeling,civic responsibility refers to responsibility expected from all members of society, personal responsibility means being willing to accept and live by society's established standards of individual behavior. intention refers to the strength of one's intention to perform a specified behavior. and lastly, advocacy refers to any action that speaks in favor of, recommends, argues for a cause, supports, or defends, or pleads on behalf of others. Likewise, these variables are contributing factors to the seaweed industry's success.

On the other hand, entrepreneurial motivational factors another independent variable include the following indicators. such as achievement refers to a strong need for affiliation and as a seaweed grower, risk propensity is related to entrepreneurship on how an individual prefers to take a risk and how he/she manages the risk in uncertain business situations, self-efficacy is an individual's perception regarding his or her ability to successfully complete a given task. The external environment is customers, competition, economy, technology, political and social conditions, and resources are common external factors that influence the organization, business industry, company or individual .and last is

performance in the seaweeds industry is when trained human resources provide information and education to the communities involved, to enable seaweed utilization to become a profitable business and provide better income opportunities to coastal communities.

Lastly, profitability is the dependent variable with the following indicator, institutionalization is a human activity that installs, adapts, and changes rules and procedures in both social and political spheres, and productivity is the output volume and the volume of inputs. In other words, it measures how efficiently production inputs, such as labor and capital, are being used in an economy to produce a given level of output. increase unit value is a product's average price or the result of dividing the product's total sales revenue by the total units sold, and lastly, conservation is the care and protection of these resources so that they can persist for future generations.

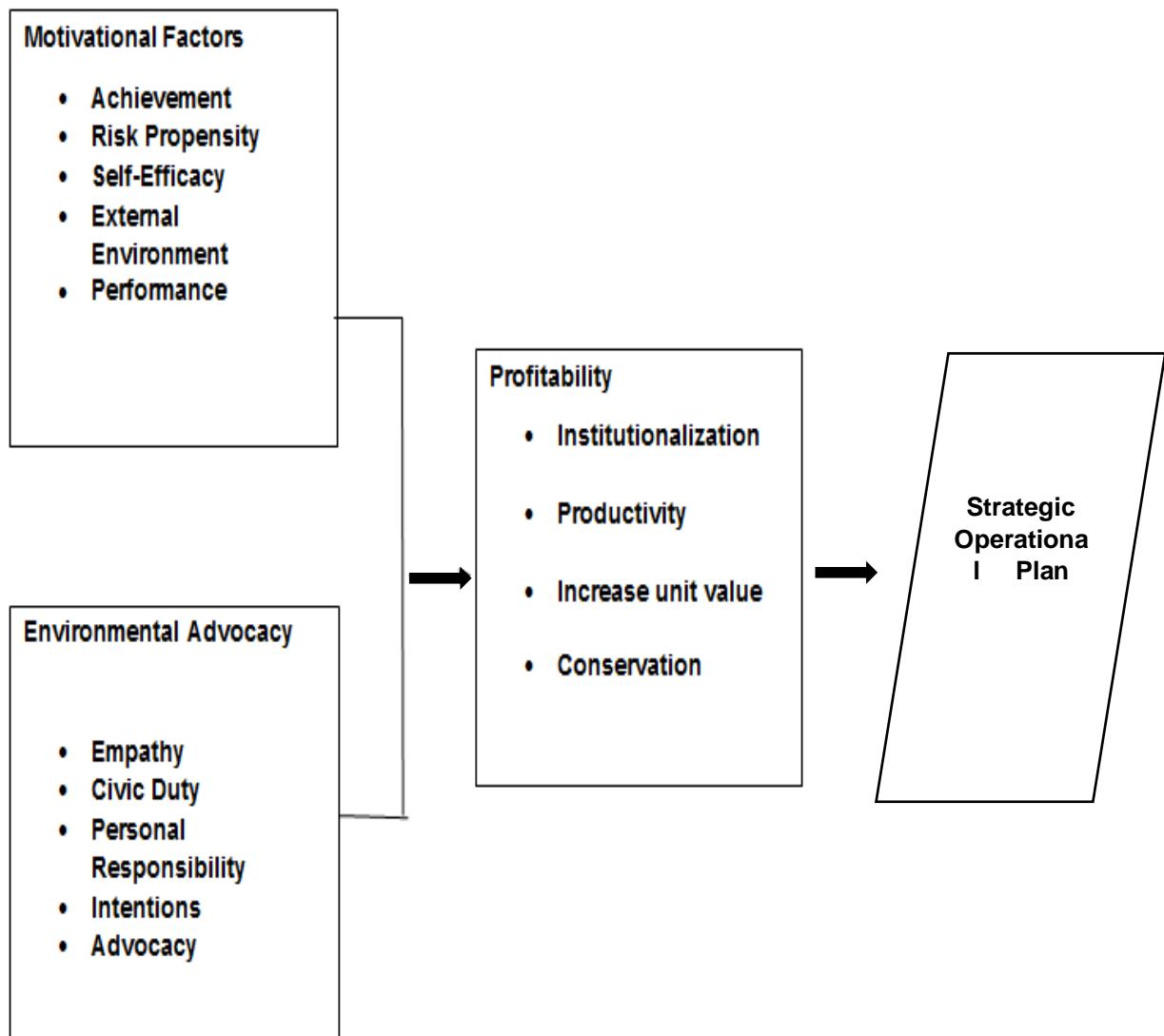


Figure 1. A Model showing the Direct Relation of Environmental Advocacy and Entrepreneurial Motivation on Profitability of Seaweeds Industry in CaragaRegion.

