

**SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACTS OF FISHERIES
SUBSIDIES IN MANJUNG, PERAK**

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ABSTRACT

Fisheries subsidies play a role as the aid incentive to the fisherman, especially to the small scale fishermen. However, subsidies to fishermen not allocated properly to fisherman who was supposed to receive it. The granting of fish subsidy should continue because it is able to contribute to the socio-economic improvement and fishermen to improve fishing catches in the fisheries activities carried out. The granting of this subsidy contributed to an increase in revenue the fishermen and help fishermen in terms of activities carried out. A study conducted to see the existing dimension relationship between socioeconomic and environmental for the fisherman in Manjung, Perak. The objective of this study was reviewed the subsidies given to fishermen as fuel subsidies and other incentives received fishermen, evaluating the notion of fishermen on fishing activities and the acceptance of subsidies and provide guidance in the future regarding fisheries subsidies towards sustainability and food security. The empirical model is used in this study to achieve the objective of the study by using the descriptive analysis and the multiple regression analysis. The result of the empirical analysis provided evidence of the relationship between the implementation of incentives, such as the fish catch incentive, the livelihood allowance subsidies it has given the increase to income of fishermen. The study questionnaire fisherman perceptions fisheries subsidies for this study shows that all respondents are satisfied with the provision of incentives in the form of subsidy by the government. This implies that in the future in fisheries sector subsidies must be submitted as an incentive to fisherman and as policies that assist fisherman in Malaysia.

ABSTRAK

Subsidi perikanan memainkan peranan sebagai insentif bantuan kepada nelayan, terutamanya kepada para nelayan skala kecil. Bagaimanapun pemberian subsidi kepada para nelayan tidak diagihkan secara sempurna kepada golongan nelayan yang sepatut menerimanya. Pemberian subsidi ini perlu diteruskan kerana ianya mapu menyumbang kepada peningkatan sosioekonomi para nelayan dan meningkatkan hasil tangkapan nelayan dalam aktiviti perikanan yang dijalankan. Pemberian subsidi ini menyumbang kepada peningkatan hasil para nelayan dan membantu dari segi aktiviti yang dijalankan. Kajian yang dijalankan bagi melihat hubungan dimensi antara sosioekonomi dan alam sekitar bagi nelayan di kawasan Manjung, Perak. Objektif kajian adalah mengkaji subsidi yang diberikan kepada nelayan seperti subsidi bahan bakar dan juga insentif lain yang diterima nelayan, menilai tanggapan nelayan mengenai aktiviti perikanan dan penerimaan subsidi dan memberi petunjuk di masa hadapan mengenai subsidi perikanan terhadap kemampanan hasil dan keselamatan makanan. Model empirikal yang digunakan dalam kajian ini untuk mencapai objektif kajian dengan menggunakan analisis deskriptif dan analisis regresi berganda. Hasil kajian soal selidik nelayan mengenai persepsi subsidi perikanan bagi kajian ini menunjukkan bahawa kesemua responden berpuas hati dengan pemberian insentif berbentuk subsidi oleh kerajaan. Ini menunjukkan bahawa di masa hadapan dalam sektor perikanan perlu disertakan subsidi sebagai dasar yang membantu para nelayan di Malaysia.

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CHAPTER 1

INTRODUCTION

1.0 Background of the Study

Subsidies are one kind of the transfer payment that government given indirect or direct to the private sector from the public sector. Subsidies in term of the benefit, given by the government to the groups that are usually in term of the cash payment or the tax reduction. Subsidies defined as payment to producers from the government, usually in the form of a cash grant to reduce the price of the product that has been sold. Its call as the side of economic benefit and it's the financial aid by government as support all activities that maintain the price low respect the character of subsidies to reduce market price (Code *et al.*, 2000). Fishery subsidies are financial payments that help the sector make more profit than it otherwise would which from public entities to the fishing sector. Subsidies have gained worldwide attention because of their complex relation to trade, ecological sustainability and socioeconomic development (Bottom, Re, Of, & Subsidies, 2006).

