

# Choice of Livelihood Strategies of Coastal Fishermen in Pulau Pangkor, Malaysia

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*A sustainable livelihood framework is useful as a basis for analysing the livelihood of a community. This study explores the choices in livelihood strategies made by Pulau Pangkor coastal fishermen. The qualitative research method was employed and open-ended interview questions were utilized as guided questions. A total of 15 interviews were carried out to reach saturation level in understanding the coastal fishermen's considerations before making any decision on choice of livelihood strategies. Creswell data analysis spiral was adopted in analysing the data collected. The majority of respondents seem to agree that (1) income generated is often insufficient, (2) they would fall back on savings or cut down on expenses when income is lower than expenses, (3) they attempted to rely mostly on subsidies, (4) they have a short-term plan instead of a long-term plan in dealing with extra income generation, (5) they switched from working for others to operating their own sampan, (6) they do not have any other sources of income; neither do they have unused resources to generate extra income, (7) they are satisfied or somewhat satisfied with their current livelihood situation, and (8) they believe that their livelihood status will worsen.*

*Keywords: coastal fishermen, sustainable livelihood strategies, Pulau Pangkor*

## Introduction

The aim of this study is to identify the choice of livelihood strategies made by the coastal fishermen of Pulau Pangkor. However, the existing sustainable livelihood frameworks are not exactly appropriate, since no suitable sustainable livelihood framework can be generalized as yet. In that case, this research has adopted suggested questions by the Department for International Development (DFID) for a sustainable livelihoods framework as the basis in setting open-ended interview questions. Findings of

this research are crucial for generating a better understanding of this particular community, instead of trying to fit them into the existing sustainable livelihoods framework.

This research is also important as it attempts to respond to some of the initiatives of the Eleventh Malaysia Plan (2016-2020), which include: (1) enhancing inclusiveness in moving towards an equitable society, (2) improving well-being for all, (3) accelerating human capital development for an advanced nation, (4) pursuing green growth for sustainability and resilience, (5) strengthening infrastructure to support economic expansion, and (5) re-engineering economic growth for greater prosperity. In addition, this research is also in line with some of the Sustainable Development Goals of United Nation, which include: (1) promote development policies or a framework which support decent job creating and sustainable income, (2) sustainable per capita economic growth in the country and (3) higher levels of economic growth through diversification.

The fisheries sector in Malaysia, as in many other countries, plays an important role in the nation's development. since it contributes to a significant portion of the country's Gross Domestic Product (GDP). Gross output value of the fisheries sector in 2015 was RM 2226 million or 3% from total gross output of the agriculture sector with value added of RM 747.6 million. This sector also provides job opportunities to fishermen across Malaysia (Department of Statistics, 2017). Moreover, the sector is equally important to Malaysia as its output is one of the main sources of protein for Malaysia (based on the Malaysian food culture); it contributes to Malaysian exports to neighbouring countries and it has domino effects on other industries, such as sardine processing factories, boat manufacturers, fishing equipment manufacture, etc.

One component of the fisheries sector is marine fisheries, which can be divided into two categories, coastal and deep-sea fishing. This research focuses on fishermen who carry out their fishing activities within the coastal area, which is defined by the Department of Fishery as the zone less than 30 nautical miles from the coast. The majority of the local fishermen operate within this coastal zone.

The fisheries sector in Malaysia is governed by three bodies, (1) Department of Fisheries of Malaysia, (2) Fisheries Development Authority of Malaysia (LKIM), and (3) Fishermen's Associations. The fishermen of Pulau Pangkor work closely with the Fishermen's Association of Pulau Pangkor for the management of vessels, renewal of licences and training programs, and with the LKIM for fish landing, marketing of fishery products, diesel subsidies, monthly allowance, renewal of licence and vessel insurance.

According to the estimate by the Fishermen's Association of Pulau

Pangkor for the year 2017, there are 897 registered fishermen on the island, comprising of 635 Malays, 198 Chinese and 64 Indian by ethnic background. Fishermen villages are scattered around Teluk Dalam, Sungai Pinang Kecil, Sungai Pinang Besar and Teluk Gedung. The Annual Fisheries Statistics (2014) has reported that most fishermen in the State of Perak (where Pangkor Island is located) are using drift and gill nets, trawl nets and fish purse seines (a large wall of netting deployed around an entire area or school of fish), which reflected that most of them in the state are coastal fishermen. Vessels used by most coastal fishermen are the traditional sampan small boats (Figure 1).