To establish a common frame of reference, the following terms pertinent to the study are defined; The following terms are defined operationally as used in the study. Environmental Advocacy. is being honest and responsible in action and how it affects the environment. Environmental Advocacy also refers to empathy, civic duty, personal responsibility, intentions, and advocacy. Also, Entrepreneurial Motivation. refers to the factors that motivate seaweeds owners and farmers to always stay in the direction of their goal and bring about the best of their efforts consistently hanging around to achieve their entrepreneurial goal. Lastly, profitability. This refers to the degree to which a business or activity yields profit or financial gain.

This study is conducted to understand how environmental advocacy and motivational factors influence profitability in the seaweed industry. This is an important stride in the area of business as well as in the rapid growth of the seaweed industry in the Caraga Region. The researcher is studying how to help the seaweed industry face the different obstacles and challenges that hinder the seaweed industry to success. In the same manner, after acquiring the knowledge in undertaking factors as the constructs of profitability. the seaweed industry now identifies what factors and environmental advocacy need to be developed and learned. It is important for the seaweed industry to identify the factors which have a big contribution on seaweed industry's profitability

Through this study, the seaweed industry has knowledge on how to improve the seaweed farming in the Caraga Region. The students who take up marine industry course will have additional knowledge about seaweeds industry. Friends and co business associates will have additional background and understanding on the seaweed business they choose and they will be aware on the solution on how to be successful in seaweeds industry.

## II. METHOD

### Research Respondents

The respondents of the study were the farmers and owners of the seaweeds industry who were residents of Caraga Region. The researcher employed 300 respondents as samples, registered in the BFAR & DTI 2018-2021 seaweeds industry of Caraga Region.

The respondents were chosen using stratified sampling which involves random selection based on specific attributes or criteria, making strong statistical inferences about the whole group(Berk & Freedman, 2013). In this method, sample participants from bigger population are picked in accordance with random starting point, however, with a stable, periodic interval. Such sampling interval is calculated by dividing the population size by the intended sample size. In this case, the third in every third client at a given starting time will be the target respondent until the desired sample per restaurant is reached. The 300 respondents targeted in this study satisfies the criteria of Green (1991) where each parameter or predictor should get at least 20 respondents under the 20:1 rule.

Employees who manage the industry's business operations were allowed to take part in the study. Individuals who are not the owner of Seaweed Industry in the Region and employees of the Seaweed Industry who are not part of the business management were excluded to participate in this study. Moreover, selection of the respondents was done randomly (Hsia, 2014), depending on their willingness upon knowing the purpose of the study. After getting the final sample size through stratified sampling, the respondents who have not met this inclusion criteria were excluded. This is to ensure that all responses were accounted for in the study to provide a better context of the problem to be addressed. Also, the respondents may withdraw consent at any time and discontinue his or her participation without any penalty imposed. Furthermore, the refusal of respondents to participate will not necessitate loss of benefits of which otherwise granted.

### Materials and Instruments

Primary data was collected using an adapted five-point Likert-type survey questionnaire. The instrument used by the study in collecting data had three parts. The first part of the questionnaire dealt with environmental advocacy as put forth by Martin (2017). The second part dealt with motivational factors as conceptualized by Machmud & Sidharta, 2016). The third part dealt with profitability adapted from Blueyou Consulting LTD (2016). They were modified based on the suggestions of the validators. Further, it was submitted to the adviser for comments and suggestions to enhance the tool and to ensure that all areas needed were covered and included. Moreover, to guarantee reliability, pilot testing was done to ensure that it fits to the objectives of the study and Cronbach alpha reliability of the instruments used was .845.

Cronbach's alpha is an index of reliability associated with the variation accounted for by the true score of the underlying construct(Hatcher&Stepanski,1994).

For interpretation purposes, the following scale is used: Range of Means 4.20-5.00 with very high descriptive level means the items indicating environmental advocacy, motivational factors, and profitability of seaweeds industry are manifested all the time. Range 3.40- 4.19 with high descriptive level means the items indicating environmental advocacy, motivational factors, and profitability of seaweeds industry are often manifested. Range 2.60- 3.39 with moderate descriptive level means the items indicating environmental advocacy, motivational factors, and profitability of seaweeds industry are sometimes manifested. Range 1.80- 2.59 with low descriptive level means the items indicating environmental advocacy, motivational factors, and profitability of seaweeds industry are rarely manifested. Range 1.00- 1.79 with very low descriptive level means the items indicating environmental advocacy, motivational factors, and profitability of seaweeds industry are almost never manifested. The validity of the instruments was ensured through content verification by expert panel. The instruments obtained a general mean of 4.33 described as very good.