This subsidy is the kind of the government transfer payment, whether direct and indirect payment from the government to the industries, such as fisheries sector. Fisheries subsidies identified as beneficial subsidy programs that lead to investment in natural capital such as fish stocks. Overexploitation and remove the ability of the fishery to be sustainable in the long term happen regarding to the disinvestment in natural capital assets which identified by capacity-enhancing subsidies. Further on

fisheries subsidies is an ambiguous subsidy are those whose impact are undetermined and could lead to either investment or disinvestment in the fishery resource (Heymans, Mackinson, Sumaila, Dyck, & Little, 2011).

Studies on the economic assistance provided to the fisheries sector, the OECD's Committee for fisheries noted had identified the assistance that had given to the fishermen. Direct payment are transfers from the government under the government budget directly paid to the fishermen which not to cut the cost of fishermen but more to increase the income of fishermen. Operating cost that become burden to fisheries was covers by government that giving the cost-reducing transfers to reduce the cost of fixed capital and variable inputs (Breu, Guggenbichler, & Wollmann, 2008).

Looking forward to fisheries sector the subsidies towards fisherman to help them expand their activities and getting more profit from this sector. The reduction of the price fuel to fisher will benefit them and increasing their benefits in their socioeconomic and also their fisheries activities (Hapter *et al.*, 2006). The more reduction in their fuel price will be more fishing activities and make more profit when more fish there will be.

Subsidies to the fishing industry in Malaysia were first introduced in the early 1970's through a poverty eradication scheme for small scale fishermen. Through this scheme the government provided direct assistance to individual small scale fishermen. Some are known the subsidy programs were livelihood subsidy, catch subsidy and fuel subsidy (Kahn, 2005).

1.1 Basic Information of Manjung District

The total area of Manjung districts amounting to approximately 1.1689 km² and according to the Manjung district administration. Is divided into six districts which are: Sitiawan district, Lumut district, Lekir district, Pulau Pangkor district, Pangkalan Baharu district, and Beruas district.

Regarding to the fisheries activities, of the 6 districts, appearing in the Manjung district five sub-district, namely Sitiawan, Lekir, Lumut, Pangkor and Pangkalan Baharu has a beach.

1.2 Sea Fisheries (Catch)

Table 1.1: Sea fisheries (catch)

Year	Number of commercial fishermen	Number of traditional fishermen
1999	1,749	725
2000	1,686	743
2001	1,715	732
2002	1,597	639
2003	1,562	581
2004	1,976	1019
2005	1,530	928
2006	1,510	938
2007	1500	920
2008	1490	900

Source: Department of Fisheries, Perak.

The table shows the Manjung district fisheries sector. Additionally, the number of traditional fishermen and commercial in the same district. The fisheries sector is not expected to be able to capture enhanced landing as the number of commercial vessels decreased from 2002 to 2004 and is expected to persist.

1.3 Problem Statement

When the government introduced the New Economic Policy (NEP) in 1970, the function of the Department of Fisheries assigned to rising poverty and restructuring the fisherman community. Second Malaysia Plan (1971-1975) and Third (1976-1980), RM96 million was allocated to the department of fisheries to help fishermen getting their own vessels, engines and trawls through the fisherman subsidy scheme. The fisheries infrastructure was allocated about RM45 million. The fully equipped for development and effective fisheries resource management was getting through the licensing policies that introduced by the Department of Fisheries in year 1982, (Department of Fisheries, 2014).

Subsidies that are given by the government to fishermen have an objective to increase the standard of living of the fisherman, especially for small scale fishermen. The fishing activities using many types of fishing equipment and the cost of operation, high as well further become harder to fishermen to increase their well-being if there is no aid support by from government. The small scale of fishermen cannot compete the large scale fisherman, since they have limited capital expertise and market power. Constraints exist against an increase in revenue to reduce the

sustainability of revenue and food security of the fishermen. Constraints that exist can be overcome by giving additional incentives such as subsidies to fishermen.

