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Factor Effecting the Sustainable Income Generation of the Value Added Products of Local Fishery in Ranong Province, Thailand

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***Abstract*---**The study objective was to check the impact of personal characteristics, financial constraints and fish processing methods on the sustainable income generation of the value added products of local fishery in Ranong Province, Thailand. For this purpose, the data was collected from 80 fishermen from the Ranong province of Thailand which was analyzed from both of the statistics of descriptive and inferential. The key findings had shown that majority of the people 70 percent used traditional kiln for the processing of their fishes whereas 24 percent were using the fried fishes within the vegetable oil. It was also found that most of respondents were sourced their credits from their personal savings 46 percent, cooperatives 29 percent and from family and friends was 18 percent for the processing the fish activities and 7 percent from micro finance banks. The respondents had generated their income (gross profit) of THB 2247.80 from roasted fish, THB 1123.90 from dried fish, and THB1669.79 from fried fish.

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The regression model results had shown that respondent's personal characteristics, constraints and processing methods had greater influence on the sustainable income generations. In this regards, the current study suggested that fish processors should be adopt a modern fishing methods and also subsidized should be given in the equipment by the government. Moreover, the current study findings could contribute a body of literature in the theoretical and practical perspective because this study could be a pioneer study that could become a big contribution in the extant literature.

Keywords---constraints, fish processing, personal characteristics, sustainable income generation, Thailand.

Introduction

The fishing industry is beneficial in creating a source of income for thousands of people all over the globe. It is a significant food because it is valuable for the protein it provides as well as the industrial items it produces. Due to global acceptance component of sustainable food security, fish is commercially, socially, and culturally significant. It is less expensive than beef, mutton, and chicken (Omoare, Fakoya, Abiona, & Oyediran, 2013). Parsimoniously, the fish is an essential food and money for both of the genders, men and women, particularly in poor countries, and fishing plays a vital social and cultural role in riverine societies (Nwabeze et al., 2010). Women from fishing villages have an important part throughout fisheries around the world, as well as in the maintenance of respective communities and families (P. I. Ifejika, Nwabeze, Ayanda, & Asadu, 2009).

According to reports, around 35 million individuals globally openly are being involved in the business of fishing (Dissanayaka & Wijeyaratne, 2009; Soe, Pradit, Jaafar, & Hajisamae, 2022). Notwithstanding Thailand vast fishery resources and surprisingly high fish intake Olaoye et al. (2013), local 0.85 million metric tons output in 2019 fell short of what is required of 3.02 thousand tons (Okafor-Yarwood, 2019). Thailand ever enhancing demand of fish, a shortfall of 2.17 million metric tons is compulsory. This huge disparity among demands and needs of fishing is worsened by big shipments of frozen fish, which are a major drain on the country's foreign exchange revenues (Waisu Oyediran, Omoare, Shobowale, & Onabajo, 2020). Thailand imports around 0.7 million metric tons fish which worth is $500 million every year to make up the difference (Issa, Abdulazeez, Kezi, Dare, & Umar, 2014). Commercial fishing and artisanal fishing are both viable fisheries production enterprises in Thailand. Coastal trawling and fauna fishing are examples of commercial and industrial fishing. In addition, the artisanal sector is organized into four categories: coastal canoe fishing, brackish water fishing, fresh water fishing, and farming of fishes.

Without even any conservation or production conditions, fish is particularly prone to deterioration (Okonta & Ekelemu, 2005). When a fish dies, a series of physiological and microbiological deteriorations occur, which always fish quality reduces (Eyo, 2001). It would be unhealthy for the human eating inside roughly it