### **Design and Procedure**

A non-experimental quantitative research method was used by the researcher. Bryman and Bell (2014) explained that the quantitative method as a means of data gathering procedure which collects information with the purpose of verifying theories. Measurements, generalization, and replication are key to quantitative research. The researcher utilized the descriptive statistics, or numerical analysis of data which will be obtained by questionnaires and surveys. In this quantitative study, the researcher utilized the descriptive correlational design where information is collected without changing the environment. Moreover, (Zechmeister 2017), stated that, descriptive study is useful to evaluate thoughts, opinions and feeling which scientific judgement maybe based as it also provides essential knowledge about the nature of object, and persons. Being correlational, this kind of design discusses and interprets the condition and relationship that exist on the study (Salkins, 2011).

In gathering needed information, the researcher first secured a letter asking permission from the University Graduate School Dean to conduct the study. After such request was granted, another letter was sent to the offices of BFAR and DTI CARAGA Region requesting for the list of registered seaweed businesses and farmers and a request to conduct the said study in the Region. After the request had been granted, the researcher communicated each of the seaweed business owners and farmers after which, (observing health protocol) the researcher personally brought the letter to the owners requesting them to be part of the current study. They were given ample time to answer the instrument.

The retrieval of the instrument, encoding, and tabulation were done gradually. Results was subjected to statistical treatment, interpreted, and presented based on the objective of the study following the order of the statements of the problem. With the results, conclusions were drawn and recommendations were formulated.

The researcher observed, ensured, and followed the full ethical standards in the conduct of the study. Before the questionnaire was given, the researcher subjected data instrument for review and approval by the University of Mindanao Ethics Review Committee (UMERC) and followed the study protocol assessments and standardized criteria, particularly in managing the population and data such as, but not limited to: in terms of voluntary participation, respondents were given the free-will to participate. During the research process, respondents were not forced to contribute their time and effort. They have provided complete knowledge of the procedure, goals and advantages of the study's behavior, and for whatever reason there is no rejection on the respondents' side.

Privacy and security have been ensured in order that the respondents' personal and private information necessary in the conduct of the study were kept with utmost confidentiality. Access to the information was limited to individuals who actually need it for the research purposes only. As to informed consent process, the respondents of the study were asked to participate by obtaining consent which is a fundamental mechanism to ensure that respect was afforded to individuals by providing thoughtful consent for a voluntary act..

On managing respondent's risk, the study only concentrated on determining the environmental advocacy and entrepreneurial motivation capability of the seaweeds industry. Should there be an instance that the respondents were hesitant to participate and answer questions during the course of survey, respondents were given the decision to answer the questions or not and they were also given the free will to withdraw if they decide. As to how the respondents can benefit, the study greatly contributes to the understanding on dimensions that influence profitability of the industry. Also, the result of this study guides them and gives some insights about managing the industry and integrating techniques and strategies on making employees and business more profitable.

The researcher of this study observed scholarly work as a reason for subjecting the research to plagiarism protocols. Moreover, the researcher warrants that there were no traces of evidence of misrepresentation of someone else's work as his own. To make this certain, the use of Turnitin software and/ or plagiarism detector was employed. With diligence and avoidance of fabrication and

*falsification*, the results of the study was not presented in a way that take its findings out of context, deceive readers, exaggerate claims or focus on smaller parts of the observation without putting them into perspective. Furthermore, questions in the survey were not presented in a manner that would tend to twist or distort the results or force a certain outcome or answer. The study was ethically done as evidenced by UMERC Certificate number 2022-101.

### **III. RESULTS AND DISCUSSION**

Presented here were the data of the findings. The discussions were sequenced according to the following order: the level of environmental advocacy, entrepreneurial motivation, profitability of the seaweeds industry in Caraga Region and the correlation and regression results between the three variables.

The standard deviation in the three descriptive tables, Table 1, Table 2 and Table 3 ranged from 0.29 to 0.52 as the typical standard deviation for a five-point Likert-type scale. This means that the ratings of the items in the measure utilized are consistent among the respondents.

#### **Level of Environmental Advocacy**

Shown in Table 1 is the descriptive statistics results on assessing the level of environmental advocacy of seaweeds industry, which has an overall mean of 4.28 ( $SD=0.39$ ) with a descriptive rating of very high. The very high result indicates that the measures in each category of every variable defined in the survey instrument on environmental advocacy have been observed or manifested all the times and often times by the respondents with personal responsibility garnering the highest mean ( $\bar{x} = 4.63$ ,  $SD=0.30$ ). The very high assessment further implies that seaweeds farmers are positive and willing to face any challenges they might encounter to reach and achieve the goal to make their seaweeds business succeed. Seaweeds industries were assessed very high on the following dimensions: advocacy ( $\bar{x}=4.47$ ,  $SD=0.56$ ), intentions ( $\bar{x}=4.34$ ,  $SD=0.48$ ). With these ratings, it is indicative that personal responsibility places the most emphasis which includes the responsibility to care for other people, animals and the environment. Domain civic duty had ( $\bar{x}=4.34$ ,  $SD=0.48$ ), empathy had ( $\bar{x}=3.84$ ,  $SD=1.02$ ), 1.02 Both have a high descriptive level which indicates that they are oftentimes manifested. The high level of civic duty and empathy are due to animal and environmental rights and values about laws to protect animals and the environment.