The support given by Malaysian government to fisheries sector will affect to fisherman welfare. The government hope that the assistance given will increase the fisherman income and their socioeconomic condition. With the support of the government, their profit from fisheries activities will increase and reduce the level of poverty. However, it is not proven that policy can increase profit and socioeconomic conditions of fisherman regarding to the existence of the small scale fisherman among the fishermen communities in Malaysia. The development target by state, Perak, mention of the encourage sustainable development in term of fisheries. The economic situation among small scale fisherman much different with large scale fishermen and the extent of subsidies to help small scale fishermen this increases income and catch fish collected. Perak Fisheries Department also noted a few things that need to be addressed in the area of fisheries in state of Perak such as exposed to flood, high investment cost and high value species selection.

Regarding to the importance of subsidy by the government, it is interesting to study impact of subsidy on the well being of fisherman. The catch revenue by fisherman can be increased and with subsidy policy can reduce the burden from the high price of fuel, which is one of the significant cost of fishing activities. As the tools of government in reducing the poverty it brings significant to many sector as well to the society. However, how the small scale fisherman situated in the study area, get the benefit of fuel subsidy is very interesting to study.

1.4 Research Question

Consistent to the discussion so far, there were some the following question. Research questions have to be answered regarding to the fish subsidy in the fishery sectors, follow as:

1. How much do fuel subsidies and incentive contribute to fishermen in Manjung Perak, Malaysia?
2. What are the perceptions of fishermen towards subsidies policy?
3. How to reform fuel subsidy policy and redirect funds towards promoting sustainable livelihoods and food security?

1.5 Objective of the Study

We need specific objective in order to verify the problem, subsidies not only helping the developing fisheries sector in order to evaluate the socioeconomic and environmental impact of fisheries subsidies to the fishing sector in Manjung, Perak. Some of specific objective in this study area:

1. To examine quantity the contributions of fuel subsidies and incentive to the welfare of fishing communities.
2. To evaluate the perception of fishermen towards subsidy.
3. To provide directions for fisheries subsidies policy that will redirect funds towards promoting sustainable livelihoods and food security.

1.6 Significant of Study

It is described that the present study would be significant to academicians and in several ways. By using some indicator as composed to the impacts of subsidies that effect on socioeconomic and environmental, that study can identify how the fisherman performance on each dimension (fish stock, fleet capacity, fish activity and job security). The finding of this study can be used to know the contributed of the subsidies to the fisherman welfare and helping policy makers to set the best strategy to fisherman communities such as the fuel subsidy program.

1.7 Scope of the Study

The respondent of this study is the small scale fisherman from a fishing village in Manjung, Perak. Forty-four fishermen in age between 33 to 70 years old were selected for this study.

CHAPTER 2

FISHERIES SECTOR

2.1 Background fisheries sector in Malaysia

Fisheries sector being faced to two major contributors in providing a source of protein food, in fact important to the economic development of the country and contributed to state revenue. This economic opportunity opening more chanced to Malaysians in generating their income. This fisheries sector plays the important role in the nation's economy. This field fishery had stripped next opportunity to 89,442 people fisherman recorded in the year 2012. Field fishery contributes almost a big part to national GDP like year 2004 total 1.73% and 1.35% in previous years. Fisheries sector in year 2004 produce 1.54 million metric of tone fish production, namely an increase of 3.64% compared to the previous year. Increase in year 2009, produce production of 1.87 million metric of tone. Number of fisherman show were increase a total of 125,632 fisherman logged at year 2009 an increase of 14.45% compared to the previous year only 109,771 people in year 2008 (Department of Fisheries Malaysia).

Fisheries sector could be categorized to marine fish (sea) catch sector and aquaculture sector. Fisheries sector, coastal in the year 2003 has become a major contributor in catch country's fish of 1.08 million metric of tone namely totaled 73.07% of total fish production. In year 2010, Subsector fishery had produced 1.77 million metric of tone fish, namely increase of 3.777% compared 2009 namely such

as 1.71 million metric of tone. While terms of value showing a decline of 23% in that same period, namely such as RM6, 579 million, compared RM8, 546 million in year 2009, Catch fisheries field and respective aquaculture contribute as much as 1.42 million metric of tones and 362,155 metric of tone to nation's fish production.