FIGURE 1  
Traditional fishing boat (sampan)



### **Methodology**

Thirty coastal fishermen were contacted by telephone based on a list provided by LKIM of Pulau Pangkor to set up interviews. The time frame for this initial research was between November to December 2017. The sampling technique adopted was purposeful sampling. This technique focuses on particular selected characteristics based on the research design, which will best enable the achievement of the research objectives. In this case, the criteria for choice of the interviewees are those fishermen who (1) carry out fishing activities mainly within the coastal area of Pulau Pangkor (the study area), and (2) who have worked as a fisherman on the island for more than 5 years. Fifteen participants were interviewed, after which no further interviews were made since saturation level had been achieved (Table 1).

The interview sessions were conducted face-to-face on a one-to-one basis between the interviewer and interviewee. The format was open-

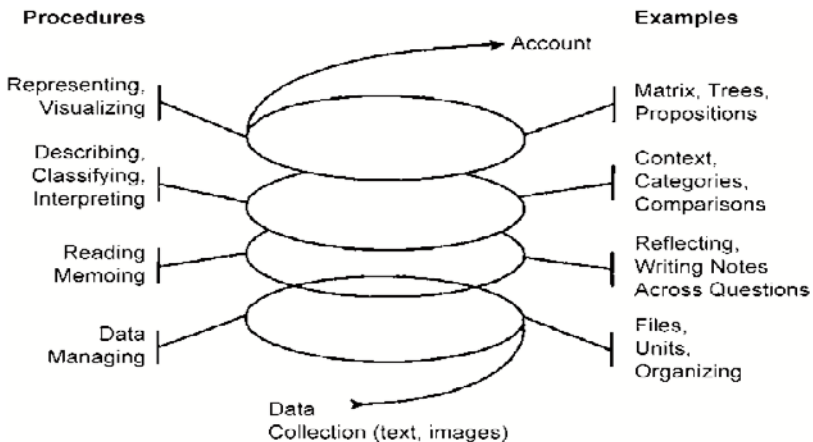
ended and in-depth in nature. The data collected were then transcribed, coded and analysed during the same time period that the interviews were conducted. The data collected went through a coding process as suggested by Creswell (2013). The interview process included the possibility of additional interviewing of selected respondents again for further data input whenever necessary. Thick description was carried out within the entire data collection and analysis process.

Data analysis was done using the Creswell data analysis spiral (Figure 2), which includes (1) organizing data, (2) reading and writing memos, (3) describing, classifying and interpreting data into codes and categories, and (4) representing and visualizing the data.

To increase the level of trustworthiness of the qualitative data collected, this research adopted Lincoln and Guba's (1985) proposed four strategies, i.e. credibility, transferability, dependability and confirmability. The actions taken in this research as a credibility check included data saturation, continuous memo-writing, and triangulation. With regard to transferability, (1) thick description and (2) a natural setting were used. To achieve data dependability, the researchers utilized (1) memo-writing, (2) inquiring, auditing, and (3) triangulation. Finally, in order to achieve confirmability, (1) triangulation, and (2) audit trial were employed.

For data validation, a triangulation process was carried out to validate and shed light on the researchers' perspective on the collected data. This process involved the researchers, an independent party (peer review) and the literature review. This step is necessary to avoid bias.

FIGURE2  
Data Analysis Spiral



Source: Creswell (2007)