is processed or preserved in some way. Even after the fish has been prepared, especially if outdated methods were utilized, it is still prone to a variety of losses and deterioration. As a result, because fish is indeed a perishability item, it must be treated and conveyed to the customer or final client in a timely manner to reduce thread deterioration via improved processing technologies and efficient marketing. Therefore, fishing industry is indeed a critical within the sub sectors to get the sustain food and money to self-employed people, particularly women. According to Aworh (2008), fish processing creates jobs for both of the self-employed people in the urban and rural areas within the informal segment. In Thailand, only a small fraction of the fish collected is marketed fresh, whereas the majority is preserved through freezing, by primarily women at the artisanal level. Fish preservation aids in increasing usage in the diet, reducing wastage from bulk catches, and increasing protein supply for individuals. According to Agbabiaka, Okorie, and Ezeafulukwe (2013), cool fish processing has variably and extensively explored and may be inhibited, particularly through the farmers of fish living in rural locations wherever there is not a frequent power outage paired with high fuel costs. Furthermore, conventional smoke can cause burn wounds, hoarseness, and eye abnormalities in fish processing (Waisu Oyediran et al., 2020).

Nevertheless, with only an expanding international market for seafood and fisheries products, especially in developing nations where fish accounts for more than 40percent of animal protein consumption, there is an important need of time for rabid production and marketing systems (Amaefule et al., 2020). The accessibility fresh fish among customers just at proper time in acceptable condition and with lower cost (Shamsuddoha, 2007). It is critical to investigate the elements which influence processing of fish and marketing in order to have a better considerate of how to make processing of fish and marketing more successful, profitable, and sustainable in the studied region. Women have traditionally worked in fisheries in the harvesting process of pre and post fish products, as well as marketing the harvests to produce revenue for a sustainable existence (P. Ifejika, Ayanda, Nwabeze, & Obetta, 2008). The ability of women engaged in fish processing to generate high revenue and profit is governed by a variety of the ranging factors from socioeconomic and manufacture characteristics to the severity of the issues confronting the fish processing business. Because most studies focused on one of the characteristics or the other, researchers have not thoroughly examined all of these elements. In Thailand, several studies on production variables and technical efficiency of inputs have been conducted utilizing a scholastic approach (Dauda, Ibrahim, Bichi, & Tola-Fabunmi, 2017). Furthermore, WO Oyediran, Omoare, Oladoyinbo, Ajagbe, and Dick (2016) investigated the restrictions affecting the successful low price procession of fish technology among women in selected fishing communities in Ronang province, Thailand.

In addition, empirically it is found in various studies that personal characteristics, fish producing and constraints had a relation with the sustainable income generation. For instance, Odebode and Adetunji (2010) that personal characteristics played an important role to effect the sustainable income generation . In other words, Butler et al. (2012) also recommended that when the personal characteristics of the individuals are improve then the sustainability of

the individual had also increased. Ferguson, Bender, and Thompson (2015) further explained that gender age, education, and income level of the individual is a key role to sustain the income generation level in any country. Along with the personal characteristics, the fish processing procession methods also played an integral role to enhance the income of any individual. For instance, the study of Zeverte-Rivza and Gudele (2021) outcomes had shown that if the producer had a good methods to produce the fishes then the sustainability in generating the income could be increased. This argument is further supported by Dhanushkodi, Hanif, Anand, and Tamilselvan (2021) who also explained that fish producing process is played an crucial role to sustain the income generating level. Whereas, if the individuals had constraints in getting funds then the sustainability in increasing the income could be minimized (Jones et al., 2021). This opinion is further supported by Zuza et al. (2021) who also provide insights that financial constraints is a major factors to decrease the income generating level of any individual.

To sum up the previous discussion, it is found that fish industries played an important role in the economic development of the Thailand. Also previous studies had major focused on other economies. Also, found the personal characteristics, constraints and fish processing played an important role to enhance the sustainable income generation. Therefore, the present research objective to check the impact of personal characteristics, processing methods, and restrictions on the sustainable income generation of he value added producst of local fishery in Ranong Province, Thailand. As a result, the drivers of long-term revenue generation among fish processors in Thailand's Ranong Province were investigated in this research.