Table 1  
*Level of environmental advocacy of the Seaweeds Industry*

Indicator	Mean	SD	Descriptive Level
Personal Responsibility	4.63	.30	Very High
Advocacy	4.47	.45	Very High
Intentions	4.34	.48	Very High
Civic Duty	4.34	.48	High
Empathy	3.84	1.02	High
Overall	4.38	.39	Very High

The result suggeststhat the measures in each category of every variable defined in the surveyinstruments have been observed or manifested all the time except the domain empathy and civic duty under the environmental advocacy variable with a high-level result. However the overall result of the variable environmental advocacy has an interpretation of very high level. It further implies that seaweed farmers willing to learneddifferent strategies and challenges to be profitable in the business they choose.

#### **Level of Entrepreneurial Motivation of the Seaweeds Industry**

The level of entrepreneurial motivation of the seaweeds industry in Caraga region as shown in table 2 depicts an overall mean of ( $\bar{x}=4.69$ ,  $SD=0.29$ ) which has a descriptive level of very high which means that all items of entrepreneurial motivation of seaweeds industry are always manifested. Among the five domains, risk propensity got the highest rated indicator ( $\bar{x}=4.83$ ,  $SD=0.34$ ). This means that seaweed industry workers are willing to take risk. More so, other dimensions of entrepreneurial motivation were also assessed very high indicating that in conjunction with risk

## *Environmental Advocacy and Entrepreneurial Motivation as Predictors of Profitability of Seaweeds Industry..*

propensity, seaweeds industries have implemented practices with regards to achievement ( $\bar{x}=4.80$ ,  $SD=0.36$ ), self-efficacy ( $\bar{x}=4.74$ ,  $SD=0.38$ ), external environment ( $\bar{x}=4.57$ ,  $SD=0.47$ ), performance ( $\bar{x}=4.51$ ,  $SD=0.55$ ). The analysis further revealed that seaweeds industries placed higher priority on risk propensity since the business may always encounter risk in their operations.

**Table 2**  
*Level of Entrepreneurial Motivation in the Seaweeds Industry*

Indicator	Mean	SD	Descriptive Level
Risk Propensity	4.83	.34	Very High
Achievement	4.80	.36	Very High
Self-Efficacy	4.74	.38	Very High
External Environment	4.57	.47	Very High
Performance	3.51	.55	Very High
Overall	4.69	.29	Very High

Motivation is basically a mental condition that encourages actions or activities and provides strength (energy) that leads to the achievement of needs (Alam et al., 2014; Marti et al., 2014; Datika et al., 2018). The impetus for seaweed farming business stems from the good impact it has on the income of coastal families. Because of their limited source of income, families are motivated to better their standard of life, and seaweed growing is viewed as a possible economic activity that might supplement family income in most coastal communities (Subair & Haris, 2019).

### **Level of Profitability of the Seaweeds Industry**

The level of profitability of the seaweed industry in Caraga region as shown in Table 3 had an overall mean ( $\bar{x}=4.54$ ,  $SD=0.52$ ) with a descriptive level of Very High, indicating that seaweeds industry are profitable if all the measures are observed. Conservation dimension with ( $\bar{x}=4.64$ ,  $SD=0.55$ ) got the highest with the descriptive equivalent of Very High. This indicates that the care and protection of the resources were given emphasis most by the respondents. In addition, other domains were also assessed very high, indicating that in conjunction with conservation, seaweeds industry have implemented practices with regard to institutionalization ( $\bar{x}=4.64$ ,  $SD=0.53$ ), increased unit value ( $\bar{x}=4.51$ ,  $SD=0.62$ ), productivity ( $\bar{x}=4.48$ ,  $SD=0.58$ ). The very high level was due to following production plans with rotational units by farm, an optimized organization within farm units, training of best practices, optimized installations for farming and post-harvest processing, and better-quality of produced from the seaweed culture.

**Table 3**  
*Level of Profitability of Seaweeds Industry*

Indicators	Mean	SD	Descriptive Level
Conservation	4.64	.55	Very High
Institutionalization.	4.64	.53	Very High
Increase unit value	4.51	.62	Very High
Productivity	4.48	.58	Very High
Overall	4.54	.52	Very High

According to Irmayani, Yussuf, and Arsyad (2015), one approach to get out of poverty is to encourage locals to engage in alternative income-generating activities. Because seaweed farming has very minimal operational expenses and is simple to maintain, it has contributed to local economic development and empowerment. This is supported by Fikri et al. (2015) who articulated that the method utilized is simple and inexpensive, thus, seaweed cultivation may be relied on

as a fishery product to enhance the living standards of coastal communities, making it suited for coastal villages with low economic and educational conditions. The benefits of seaweed farming were seen by seaweed farmers, and it is highly promising as a commodity that can play a role in the movement of national economic advancement (Hikmah, 2015). As a result, increasing the quality and quantity of seaweed farming is required to achieve maximum production. This means more profit and income for the seaweed sector (Hikmah 2015; Awaluddin et al., 2016).