TABLE 1 Participant Demographic Matrix

Age	Location	Civil Status	Ethnicity	Gender	No of h/h members	No of children	Years of fishing	Involvement	Income		Days of fishing per month	Education level	
									Max	Min			
1	33	Teluk Gedung	Married	Malay	Male	4	2	20	Full-time	4000	0	Everyday	Primary 6
2	48	Teluk Gedung	Married	Malay	Male	7	5	30	Full-time	1000	300		
3	49	Teluk Gedung	Married	Malay	Male	9	7	47	Full-time	1000	500		Primary 6
4	25	Teluk Gedung	Single	Malay	Male	3	1	7	Full-time	2000	<1000	15 days	Nil
5	60	Teluk Gedung	Married	Malay	Female	9	7	45	Part-time	>1000	>1000	12 days	Primary 6
6	38	Teluk Gedung	Married	Malay	Male	5	1	20	Full-time	>2000	800	Everyday	College
7	49	Sungai Pinang Besar	Married	Malay	Male	5	3	33	Full-time	1500	300	10 days	Form 3
8	30	Sungai Pinang Besar	Married	Indian	Male	3	1	15	Full-time	2000	100	26 days	Primary (not completed)
9	40	Sungai Pinang Besar	Married	Chinese	Male	4	2	25	Full-time	>1000	>1000	26 days	Primary 6
10	28	Teluk Kecil	Single	Malay	Male	5	0	10	Part-time	1000	200	20 days	Form 5
11	48	PekanPangkor	Married	Chinese	Male	5	3	40	Full-time	3500	2500	25 days	Primary 6
12	35	TelukDalam	Married	Malay	Male	6	4	20	Full-time	4500	1000	Everyday	Form 3
13	46	Sungai Pinang Besar	Married	Indian	Male	4	2	25	Part-time	2000	1500	15 days	Primary 6
14	47	Sungai Pinang Besar	Married	Malay	Female	7	5	30	Part-time	1000	600	20 days	Primary 3
15	25	Teluk Gedung	Single	Malay	Male	8	0	7	Full-time	2500	1800	20 days	Form 5

### Findings and Discussion

The DFID Sustainable Livelihoods Framework was used as the basis for data collection and analysis in this research. The Institute of Development Studies (IDS) had in 1998 provided the definition of sustainable livelihood as “a livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base” (Scoones 1998). The DFID Sustainable Livelihoods Framework acts as a basis to analyse the livelihood of the community of coastal fishermen in Pulau Pangkor. The research findings would allow the interested policy maker and other relevant authorities to identify where intervention can be made (Farrington, Carney, Ashley, & Turton 1999). There were eight research findings obtained from the analysis of the interviews conducted and they are discussed in four sub-headings below.

#### Income Status and Coping Strategies

*Finding 1: All respondents agreed that on average, income generated is not enough or inconsistent, i.e., none said income is enough to cover expenses*

Income versus expenses is the first criterion identified in the framework utilized. This is agreed by the DFID Sustainable Livelihoods Framework

that sustainable livelihoods study does not have to start with vulnerability, it can be initiated at any point of the framework or any aspect of livelihood. This research uses this criterion as responses show that this is the basis of livelihood strategies and sustainable income.

When making a comparison between the level of income versus expenses at the beginning of their lives as fishermen and at the time of survey, all fishermen agreed that income is barely enough to cover expenses. To make it worst, the majority reported that total output has been decreasing over the years. Even though the sale price of fishing output is determined by the level of demand and supply, their total income has declined. Iris (2015) suggested that most Malaysians cannot achieve a sustainable income for various reasons, the main one being expenses mounting faster than income. This is in line with Parkinson's Law that states: regardless of how much income one earns, with every dollar he or she spends, inflation will still cause their expenses to surpass their income (Parkinson 1965). Therefore, even though most of the older fishermen have changed from working for others which gave them RM15.00 per day compared to an average current income now between RM300 to RM2000 per month, it is still not enough to cover their monthly expenses.

Case	Transcript from interview (translated from Malay)
Han/2	Depending on our monthly income, but the last three months have been bad, not enough fish in the nearby waters, so I had to go out further to sea. Sometimes I follow someone else's boat or use my own.
Han/10	To trawl is expensive now, it used to be RM18, now it's RM25 before GST. Now RM1000 is not enough for expenses, even RM50 is not enough to buy anything. In my generation, I was able to buy things with RM1, but now I cannot even buy iced Milo with RM1.
Fai/1	To be honest, it (the income) is not enough, so I had to use two or three different fishing methods; depending on the fishing rod alone will not be enough to survive. We need to use a few methods. For example, we set up crab traps, because we can estimate (the outcome), the remaining (time) we go fishing (with fishing poles) or we trawl.

*Finding 2: Most respondents indicated that they would dip into their savings or cut down on expenses when income is lower than expenses, instead of finding an extra source of income*

According to the DFID Sustainable Livelihoods Framework (1996), savings has two important characteristics, (1) savings level of productivity, i.e. what the value of savings is if left untouched; (2) savings level of liquidity, i.e. how long it takes to turn it into cash. Both characteristics are important, and both can be traded off against each other. However, trading off the characteristics of savings might come with a certain level of risk. For example, if savings can be easily turned into cash, the productivity (value) level might be compromised. This will result in compromising the long-term sustainable income.