Output value from other fisheries as subsector economic result is recorded and contributed to nation's fish production. As much as 26% nation's fish production contributed by marine catch fishery that fall into marine fishery coast and fishery deep sea. Production from aquaculture has shot up to 362,155 metric of tone, namely increase of 7.93%, compared 333,450 metric of tone in year 2009. Production seaweed has recorded increase in 138,897 metric of tone compared 138,855 metric of tone in year 2009, namely increase as much as 0.03%. Ornamental fish production had dipped to 341.6 million bats compared 561.4 million bats year 2009, a namely decline of 35.7%.

Table 2.1 reported the finding number of the fishermen and the vessel for the period from 2005 until 2012. From this finding, we can see the number of fishermen increased every year. In the year 2005 about 59,172 fishermen and this amount increased to 89,442 numbers of fishermen in the year 2010. The number of vessels licensed own by fishermen increased as well for the same period. In the year 22,041 vessels increased to 31,597 vessels in year 2010.

Table 2.1: Number of fisherman and vessels (2005-2012)

Year	Number of Fisherman (People)	Number of vessels licensed
2005	59,172	22,041
2006	62,748	23,483
2007	66,732	24,161
2008	72,496	25,476
2009	83,873	30,498
2010	88,242	31,592
2011	88,429	31,474
2012	89,442	31,597

Sources: Department of Fisheries

2.2 Department of Fisheries

The establishment was under the Ministry of Agricultural and Agro Based Industry Malaysia as one of the important to develop and manage the fisheries sector. This department also makes the research which relates to scientific research, economic production and adapting technology. The earlier before, this unit is responsible to control the fisheries activities in states along the Straits and Allied Malay States. At that time the fisheries activities were just in small scale and not popular as one the activities to earn money. After more years, many of the settlers earned living through fishing. In 1909, the 'Fishery Ordinance' was introduced to control the activities along the coast (Department of fisheries Malaysia). Efforts to develop and expand more of the fisheries sector and through the Department of fisheries.

The main focus Department of Fisheries was to protect the fisheries resource, increase the total catch and create many more products from fish resource. Before this after independence, the Malayan Department of fisheries was known as the Federation of Malaya Fishery Section. The function of its focusing more on fish farming, production and other technology relate to the fisheries sector.

When the government introduces the New Economic Policy (NEP) in 1970, the function of the Department of Fisheries was assigned to rising poverty and restructuring the fisherman community. Second Malaysia Plan (1971-1975) and Third (1976-1980), RM96 million was allocated to the department of fisheries to help fisherman getting their own vessels, engines and trawls through the fisherman subsidy scheme. The fisheries infrastructure was allocated about RM45 million. The fully equipment for development and effective fisheries resource management was getting through the licensing policies that introduce by the Department of Fishery in the year 1982 (*LKIM, Malaysia*).

The objective Department of Fishery regarding to the sector of fisheries, is more on to develop more fisheries sector and improve of fisherman living. It is respect with the vision unit to be a leader in the transformation of a sustainable and competitive fishery. First by the objective is to realize the production of 2.6 million tones food fish through a contribution of 1.8 million of tones from capture fisheries and 0.8 million of tones from aquaculture. The objective of the transformation program by the department of fisheries was to increase tries to achieve the annual growth rate of seaweed and ornamental fish production. Furthermore, by the year 2020, increase private investment to RM10 billion in fisheries sectors. All the principle activities of the department through better and proper governance attain the ISO certification by the year 2015. About 10 of new technologies will be developed and commercial of the year 2020. The last objective to ensure the minimum monthly income of the fisheries target group is more than RM1500 (*LKIM, Malaysia*).

CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

Studies had been done by other researchers suggested that fisheries subsidies contribute to the overexploitation of resources through excessive fishing effort. The evidence also suggests that subsidies if effectively utilized can improve resource conditions and livelihood of those depend on this resource. The knowledge on subsidy towards livelihoods of fishers is important for policy makers (Code *et al.*, 2000).