#### **Correlation between Environmental Advocacy and Profitability of the Seaweeds Industry**

Shown in Table 4 is the result of the test of the relationship between environmental advocacy and the profitability of the seaweeds industry. Based on the analyses, overall environmental advocacy significantly and positively relates with institutionalization ( $r=0.244, p<0.003$ ), productivity ( $r=0.243, p<0.003$ ), increase unit value ( $r=0.267, p<0.003$ ) and conservation ( $r=0.267, p<0.000$ ), all indicators posted a strong correlation. It was also found out to be positively and significantly related to profitability ( $r=0.279, p<0.001$ ), which rejects the null hypothesis. Furthermore, individual pairwise correlations revealed that when each and of the indicators of environmental advocacy was estimated with the indicators (and the entirely) of profitability,  $r$  values ranging from -.057 to 0.402 have  $p$ -value less than 0.005. The positive coefficients indicate a possible increment of the overall dependent variable when independent variables increase, which will be confirmed in a regression analysis.

Table 4  
*Significance of the Relationship between Environmental Advocacy and Profitability*

	Profitability				
Environmental Advocacy	Institutionalization	Productivity	Increase unit value	Conservation	Over All
Empathy	-.021 (.800)	-.084 (.308)	-.005 (.949)	-.103 (.208)	-.057 (.492)
Civic Duty	.229** (.005)	.344** (.000)	.306** (.000)	.402** (.000)	.352** (.000)
Personal Responsibility	.257** (.000)	.258** (.000)	.231** (.000)	.225** (.000)	.266** (.001)
Intentions	.356** (.000)	.340** (.000)	.393** (.000)	.369** (.000)	.401** (.000)
Advocacy	.312** (.000)	.340** (.000)	.270** (.001)	.396** (.000)	.359** (.000)
Overall	.244** (.003)	.243** (.003)	.267** (.003)	.267** (.000)	.279** (.001)

If seaweeds industry is to proliferate throughout the Philippines, it would have to reconcile the underlying environmental advocacy indicators with significant gains to guarantee that the carrying capacity of the receiving habitats is not surpassed and conservation objectives are not compromised.

#### **Correlation between Entrepreneurial Motivation and Profitability of Seaweeds Industry**

Shown in Table 5 was the result of the relationship between entrepreneurial motivation and profitability of the seaweeds industry. Data revealed that the overall entrepreneurial motivation of seaweeds industry significantly and positively relates with institutionalization ( $r=0.159, p<0.052$ ), productivity ( $r=0.350, p<0.000$ ), increase unit value ( $r=0.230, p<0.005$ ), conservation ( $r=0.443, p<0.000$ ), all indicators posted strong correlation ( $r=0.323, p<0.000$ ), which rejects the null hypothesis of no significant relationship. Furthermore, individual pairwise correlations revealed that when each of the indicators of entrepreneurial motivation was estimated with the indicators (and the entirely) of profitability,  $r$  values ranging from 0.027 to 0.811 have  $p$ -values less than 0.005. The positive coefficients indicate a possible increment of the overall dependent variable when independent variables increase, which will be confirmed in a subsequent regression analysis.

Sea weed has been used for millennia all over the world, but it was once thought to be merely a source of food for coastal people. According to the Food Organizations and Agriculture in the United Nations (2018), in addition to its widespread use in a variety of industries, seaweed contributes significantly to the nutritional status of communities due to its high macronutrient content. Thus, this led to the proliferation and the motivation to engage into the seaweed industry.

Table 5  
*Significance of the Relationship between Entrepreneurial Motivation and Profitability*

Entrepreneurial Motivation	Profitability				
	Institutional Unit value	Productivity	Increase	Conservation	Over
			All		
Achievement	.228** (.000)	.359** (.000)	.252** (.000)	.436** (.000)	.348** (.000)
Risk Propensity	.218** (.007)	.459** (.000)	.304** (.000)	.453** (.000)	.393** (.000)
	-.179*	-.056	-.118	.027	-.089
Self-Efficacy	(.028)	(.494)	(.152)	(.743)	(.279)
External	.603** (.000)	.769** (.000)	.782** (.000)	.782** (.000)	.811** (.000)
Environment					
	.177*	.231** (.005)	.205* (.012)	.373* (.000)	.269** (.001)
Performance	(.031)				
Overall	.159 (.052)	.350** (.000)	.230** (.005)	.443** (.000)	.323** (.000)

According to research, seaweed growing is being pushed in developing communities in areas surrounded by bodies of water as a sustainable activity capable of offering alternative income for small-scale fishing populations (Amosu et al., 2013). Febri et al. (2017) identified related researches linked on seaweed cultivation. These studies are mostly directed but not limited to environment, entrepreneurial motivation, and profitability of the seaweed industry.

#### **Influence of Environmental Advocacy on Profitability**

Table 6 exhibits the result of the multiple linear regression analysis showing the predictive ability of the environmental advocacy and profitability orientation of seaweeds industry. The computed  $R^2$  value of 0.382 means that 38.2 percent of the variance of profitability can be attributed to the entry of the five indicators of environmental advocacy. This means further that 61.8 percent of the remaining variance can be further attributed to other variables not covered in the study. Moreover, the F-measure of the regression analysis is 17.811,  $p<0.000$ . The result is significant that resulted to the rejection of the null hypothesis, this means that the linear model is significant.