Most respondents agreed that they will dip into their savings when their daily incomes do not suffice to cover expenses. This is due to the inconsistency in the daily income of fishing activities. This situation has meant that four-fifths of respondents agreed that their savings can only last them for less than a month. In other words, they chose to trade-off the productivity of savings in exchange for liquidity level of savings.

Case	Transcript from interview (translated from Malay)
Din/2	We fishermen are not able to save, this month I've (managed to catch) fish, next month no fish (not managed to catch anything), so we have to spend from our savings.

When they run out of savings, the next thing they choose to do is to cut down on daily expenses, with most agreeing that they have to cut down on meals for the family and postpone payments on expenses such as utilities, rent or a housing loan. Many of them call this arrangement as “financial planning”. Two-fifths of the respondents mentioned that they obtain private loans from family and friends, or arrange for financial institutions to cover expenses. If such situations persist, it may be possible that this community of fishermen could stumble into a debt trap one day.

Case	Transcript from interview (translated from Malay)
Mus/1	We can divide (income), but debts are a lot, when we earn more income, we pay more (installments). First we need to rotate the payments of electricity and water. Sometimes we owe the debt first, because we want to distribute (manage) our income, my child is in secondary school.
Khai/22	I've taken out two loans from “Yayasan” (a financial institution), the first time I applied RM10,000, and I received RM3,000, not too bad, I managed to purchase some fishing equipment. I managed to pay off the loan within two years. Then I applied for another loan of RM10,000 and I received RM8,000, now I still owe RM2,000, but I have not been paying the monthly installment for the past 4 months due to poor weather. In the past 4 months, weather has been poor, with thunderstorms and rain, and no fish at all (I didn't manage to catch any fish).

*Finding 3: The majority of respondents attempted to rely on subsidies.*

In the case of the coastal fishermen of Pangkor Island, many subsidies and grants have been provided, as confirmed by all fifteen respondents. Types of subsidies and grants provided or available include:

- a For fishing activities – subsidized diesel and petrol, monthly allowance for fishermen, sales subsidies based on the weight of fishing output, free boat and engine
- b For investment – Azam Niaga Kiosks
- c For housing - repairing and upgrading of houses, subsidized apartments and terrace houses
- d For improving skills – ongoing free courses which include daily allowances, meals and accommodation
- e Other forms of aid – Bantuan Rakyat 1 Malaysia, e-kasih

All except one respondent mentioned that they have been applying for various types of funding and subsidies, and they have all agreed that they have received at least one type of subsidy or funding. However, more than half of the respondents mentioned that the reason for not receiving support was due to suspected cronyism practices. This could be true, as not every funding available was distributed through the official channels, such as Fishermen's Association or LKIM. Even if it was distributed through these two channels, information on the availability of funding was still distributed through the committees who represent each village, and the names of recipients had to be submitted through the same channels.

Case	Transcript from interview (translated from Malay)
Khair/22-23	The weather has been poor over the past 4 months, with thunderstorms, rain, it's unpredictable. No fish (caught), and never received any (government) assistance, even though I am a full-time fisherman under (Fishermen Act) 11/1A. It is not that I haven't applied before, many applications have been made, but I never got anything.
Mus/5	My children received educational assistance (under the mykasih program) of about RM60 (per month), which has eased things a bit. But I haven't gotten anything personally besides BR1M (a form of financial aid), 3 times per year and a fishermen's allowance, RM300 per month.
Din/34	Oh, I didn't receive it (a terrace house). I got some flat accommodation but it isn't completed yet.
Xi/18	Yes, I've applied many times (to the authorities), they say they don't have it (funds) anymore. Chinese (fishermen) find it very difficult to get it, they only give it to Malays. They only give to their own friends, not to those who need it. Some people received it more than once. Even a motor boat is very difficult to get.
Syu/17	They (the authorities) are biased, as if we are not eligible. Let's say 30 people apply, only the same (few) persons will get something. It is not like 30 people from every village will get it, if that's the way, then it's fair. But what happened here is the same person will always get something. Those who went for some workshop, they'll only tell others they went to the workshops when it's over. Whether its sampan or a motor boat, the very same person will get it. Sampans were given to those who do not go out to sea, some of them don't even know how to start an engine. Some got it more than once, they sell it, and use the money to buy a motorcycle.