Literature Review

Registration of business names, getting permits, complying with statutory requirements, and contracting are all covered by government laws and regulations. Women entrepreneurs are indeed the poorest equipped to participate in commercial factors that are critical to doing business in Thailand due to the aforementioned concerns. Agreements entail lengthy legal procedures including such renting, drafting company agreements, legal counsel, and other factors that harm the businessman. Most MSEs find these processes to be cumbersome and time-consuming, and as a result, they are unable to grow or extend their businesses (Siti, Surachman, Rofiaty, & Ananda, 2017). A solid partnership between Fisheries products and the government is necessary for them to maximize their potential contribution and properly manage their development projects. This healthy partnership is only possible if both sides have the same goals in mind. However, there is the possibility for a robust, cooperative agreement when the government has a constructive social objective that resonates with the organizations. In which there is no space for collaboration, however, jealousies and mistrust exist among Fishes and governments. Governments are always concerned that fishing products would weaken their political influence, whereas fishing products are suspicious of government leaders' objectives (Ervik et al., 1997). This climate of suspicion and, at times, open antagonism has a negative impact on Fisheries Products initiatives, causing many to fail.

Costs are frequently reported concerns in projects, as per Kerzner (2017) and Gido, Dodds, and Eberle (2010). It's possible that project costs are underestimated or that the project exceeds its budget. They did not, however, highlight the need of cost planning as part of project planning. Authorities have also failed to emphasize the necessity of the entire project group's ability to properly plan as well as give accompanying documentation regarding cost explanations and timeliness for venture fund spending, as well as to track spending. The majority of groups have difficulty finishing and maintaining their projects. Possessing a defined vision and objective, finances, human resource capacity inside the company and leadership abilities in the group management committee, particularly the style of management, all add to the above. The success of these Fisheries goods' programmers and projects is also determined by the operating environment. Fishery products efficiency and output are influenced by both intrinsic and extrinsic factors.

In addition, empirically it is found in various studies that personal characteristics, fish producing and constraints had a relation with the sustainable income generation. For instance, Odebode and Adetunji (2010) that personal characteristics played an important role to effect the sustainable income generation . In other words, Butler et al. (2012) also recommended that when the personal characteristics of the individuals are improve then the sustainability of the individual had also increased. Ferguson et al. (2015) further explained that gender age, education, and income level of the individual is a key role to sustain the income generation level in any country. Along with the personal characteristics, the fish processing procession methods also played an integral role to enhance the income of any individual. For instance, the study of Zeverte-Rivza and Gudele (2021) outcomes had shown that if the producer had a good methods to produce the fishes then the sustainability in generating the income could be increased. This argument is further supported by Dhanushkodi et al. (2021) who also explained that fish producing process is played an crucial role to sustain the income generating level. Whereas, if the individuals had constraints in getting funds then the sustainability in increasing the income could be minimized (Jones et al., 2021). This opinion is further supported by Zuza et al. (2021) who also provide insights that financial constraints is a major factors to decrease the income generating level of any individual. Thus based on previous discussion, it is hypothesized that,

***H_1**: Personal characteristics, constraints and fish processing's had no substantial impact on sustainable income generation value added products of local fishery in Ranong Province, Thailand.*

Research Methodology

In order to conduct the study, the researcher employed a descriptive research approach. The design was chosen because it addresses issues such as whom, how, what, when, and how much (Bath, Dhillon, & Kothari, 2004). A descriptive investigation is not limited to factual discoveries; it can also lead to the formulation of essential knowledge principles and the resolution of critical problems. A descriptive research was carefully constructed to guarantee a detailed description of the situation, to ensure that data gathering was bias-free,

and to reduce errors in interpreting the data acquired. According to Kothari (2004), the target population in a research is the total number of people by the researcher. The targeted population for this study was 80 members, which included women fishermen of the Ranong province, Thailand. The respondents were selected by using convenient sampling technique.