Among the five indicators of environmental advocacy, three establish to be significant predictors of overall profitability of seaweeds industry: civic duty ( $\beta=0.062$ ,  $t=3.260$ ,  $p<0.001$ ), intentions ( $\beta=0.542$ ,  $t=5.707$   $p<0.000$ ) and empathy ( $\beta=-0.451$ ,  $t=-5.442$ ,  $p<0.000$ ). This means that holding the two remaining non-significant predictors as well as other unaccounted variables constant, a point increase of civic duty, intentions and empathy may likely provide respective increase on profitability of seaweeds industry. On the other hand, importance of personal responsibility and advocacy posed beta statistics, which were found to pose non-significant influence on profitability of seaweeds industry, having  $p$ -values greater 0.05. Simply put, despite non-significance, their effect on profitability is too negligible to be significant.

Table 6  
Significant Influence of Environmental Advocacy on Profitability

Environmental Advocacy	B	Beta	t-value	p-value
(Constant)	.771		1.322	.188
Empathy	-.231	-.451	-5.442	.000
Civic Duty	.107	.062	3.260	.001
Personal Responsibility	.107	.062	.750	.454
Intentions	.585	.542	5.707	.000
Advocacy	.130	.112	1.240	.217
R <sup>2</sup>	.382			
F-value	17.811			
P-value	.000			

This latter result is connected to the idea of Giercksky&Giercksky (2018) that environmental advocacy according to the seaweed industry provides marine ecosystem support by contributing to increased fish habitat and marine biodiversity, which leads to increased production that will generate profit for the seaweed industry.

Table 7 exhibits the result of the multiple linear regression analysis showing the predictive ability of the entrepreneurial motivation and profitability of seaweeds industry. The computed R<sup>2</sup> value of 0.350 means that 35.0 percent of the variance of profitability can be attributed to the entry of the five indicators of entrepreneurial motivation. This means further that 65.0 percent of the remaining variance can be further attributed to other variables not covered in the study. Moreover, the F-measure of the regression analysis is 19.547,  $p<0.000$ . The result is significant that resulted to the rejection of the null hypothesis; this means that the linear model is significant.

Among the five indicators of entrepreneurial motivation four establish to be significant predictors of overall profitability of seaweeds industry: risk propensity ( $\beta=0.332$ ,  $t=4.101$ ,  $p<0.000$ ), self-efficacy ( $\beta=0.454$ ,  $t=4.456$   $p<0.000$ ), external environment ( $\beta=-0.560$ ,  $t=-5.601$ ,  $p<0.000$ ) and performance ( $\beta=-0.370$ ,  $t=-5.510$ ,  $p<0.000$ ). This means that holding one remaining non-significant predictors as well as other unaccounted variables constant, a point increase of risk propensity, self-efficacy, external environment and performance may likely provide respective increase on profitability of seaweeds industry. On the other hand, importance of achievement posed beta statistics, which was found to pose non-significant influence on profitability of seaweeds industry, having  $p$ -values greater 0.05. Simply put, despite non-significance, their effect on profitability is too negligible to be significant.

Table 7  
Significant Influence of Entrepreneurial Motivation and Profitability

Entrepreneurial Motivation	B	Beta	t-value	p-value
(Constant)	2.454		4.055	.000
Achievement	.097	.068	.859	.392
Risk Propensity	.426	.332	4.101	.000
Self-Efficacy	.446	.454	4.456	.000
External Environment	-.619	-.560	5.601	.000
Performance	.537	.370	5.510	.000
R <sup>2</sup>	.350			
F-value	19.547			
P-value	.000			

**SEaweeds INDUSTRY STRATEGIC OPERATIONAL PLAN  
(CARAGA Region)**

**OBJECTIVES:**

To be known as the leading business and resource center of seaweeds in the country.

**CORE VALUES**

Community service  
Client focus  
Integrity  
Leadership

**FINANCIAL STRATEGIC OBJECTIVES AND GOALS**

Revenue Growth: Grow our revenue by 30% each year

- Generate Sales and Market (local and International)

Productivity Improvement: Maintain a 20% Net Profit Margin each year

- Maintain profitability with a budget allocation of 50% for business-reinvestment for product development.

**CUSTOMER STRATEGIC OBJECTIVES AND GOALS**

Professional Services: To be the professional partner of choice.

- Acquire 2 new consulting clients for local and international market

Maintenance Contracts: To be viewed as the top resource in the country.

- Maintain 85% of our current customers.

**OPERATIONAL STRATEGIC OBJECTIVES AND GOALS**

Innovation/ Product Development: Continue to develop technology innovation.

- Launch integration with other related products.

Overall Operations: Develop and maintain an infrastructure/ technologies that allows for a new and speedy operations.

- Setup new advanced technologies to be accessed from many destination.
- Define all procedures and processes in writing in order to support projected growth.
- Develop

Blogs & Newsletters: Consistently timely relevant leadership that is developed, published and preserved.

**PEOPLE AND LEARNING STRATEGIC OBJECTIVES AND GOALS**

Training:

Actively help

people to develop and grow professionally and personally by supporting a flexible work life, providing intellectually engaging work, and fair compensation.

- Train sales people in best practices
- Develop better communication and presentation skills to increase ability to work with and assist clients.

Community Involvement: Develop and implement a corporate giving strategy that is in line with our competitive advantage.

- Manage the selection, contribution and community relations.