### ***Short-term Plan versus Long-term plan***

*Finding 4: Most respondents have a short-term plan instead of a long-term plan in dealing with extra income generation*

The fishermen do not have any retirement funds to fall back on other than their savings after they stopped their activities as active fishermen. According to the General Manager of LKIM Pulau Pangkor, a few elderly fishermen have the misunderstanding that the monthly allowance for fishermen is their retirement fund, hence they keep urging LKIM to pay them their allowances even when they are no longer active in the sector.

To make it worst, none of the respondents had purchased any kind of insurance in case of emergency besides the minimal takaful insurance made compulsory by LKIM. This is despite the fact that 50% of the respondents agreed that there is always a high risk of poor weather which hindered them



from going out to sea. Another 20% say that poor weather can cause accidents in which they might be killed, while another 20% are worried about the possibility that their health conditions might stop them from working as a fisherman in the near future. However, they do not have enough extra income to “prepare” for a future emergency. This is in line with the news report by The Star that Malaysians are grossly underinsured, and when they face a health or death crisis, their family members face difficulties in coping with their daily household expenses (Christina 2016).

Case	Transcript from interview (translated from Malay)
Khai/42	The only insurance we have is fishermen takaful insurance, with an annual payment, that's all ... even if I have balance (extra income) of RM100 or RM200, I'll save it for my children.
Fai/6&19	Costs are incurred when fishing gear or a boat motor breaks down again. If our things (fishing gear or engine) are damaged, we'll be broke, because costs for repairing a motor is high, if (the motor is) broken and cannot be repaired, (I have) to sit at home, what to do?
Sha/33	When the weather is poor, (I) cannot go to sea, but if it is not too bad, I will just go, what to do? Otherwise, where do I get money from? That's why the other fishermen scolded me as they are worried that something might happen to me and I'll cause trouble for other people.

### Livelihood Intensification

*Finding 5: Most respondents switched from working for others to operating their own sampan, with a few changing or multiplying their fishing methods*

70 per cent of the respondents shared the fact that they had started their fishing activities out in deep sea, where they worked with major fishing operators or boat owners. Somewhere along the line, they switched to fishing in Zone A (less than 5 nautical miles from shore) using their own fishing sampan. On top of that, 66% of them mentioned that they have multiplied their fishing areas within Zone A. The main two reasons for making such changes include availability of new fish resources and the fact that most major boat owners are hiring foreign workers. These observations show that most coastal fishermen had indeed gone through the fishing intensification process.

Case	Transcript from interview (translated from Malay)
Mus/9	I used to work in the big boat, used a bigger trawl in the deep sea, (income) was better, but since they started employing foreign workers, there's no more work left.
Fai/14	Only change of the fishing area, because we used to be able to fish in the WALE area, but now even if we want to fish there, we have to do it secretly, because we are not supposed to fish under their (the developer's) jetty bridge. They do not want us to fish within their area, they're not happy when we go there. That's why if we want to go there, we have to go there secretly, use the unlawful way, but that was the area where we used to carry out our fishing activities.

However, a random chat with a few big boat operators showed that this is not the entire truth. Big boat operators admitted that they have indeed hired many foreign workers, but it is not merely because they are 'cheaper'. Foreign workers are favoured over local fishermen mainly because each fishing trip takes more than 3 days, this gives the foreign workers an added advantage, since the local fishermen have their own family commitments that require them to come home on daily basis. Moreover, the big boat operators shared their challenges of having foreign workers in relation to obtaining work permits, commenting: "I would rather hire local workers if they are as committed as the foreign workers, why take all the trouble of hiring foreign workers?"

In terms of fishing methods, only a fifth of respondents agreed that they have multiplied their fishing methods to increase income generated or to gain consistent income. When checked against their educational background, one is a college graduate while the other two are high school leavers, i.e. they possessed a higher level of education compared to the rest. This seems to agree with Abu Hassan et al. (2011), who reported that there is a direct relationship between educational achievement and application of knowledge in decision-making, i.e. those with a higher education level are more willing to adopt new fishing methods and tend to have a greater exposure to the various methods.

Case	Transcript from interview (translated from Malay)
Goh/5	I only used to trawl, but now I use crab-traps too, (then I managed to) gain a bit more (income) when the weather's poor.