The research population consisted entirely of female fish processors in Ranong Province, Thailand. This research's respondents were chosen using a two-stage sampling approach. In the first step, five communities in Ranong Province, Thailand, were chosen at random from 32 wards: within the second step, 16 processors of fish remained chosen at random from selected communities from the processors of fish association list, yielding a 80 sample. Data was obtained using an interview protocol, which was delivered make eye contact. Before collection of data, research questionnaire was endangered to face validity testing by experts in Agricultural Extension and Rural Development items that were deemed to be unclear were removed. “A test-re-test procedure was utilized to determine the instrument's dependability at two-week intervals with the 20 fish processors which were not involved within the investigation of the study. The age was in the years, size of home was based on home members, and experience was depended of fish processors experience in which they were working.

There are four educational levels: no formal schooling, primary education, secondary education, and higher education. Marital status got operationally defined as engaged, widow, and non-married and widowed, and nationality was assessed at the specific level. The family relationships, personal savings and microfinance banks all scored as Yes (2) or No (1) capital sources. Processing methods such as smoke kiln, electric oven, sun drying, and frying were also measured at the nominal level. Gross revenue from processed fish was calculated as real monthly sales in THB, whereas sustainability income (gross profit) was calculated as monthly average sales minus expenses over a two-year period (from 2015 upward).” Restrictions for fish production was rated on such a three-point range of extremely serious, significant, and far less important, having equivalent scores of 3, 2, and 1; the average was approximated, and constraints have been graded terms of the mean distributions. To examine the objectives, simple descriptive statistics such as mean, standard deviation and frequency distribution were being used. For the hypothesis testing, the simple linear regression was being accomplished.

Data Analysis

Respondent’s personal characteristics

The Table.1 predicted values shown that the participant’s average age is 31.8 years. And over half (58.5percent) of those polled were under the age of 30, whereas 25percent were between the ages of 31 and 40. This means that the majority of fish processors is financially engaged and hence provides a strong labor force in fish products. However, 18 percent of those polled were over the age of 40. This research is consistent with the findings of Wara (2007), who indicated women are participating within the treating of fish in the Ronang province State, Thailand. Many (47.5percent) of those polled has only an elementary education,

whereas 32.5 percent has a secondary education. Only a small percentage (7.5 percent) has a tertiary education. The above demonstrates that now the fish processors are very well. However, 12.5 percent of the population would have no formal instruction. Such findings contradict Williams (2006) research, which portrayed women from fisher home holds as illiterate. The average home size was four individuals, as the majority of respondents (68.8 percent) have 1 to 4 people in their family circle, whereas 20 percent has 5 to 8 people. Furthermore, the results revealed that 58.8 percent of those polled has expended less than 5 years in the processing of fish industry. It could attributed to the reason that the participants are indeed extremely youthful and active. Few (26.2 percent) of respondents has been in the fish processing industry for 6-10 years, whereas 15percent has been in the industry along with supplementary 11 years. The year average of competence within the processing industries. In addition, the majority of respondents (86.3 percent) were married, whereas 11.2 percent were single mothers.

Table 1
Personal Characteristics Demographics

Variables	Frequency	Percentage	Average	SD
Less than 30	46	58.5		
31-40	20	25.0	31.8	6.31
Above 40	14	18		
Qualifications				
Informal education	10	12.5		
Primary	38	47.5		
Secondary	26	32.5		
Tertiary	06	7.5		
Home size				
1 to 4	55	68.8	4.00	2.0
5 to 8	16	20.0		
More than 8	09	11.2		
Experience of fish processing				
Less than 5	47	58.8	5.71	3.72
6 to 10 years	21	26.2		
Greater than 10	12	15.0		
Marital				
Non married	09	11.2		
Married	69	86.3		
Divorced	02	2.5		

Source: Researcher own Illustration

Fish processing Methods, sources of credit facilities and Income

According to the findings in Figure 1, 46percent of respondents obtained their capital from personal savings, 29 percent via cooperatives clusters, and 18 percent from the family and friends. However, only a small percentage (7 percent) received loans from microfinance institutions. This means that fish processors do not use microfinance bank loan facilities, which may be related to the indemnity

and new lengthy procedures that are a barrier to getting such facilities in the Thailand banking system. Obtaining borrowed funds is challenging to rural women because of the cultural constraints, the majority of them did not purchase or just have land access. These findings confirmed the evidence of Pulkkinen et al. (2010), who discovered that associations and the savings of personal are key sources of credit for rural women for fish promotion.