**KRA1. Empathy**

Objectives	Activities	Critical Success Indicators	Person Responsible	Time Frame	Budget
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To develop an empathic approach that helps in connecting and establishing an environment of interest.	Make new connections. Seek out one new person to get to know better each day.	At least 90% if people help and understand, and relate to people from all walks of life.	Business sectors and the stakeholder/community	6 months to 1 year	P 300,000
To Show compassion and empathy for animals and their inhabitants.	Support animal rights program / advocacy	At least 90% of people are animal lovers, and proper protection and love for animals were observed globally	Every individual /Human being. Government and private sectors	1 year	P250,000.
To preserve and conserve forested regions for future generations' benefit and sustainability.	Conduct tree planting and support conservation organization	At least 75% for plant trees to survive if plant and protected properly	Business entities. Govt. and private sectors	5 to 10 yrs.	P1 Million
<b>KRA2. CIVIC DUTY</b>					
To establish responsibility among individual for the action that affects our environment as a duty of a citizen of the country	Conduct seminars and lectures about recycling, conserving water, saving electricity, using reusable containers and other relevant topic about environment protection.	At least 95% if people will cooperate and participate on conserving and protecting the environment	Person in authority, business entities and the community	1 yr to 1& 1/2 year	P 1Million
<b>KRA3. PERSONAL RESPONSIBILITY</b>					
To promote the conservation of national resources and restoring and cultivating forests, grasslands, and ecological restoration.	Practice recycling, reusing, and composting; making better transport choices; reducing your electricity usage; buying local; donating to conservation groups; and avoiding toxic chemicals	At least 75% of people in the community practice this method	Seaweeds owners and workers and the community	6 months to 1 year	P 1Million
<b>KRA. INTENTIONS</b>					
To promote good intentions and a goal to present information on ecological issues to the community	Free film showing to schools or any organization the advantage and disadvantages of conserving and preserving our eco system	At least 75% are willing to spend time viewing the film.	The seaweed industry, , government agency, and NGU.	5 months to 1 year	P 500,000
<b>KRA5. ADVOCACY</b>					
To create an advocacy with a	An environmental major research will	At least 50% Government	Seaweed industry, government agency &	1-2 years	P 1Million

degree in environmental studies opening doors to careers focused on conservation, alternative energy sources, policy-making, consulting and research	examine ecological systems, energy cycles and sustainability goals.	and private agency collaborating for environmental advocacy	NGO		
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KRA5. ADVOCACY					
To create an advocacy with a degree in environmental studies opening doors to careers focused on conservation, alternative energy sources, policy-making, consulting and research	An environmental major research will examine ecological systems, energy cycles and sustainability goals.	At least 50% Government and private agency collaborating for environmental advocacy	Seaweed industry, government agency & NGO	1-2 years	P 1Million

KRA6. ACHIEVEMENT					
Objectives	Activities	Critical Success Indicators	Person Responsible	Time Frame	Budget
To have a vision and goal how to achieve the goal and to be successful in your chosen business	Create new ideas and methods in service and in the product,	Many businesses become successful through product innovation	Seaweed industry, and seaweed workers	1 year	P300,000
To motivate other seaweed farmers that they too can achieve their goal to be successful	Being connected with another business man through social media and other platform in sharing ideas and comparing strategies could help you and your friend business to be more successful in the future.	Social media gives businesses the opportunity to connect with business colleague and fans and followers every time they log in	Seaweeds Industry management	All year round	P500.000

KRA7. RISK PROPENSITY					
To encourage businesses to take risks in every decision made.	Trying new methods and ideas in creating new product without assurance for profit	Failed risk are not always negative. Sometimes they provide the most valuable business lesson an entrepreneur can learn	Seaweed industry, seaweed farmers	One a year	P 250,000

KRA8. SELF-EFFICACY					
To establish and	Take trainings on	At least 85% of	Seaweeds industry	All year	P 1Million

develop seaweeds workers self-confidence and belief that they can be successful when carrying out a certain task.	personality development and skills enhancement. Exploration of new things here and abroad.	people will cooperate and participate on all activities.	management and workers	round	
<b>KRA9. EXTERNAL ENVIRONMENT</b>					
To develop connections and interactions with customers, competitors, technology, political, social conditions that influence the organization.	Adapt changes that for the benefit of the business. Be open minded to any challenges that come along the way.	Better business opportunities that lead to competitive advantage	Seaweeds industry management and workers	1 yr to 1& 1/2 year	P 1Million
<b>KRA10. PERFORMANCE</b>					
To ensure company's ability to earn profit from the resources and achieved its business goals	Budget preparation, improve marketing strategies, product innovation, expanding product selection	At least 90% of target are achieved.	Seaweeds industry management and workers	1 yr to 1& 1/2 year	P 1Million

#### IV. CONCLUSION AND RECOMMENDATION

The results of the study expressly explained that being an environmental advocate and with entrepreneurial motivation could lead to the profitability of seaweeds industry. Among the three variables, environmental advocacy, entrepreneurial motivation, and profitability, entrepreneurial motivation got the highest total mean. The result of the test of the relationship between the level of environmental advocacy and profitability of the seaweed industry revealed that there is no significant relationship between the two variables except the domain of civic duty and empathy have no significant relationship, however, the overall result under the environmental advocacy domain has a significant relationship and the null hypothesis was rejected. This latter result is connected to the idea of Giercksky (2018) that environmental advocacy according to the seaweed industry provides marine ecosystem support by contributing to increased fish habitat and marine biodiversity, which leads to increased production that will generate profit for the seaweed industry.