The main motivation for reform of subsidy in fisheries is that the present scheme contributes to resource over exploitation. Economic literature on subsidy shows that fisheries subsidies lead to increasing fishing effort and overexploitation of fisheries resources (Hapter *et al.*, 2006). The crucial issue is that subsidies generally motivate fishers to exert more fishing pressure and therefore the attainment of sustainability and conservation goals almost impossible to achieve (Heymans *et al.*, 2011).

Milazzo (1998) has drawn a distinction between ‘good’ subsidies which lead to reductions in fishing capacity, ‘bad’ subsidies are those that add directly to capacity and ‘ugly’ subsidies are defined as subsidy programs that lead to either investment or disinvestment in the fishery resource. Milazzo highlighted that ineffective management is the fundamental cause of over-fishing. However, there is

considerable debate on what can be considered a ‘good’ subsidies (Bottom *et al.*, 2006). A number of empirical studies investigated different categories of subsidies. Khan *et al.* (2006) identified and categorized the various types of fishery subsidies with a focus on the worldwide fisheries policy. They estimated that out of a total of US\$26 billion worth of subsidies, about US\$15 billion were bad subsidies that increased fishing capacity, approximately US\$7 billion were good subsidies and the remaining US\$4 billion were ugly subsidies.

3.1.1 Types of Subsidies

Generally subsidies are provided directly to fishers in various forms, including grants, loans and loan guarantees, equity infusions, tax preferences or exemptions, and price or income support program (Clark *et al.*, 2005; Khan *et al.*, 2006). The effect of different categories of fisheries subsidies is difficult to measure (Schorr 2005). It is believed that the increase in fuel prices will reduce overcapacity, but the key difficulty is that it will drive marginal fishers out of fishing (Hapter *et al.*, 2006).

Several countries, including Malaysia increased fuel subsidies due to a rise in fuel prices that can affected by the cost of operation by fishermen. However the decision to provide fuel subsidies has a negative impact on the environment. Pauly *et.al* (2006), have highlighted that fuel subsidies are among the most damaging in terms of the environment as fuel subsidies generally promote the use of fuel-inefficient technology and increase fishing effort (Sumaila *et al.* 2006; Sumaila, 2008).

3.1.2 Subsidy Policies

The Organization for Economic Cooperation and Development (OECD) has provided comprehensive literature on fisheries subsidy which suggests that subsidy policies create an economically and environmentally damaging culture that are usually difficult to eliminate. Policy options should clearly identify the needs of the society. Poor enforcement of fisheries management and ineffective use of subsidy will have undesirable economic, environmental and social effects, hence there is a need to reform the existing subsidy policies (Sumaila, Teh, Watson, Tyedmers, & Pauly, 2008).

The Asia Pacific Economic Cooperation (APEC) has gathered comprehensive data on fisheries subsidies of 19 APEC member economies (Ru, Subsidies, & Idies, 2004). Most of their subsidies were used for management and conservation, and capital and Infrastructure development. The study concluded that although subsidies are designed to enhance fish stocks, or vessel buyback programs designed to constrain fishing efforts, there is no guarantee that these will result in sustainable fisheries. Bottom (2006) has found that the consequence of subsidy reduction in the fisheries output depends on the economic conditions and fisheries management regimes in different countries. He suggested that the World Trade Organization (WTO) should be careful in examining the effects of reducing subsidies on the incentives of fisheries workers before designing new regulations. Pauly *et al.* (2002) have argued that strong reduction of subsidies can ensure reduction of fishing capacity. The difficulty in remove subsidies is due to the lack of international cooperation and fishing access agreement among developing countries (Sumaila *et al.* 2006).

3.1.3 Welfare effects of Subsidies

Alder and Pauly (2008), Abdullah and Sumaila (2007), Hemans *et al.* (2011) and Mondaca (2011) have addressed welfare effects of subsidies on fishing communities. They stated on the key difficulty in assessing the impacts of subsidy is that their aims, objectives and intended benefits vary between the communities. Alder and Pauly (2008) have addressed that there is a lack of consensus on the priority of subsidies. Abdullah and Sumaila (2007) have addressed that government policy on subsidies promotes overexploitation of fisheries that will affect the nutritional requirement future generations.