On the other hand, two respondents agreed that they have changed their fishing method from multiple methods to using only one method, because they were approaching retirement as fishermen. This is in line with Eneyew & Bekele (2008), who reported that there is a negative relationship between age and a farmer's decision to intensify or diversify, i.e. the farmer's participation rate in intensification and diversification decreases as their age increases. Other researchers have reported the same observation in other fields of enterprise (Barret, Reardon and Webb 2001; Rao 2007).

Hence, it is noted that most respondents have not changed their fishing methods, let alone multiplying it, with most agreeing that they did not change, since they were not interested in other fishing methods. Warren (2002) suggested that intensification might be an ideal solution to cope with population growth, the market economy, socio-cultural change and modernization of rural society at large, but this does not seem applicable here. One interesting fact to note is that regardless of whether the respondents had intensified or not, half of the respondents agreed that

their present incomes were less than at the start of their careers in fishing, whilst the rest found that their incomes were influx, not steady. This is not consistent with research done by Kasperki and Holland (2013) where intensification reduced variations in annual incomes.

***Livelihood Diversification***

*Finding 6: Most respondents indicated that they do not have any other sources of income, nor do they have unused resources to generate extra income*

60 per cent of the respondents agreed that they do not have any other source of income, while 40 per cent indicated the other way round, despite not having enough or a steady income from fishing activities. This situation can be explained through six out of seven determinants of livelihood diversification choices suggested by Warren (2002). The reason for excluding the seventh determinant, i.e. gender relationship, is mainly because fishing activities are in the main dominated by males, few women are engaged in fishing as a regular job.

*Availability of key assets*

Key assets include savings, land, labor, education and access to the market or employment opportunities, access to common property, natural resources and other public goods, etc. (Dercon & Krishan 1996). In this research, eight of fifteen respondents agreed that they have not been diversifying, because they do not have enough capital. For example, a respondent explained in detail that he wants to diversify into engine repair work, but the costs of starting a repair workshop are too high and he does not have enough space in his backyard to set up such a shop.

Case	Transcript from interview (translated from Malay)
Fai/12-13	Yes, no resources. Because I've learnt about (handling) an engine for a long time, I studied in MARA when the institution was active in Lekir. But ever since I came back from there, I couldn't find an appropriate space. I can do the work, but there are no facilities available. I can't occupy other people's space, and I can't keep it in my backyard as it is not safe. (What about renting a shop lot nearby?) Yes, there are (shop lots) available in town, but I can't afford it, the rental itself costs RM3000, so how to manage my capital? Costs of rental are high here. We even missed meals at times (*laughing), paying more rent, we can't (afford).
Khai/49-51	We can sell one sampan at RM7000, and I would say the costs (of production) are about RM2000. We can earn RM5000 from that. It's workable, but there's no space, we even have our company name registered, but all the land here belongs to the Chinese, its theirs, (*pointing to the terraced houses), even that (piece of land) belongs to them. We tried applying, but we never got it.

In terms of human capital, 80% of the respondents mentioned that they do not have any skills or knowledge to generate income from other

areas of expertise, with only two respondents saying they are willing to try something new if they are trained to do so. The remainder stood firm in their view that they are not willing to try anything else. This is in line with the other responses they have provided, i.e. only a third of the respondents have attended courses organized by LKIM or Fishermen's Association. However, when asked about the reasons for not attending, none mentioned that they did not attend because of lack of interest; rather it was because they were not informed or selected. Therefore, the right processes have to be in place in order to strengthen the contacts between the authorities and the coastal fishermen community (DFID 1999).

On the other hand, a very few respondents indicated that they had tried diversifying before, i.e. worked as a contract worker, produced handicrafts, and worked in the hotel industry. However, it did not last long, since they are used to the lifestyle of a fisherman and are not accustomed to fixed working hours.

Case	Transcript from interview (translated from Malay)
Mus/12-14	Handicrafts, yes, I did something, but not anymore ... I used to make puffer fish. I made it last time, but not anymore, mainly cause it's difficult to get the raw material ... I'm already pretty old. It is not about whether it can sell or not, but it is difficult to obtain the materials. But if there is an order, I can still do it.

#### *Maximization of return per unit of labour*

Ellis (2000) indicated that maximization of return per unit of labour affects the choice of diversification, and this is determined by the costs of consumption, as mentioned by Warren (2002). A respondent noted that he used to operate a small fast food stall with his wife. However, the inconsistency of profits generated from there – i.e. not enough to pay for the loan taken up as capital to start the business – forced them to quit the business. In other words, inconsistency in the returns generated as compared to effort/input required functioned to discourage the respondents from attempting diversification.