Processing of fish is mostly the realm of rural women Thailand coastal communities. The majority (70 percent) of respondents processed their fish in a conventional kiln, whereas 24 percent fried their fish within the vegetable hot oil and only a handful (5.0 percent) sun dried out fish. The drying, smoking, and salting were the most popular ways of fish protection in Thailand (Idris & Omojowo, 2013). Mean whereas, not a single person (0.0 percent) utilized modern activities in coastal areas, despite the fact that women were tangled in the processing of fish throughout the state. Its statewide government has designed institutionalized support and initiatives to more improve the growth and development of an agriculture industry and it's significantly contributes to the Thailand economy.

According to the results in Table 2, respondents earned an average of THB 22247.80, THB 1123.90, and THB1669.79 from fish roasted, raw and grilled fish, correspondingly. This suggests that the fish processors produce a significant amount of money per month, in spite of the detail that they utilize the old-style technique. It suggests that only if fish handling in Thailand is improved using current technologies, it has the potential to generate more profit. According to Olaoye et al. (2013), fish farming is economical in family fish production in Ranong Province, Thailand.

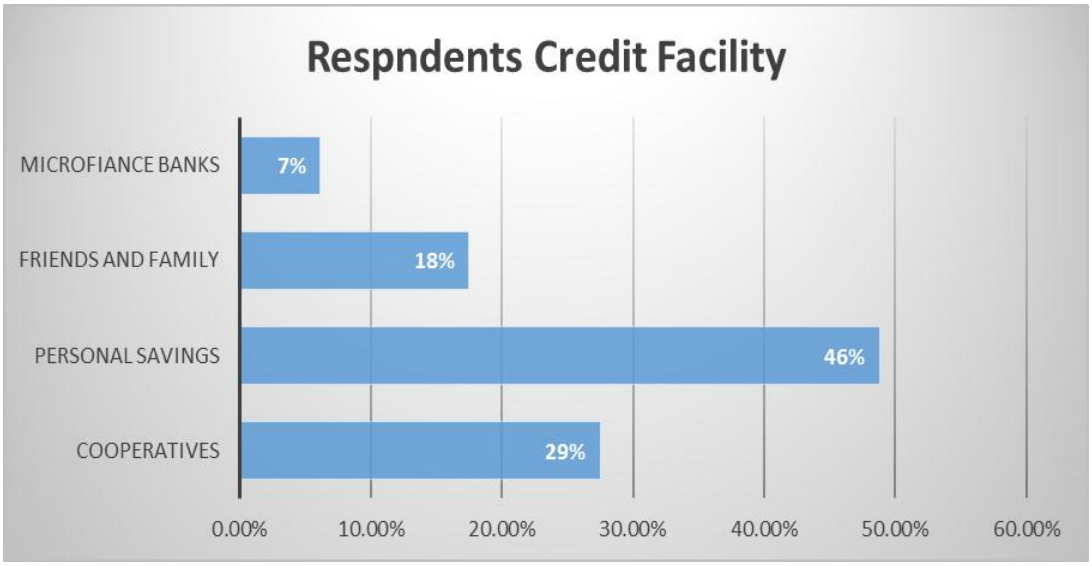

Figure 1: Respondents credit facility

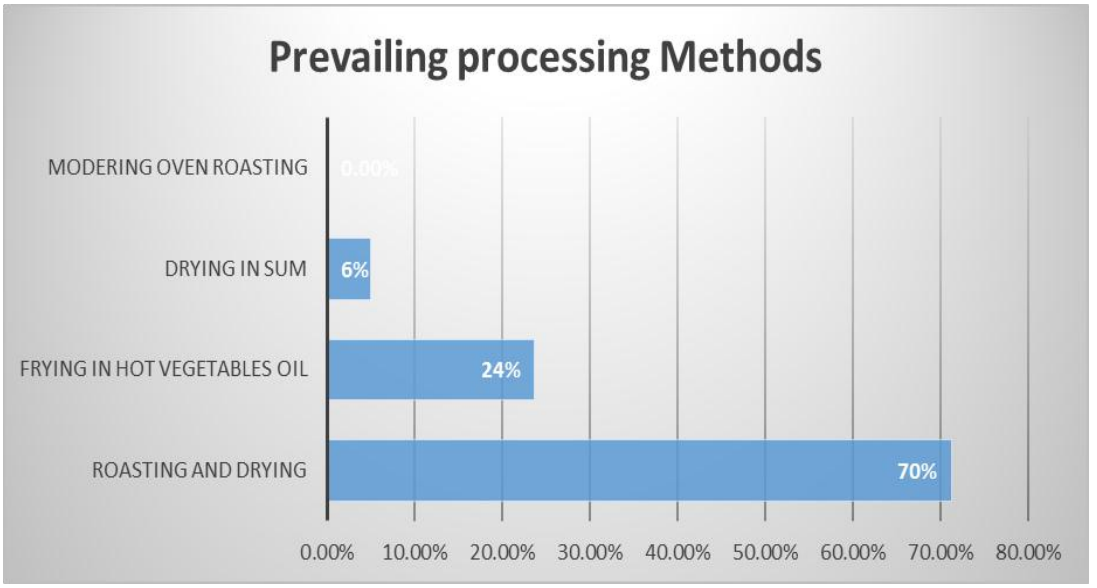

Figure 2. Scattering as per prevailing processing methods

Table 2
Income from proceed fish distribution

Roasted fish	Whole fish	150 to 300	22247.80
Dried fish	Whole fish	100 to 150	1123.90
Fried fish	Whole fish	50 to 100	1669.79

Source: Researcher own Illustration

Conclusion and Recommendation

The study objective was to check the impact of personal characteristics, financial constraints and fish processing methods on the sustainable income generation of the value added of local fishery products in Ranong Province, Thailand. For this purpose, the data was collected from 80 fishermen from the Ranong province of Thailand. The descriptive analysis was done in the study. According to the result of this research, fish processing generally young, financially engaged, and experienced. Personal savings and cooperatives were the sources