Moreso, the overall result of the test of the relationship between the level of entrepreneurial motivation and profitability of the seaweed industry revealed the rejection of the null hypothesis. This shows that the entrepreneurial motivation of the seaweed industry is positively correlated to the domains of profitability of the seaweed industry. Thus, there is a significant relationship between the levels of entrepreneurial motivation in the seaweed industry and the profitability of the seaweed industry. This finding is connected to the idea of Pinfold, (2013), that the cultivation of seaweed products create job and through cultivation could contribute to the welfare of society through the creation of jobs, and this business yield profit or financial gain.

Furthermore, regression analysis showed that the combined influence of environmental advocacy and entrepreneurial motivation significantly influences the profitability of the seaweed industry. Through strong collaboration and strong grassroots and taking a simple step to save our environment and support it, the fisheries and marine sectors continue to make good contributions to the economy to improve especially coastal communities. The seaweed industry is motivated by knowing that this is a profitable business industry (Siman et al,2019; Prasanna, 2020). Hence, the null hypothesis stating that there is no significant relationship between environmental advocacy and entrepreneurial motivation for profitability was rejected

The following conclusions are taken considering the research results. This study concluded that in terms of profitability among the two variables, environmental advocacy, and entrepreneurial motivation, the variable entrepreneurial motivation got the highest total mean. In the test of correlation conducted, environmental advocacy, and entrepreneurial motivation are all significantly correlated with seaweed profitability. While the domain under

environmental advocacy variables has a high level of descriptive compared to other domain that has a very high level of descriptive. However, the overall result of the study has a significant relationship with seaweed profitability. Finally, this study, environmental advocacy and market entrepreneurial motivation, Small and Medium Enterprises (are the major predictors of seaweed profitability in Caraga Region..

The following recommendations are made in consideration of the results and conclusions of the study. The results concluded that the domain of civic duty and empathy seems to have a high-level mean compared to other domains with very high scores. It is recommended that seaweed farmers as Filipino citizens have a civic duty to protect the environment. A mission to restore, protect and enhance environmental quality. The vision is to protect our natural resources, attuned to the pursuit of sustainable development, for a clean and healthy environment that enhances the Filipino quality of life for the present and the future generation. Moreso, empathy to be supportive of the laws, programs, and objectives of the government in proposing solutions be observed and practiced by seaweed farmers to strengthen the relationship among society for environmental advocacy.

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**APPENDIX A**

**CURRICULUM VITAE**

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**Hobbies**

- Singing
- Surfing the net
- Playing Badminton
- Strumming guitar

**Summary**

Johnith M. Montero is a graduate of Bachelor of Science in Secretarial Administration major in Computer Secretarial Education and Bachelor of Science in Business Administration major in Operation Management at Saint Theresa College of Tandag City, Surigao del Sur. She pursued her studies and graduated Master in Business Administration of the same institution. She is now on her second year of Doctor in Business Administration at the University of Mindanao, Davao City. A faculty member of College of Business and Management Education of North Eastern Mindanao State University-Tandag City, Surigao del Sur, Philippines.

**Skill Highlights**

▪ Computer Enthusiast	▪ Service-focused
▪ Net Surfer	▪ PC Operator

**Publication:**

- Effective Management Strategies for Internet Café Business Establishments and Its Services.

**Certifications on:**

DIGITAL MANUFACTURING & DESIGN
DIGITAL THREAD: IMPLEMENTATION
DIGITAL THREAD: COMPONENTS
TEAM LEADER EXCELLENCE FOR PEAK PERFORMANCE
MANAGING CHAOS: INCREASING PRODUCTIVITY
THE ART OF MINDFULNESS
ONESTEP FURTHER TO A BETTER AND BRIGHTER DECISION
BECOMING A DIGITAL CITIZEN
TOOLS FOR EFFECTIVE ONLINE TEACHING
CITATION GUIDE: WHY AND HOW
CREATING ENRICHED SYLLABI FOR BUSINESS COURSES
EFFECTIVE MODULE DEVELOPMENT
SKILLS ENHANCEMENT FOR EFFECTIVE COMMUNICATION
REVITALIZING RESEARCH CULTURE
BEST PRACTICES IN THESIS & DISSERTATION ADVISING AND FUNDING
THE ROLE OF MEDIA TOWARDS TEACHING AND LEARNING IN THE NEW NORMAL
CONTENT KNOWLEDGE AND INNOVATING TEACHING STRATEGIES
CLASSROOM MANAGEMENT AND CURRICULUM DELIVERY IN THE NEW NORMAL
WORKSHOP ON WRITING EFFECTIVE & COMPREHENSIVE PROJECT PROPOSALS
ANIMATION IN 3D LECTURES
THE BSR CONDUCT OF MONETARY POLICY
ADAPTING TO THE NEW NORMAL: HEALTHY MINDSET & INNOVATION