However, there were differences in opinion regarding this among the fishermen respondents. Two other respondents mentioned that they are still putting some effort into operating their food stall even though profits generated from it depended largely on demand from local fishermen or tourists. A respondent who operated an ice blending stall mentioned that they would be doing even better if the authorities could provide them with a mobile kiosk. The other respondent, who is already using a kiosk provided by the local authority, mentioned that they were saving money to expand their small kiosk. Even though one respondent took a passive action, while the other took some active step, both showed that some

respondents agree that diversification helps in increasing income, despite inconsistency in the return per unit of labour.

A few other respondents seem to be successful in generating a fixed income from other industries, such as cleaning and hospitality. These incomes are minimal, i.e. RM500 per month, as it did not seem they are maximizing rate of return per unit of labour expended. However, the same respondents believed that the income received helps to cover fixed expenses which might not have been supported by their fishing incomes alone. In other words, this finding conforms with Warren (2002), in that costs of consumption and seasonality will determine decisions of diversification.

However, as mentioned in Finding 2, most respondents chose to postpone expenses or resorted to using their minimal savings to cover costs of consumption instead of generating extra income. As mentioned by Warren (2002), if food is available or can be self-produced, i.e. in this case from fishing activities, it might prevent the respondents from engaging in other income-generating activities.

Case	Transcript from interview (translated from Malay)
Iza/35	I do some cleaning job in the hotel, which earns me RM500 per month, at least it's enough to pay off some bills and the rent.
Man/40	Yes, a kiosk provided by the Azam Niaga, I'm using it to sell some snacks at the beach ... but it's hard (to do business) during the rainy season, that's why I am trying to save some money to buy a giant umbrella, so when it rains, my customers can still sit under the umbrella.

### *Risk management*

According to Warren (2002), there is a direct relationship between level of risk and one's decision to seek second best income-generating alternatives. In this research, as mentioned in Finding 4, there are various risks associated with fishermen. However, those risks do not seem to work as a motivator for the coastal fishermen to venture into other jobs. Most respondents indicated that even though they acknowledge the risks, they would still venture out to sea as that is their only source of income. Despite that, the respondents still attempted to minimize the risks by relying on their own experiences and acquaintance with the sea, as well as relying on information provided by other fishermen regarding weather conditions, marine activities, etc. This finding concurs with Quang and Leung (2009), who concluded that fishermen tended to be less sensitive towards the weight of risk, instead, they will choose to adapt to their unique environments by making appropriate decision under uncertainty, i.e. seasonality.

### *Strengthening the household asset basis*

Slightly less than a third of the respondents indicated that they will save

for their children's education if they have extra income. These respondent savers have been found to be diversifying their source of income in some ways, which include contracting work, engine repairing on motor boats, cleaning and operating their own business. At the same time, they do not wish that their children have to be fishermen like them, unless it is just as a hobby. These respondent savers also mentioned that they will save extra income generated for future investment. This goes to show that these respondents are preparing to strengthen their household assets through diversification of income, and preparing their children for a more favourable income generation pathway.

Case	Transcript from interview (translated from Malay)
Xi/6,19&21	(If I have extra income) get new netlah ... (income) it's still ok, but if really not enough, then I'll have to look for other sources of income, because sometimes we get to harvest a lot, sometimes not much. I don't encourage (my sons to be fishermen), but they're interested (haizz) ... but if they really like it, then I won't stop them either.

### *Opportunities*

According to Warren (2002), a person will be encouraged to diversify one's sources of income if opportunities are in place. However, this is not entirely true in the light of the present study. Pulau Pangkor is well-established as a tourist destination, attracting a sizeable number of visitors. In other words, opportunities in the tourism industry are available. However, 40% of the respondents are not generating income from other sources for various reasons as discussed in the previous findings. Therefore, this research has included the willingness to change as part of research questions in order to investigate whether personal attitudes might prevent respondents from taking up opportunities available and achieving their sustainable income aims.

### *Identity and vision of the future*

Even though Warren (2002) indicated that identity and vision of the future might shape one's diversification decision, this research was not able to identify a clear direct relationship between diversification decisions made and the respondents' views about the future. For instance, 45% of the respondents who have diversified their sources of income anticipated an improvement in their livelihoods in the ten years' ahead, while another 45% thought that their livelihoods would get worse over the same time period (responses presented in the previous findings). This needs to be further researched.