of loans for the fish processors. The traditional kiln and frying remained the most common fish processing methods in the research area. Nevertheless, fish production was hampered by insufficient processing equipment, a lack of loans from banks, a lack of electricity, and insufficient extension service support. The respondent's personal characteristics are important factors for generating the long term revenue from the fish processing. It could be predicted from the study outcomes that the fish processors should be adopt a modern equipment in their production that could be rotated between fish processors and also be given from the stakeholders solar energy within the fishery sectors for the alleviation of the recurrent power supply and also to enhance operations of the female fisher processors in the research area.

Moreover, the current study findings could contribute a body of literature in the theoretical and economic perspective. Firstly, the study could add a body of knowledge in the extant literature that could become a new area of research. Secondly, this study could be a pioneer study that could become a big contribution in the extant literature. Thirdly, the current study could help to researcher and academicians to know about the importance of this topic to conduct their research in future. Fourthly, the study could also help to the entrepreneurial and owners of fisheries that could helped to sustain their income generations. Fifthly, this study could also help to the higher authorities to know about the importance of sustainable income generations so that the contributions of fisheries in the social and economic perspective increased.

Along with significant contributions, the study also had limitations. The study was conducted on descriptive analysis that had limited generalizability; a future study could be done on quantitative research methods that could enhance the research generalizability. In addition, the study was conducted on Thailand specific province; a future research could be done on other provinces or other countries to check the variation in the results. Further, the study conducted on three variables, a future research could be conducted to address the other variable namely, government supports, leadership skill etc.

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