**Livelihood Outcomes**

*Finding 7: Most respondents are satisfied or somewhat satisfied with their current livelihood outcomes*

A third of the respondents indicated that they were satisfied with their current livelihood status, while 53% of respondents noted that their current livelihood status was manageable. However, this information alone might not be enough to reflect their actual state of mind, since most of the respondents in these groups mentioned that they were clueless as regards their future livelihood status. At worst, they were expecting their livelihoods to worsen in the next ten years.

According to DFID (1999), livelihood outcomes are the achievements of livelihood strategies. Therefore, research should not assume that maximization of income reflects the achievement of livelihood strategies, the only element of livelihood outcomes, nor the only way to measure the status of sustainable livelihoods. However, as the main coastal fishing activities often do not generate a stable income and are also exposed to various kinds of risks, it can leave a family vulnerable (Betcherman & Marschke 2016). As none of the respondents mentioned that income was enough to cover their expenses (Finding 1), it is clear that there is a definite direct relationship between income (as one dimension of livelihood outcomes) and livelihood status.

In addition, finding 4 clearly discussed that the respondents do not have a long-term plan which can be used to achieve other elements of livelihood outcome, such as increased well-being, reduced vulnerability, improved food security, or sustainable use of natural resources. This further shows that the increase in income is the main priority of the respondents, which supports the research objective of focusing on sustainable income in this study.

Case	Transcript from interview (translated from Malay)
Fai/25	Well, I'm not really satisfied (with my current livelihood status). We have our wants too, we want to take children out for a holiday, want to spend a bit more time with them. But we can't do much. We can go to some places nearby (for holidays), and stay in a relative's house, because a hotel is expensive and we have a tight budget.
Man/45	Our standard of living is OK now, enough for our meals, but we want our children's standard of living to be improved, that's why we tried to earn as much as possible for them.

*Finding 8: Most respondents believe that their livelihood status will worsen*

A third of the respondents indicated that their livelihood status will worsen, 12% said it will improve, 6% were not sure but hopeful that it will improve, 12% said it will improve if the right resources are in place, 12% mentioned that it will remained unchanged, while 25% have no idea how

it is going to be in the next ten years ahead.

To summarize, the majority of respondents were not putting high hopes in their future livelihood status, which caused them to discourage their children from taking the same life path as a vocation. This tendency, if allowed to materialize, could be disadvantageous for Malaysia, because fishing output from Perak, particularly from Pulau Pangkor, contributes significantly to the country's fishing output. This finding has indicated the important role of the local authority and LKIM in facilitating the expansion of the fishing industry through the appropriate initiatives, some which have been mentioned under Finding 6.

### Conclusion

The DFID Sustainable Livelihoods Framework has been utilized in this article as a basis for analysing the livelihoods of the community of coastal fishermen in Pulau Pangkor. The research findings provide a grounded insight into the livelihoods status of the community and will allow policy makers and other relevant authorities to identify what intervention strategies are needed and how they can work best in the particular situation (Farrington, Carney, Ashley, & Turton 1999).

Nonetheless, this research has dealt with a small sample, bearing in mind time and cost constraints. Although data was collected from fishermen in the study area, the small sample cannot represent the entire fishing community in Pulau Pangkor. Further quantitative data collection and analysis from a wider sample needs to be done. Moreover, the findings are limited to the time frame during which data was collected, based on the experiences and perceptions of the community during that period of time. Future research may discover different types of experiences and changes in perceptions. Moreover, there have been significant efforts underway to make Pulau Pangkor a "leading world-class island destination for tourism" within a "structured and purposeful development plan for the island" (Calyn 2019), including duty free status for the island effective in stages from January 2020 (Kaur 2020). This will also impact on fishermen's perceptions and actions in terms of livelihood sustainability and diversification options. The COVID-19 pandemic 2020-21 has put those plans and that growth momentum on hold to some extent. Hence, more detailed research is needed to generate a better understanding of the community before any policy is implemented.

### Acknowledgments

The researchers wish to acknowledge financial support provided by the University of Malaya under ESRC research grant RP009G-13SBS,



which enabled the successful implementation of this and other related research work on Pulau Pangkor.

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