Subsidies have important implication for marine fish resources and livelihoods of fishers. Heymans *et al.* (2011) found that the policy on subsidies has influenced fishing effort, economic and social contribution to the well-being of European fisheries. The distribution of various types of subsidies is useful in identifying the community who derives benefits from this program Mondaca (2011) has addressed the issue of inequitable distribution of subsidies among small scale fishers. They argued that subsidy schemes are often not related to socioeconomic need or poverty; rural areas receive less investment than their urban counterparts. Their study found that subsidies benefit rich people because the poor people do not get equitable benefits from subsidies (Vagliasindi, 2012).

Several studies on subsidies have focused on the role of the World Trade Organizations (WTO) in influencing global fisheries trade. Although the WTO influences global trade policy, it lacks legitimacy. However the legitimacy of the WTO depends on the economic interests on how its actions and policies contribute to

improving the lives of poor communities, particularly in the South (Hapter et al., 2006). The World Wide Fund for Nature (WWF) has addressed the institutional role and strength of the WTO and proposed new fisheries subsidies rules to be improved in the WTO with institutional mechanisms (David Schorr 2004).

Fuel subsidies are more controversial since they are particularly important for many developing countries (Heymans et al., 2011). Subsidies to artisanal fisheries deserve special treatment under WTO fisheries subsidy disciplines. Both developed and developing countries have called for exemptions from subsidies disciplines for small-scale fishermen infrastructure, capital and operating costs. Several studies have addressed that it is crucial for the WTO to understand the position of the negotiating countries to make an agreement on fisheries subsidies (Harper *et al.* 2012). The main challenge for the WTO is to implement subsidy policy reforms and negotiations on rules to eliminate subsidies that cause over capacity, and in achieving sustainable fisheries management (Porter 2002).

3.1.4 Information about Fishing Subsidies

Access to information about fishing subsidies is critical, not only for those seeking to reduce and reform harmful fishing subsidies, but for all stakeholders concerned with fisheries management policies. There is a serious concern that once subsidies are given it is difficult to withdraw because vested interest groups and misguided politicians would influence in favor of harmful subsidies. Actions from both national and international levels, including the WTO should work together in resolving these issues (Heymans et al., 2011). Strong coordination and cooperation of governments and international organizations is required (Anyanova, Ekaterina 2008).

The Southeast Asian region has experienced tremendous fishing pressure. These countries have to take great effort to restore the depleted resource base. Coordination among the member countries would be important; the regional and international bodies such as ASEAN, IPFC, SEAFDEC, World Fish, and APEC could serve as a vehicle for such cooperation (Soegiarto 1994). Peter (2002) addressed that there is less agreement on the classification and assessment of subsidies or on appropriate actions to address them. The policy makers no longer even consider the internal dynamics of the global capture fisheries. The new WTO fisheries subsidies disciplines do not generally consider the risks and vulnerabilities of coastal fisheries in developing countries.

3.2 Impact of subsidies to the fishery sector in Malaysia

Government subsidies that are provided have some impact to the fisheries activities. Government giving the subsidies as the way to reduce burdens that are faced by the fisherman. In term of fisheries subsidies, various categories of subsidies are provided to the fishers in Malaysia which include fuel, monthly allowance of RM200 per fisher, fishing equipment like a boat, net, GPS, jetty for fish landing, scheme subsidy diesel and petrol and other support such as house building. In Malaysia, the negative effect of fisheries subsidy, especially fuel subsidy on the economy has widely been discussed in the media over the past few years. Very few published documents on subsidies are available in Malaysia.

3.2.1 Impact of operation cost

Fuel comprises 70% of the operating cost of fishing. Malaysia has subsidized fuel for 20 years, and spends more than one-tenth of its operating expenditure on fuel subsidies. The negative impacts of subsidy have recently led to a consideration of reform in energy subsidy in the 10th Malaysia Plan (2010 to 2015; EPU, 2010).

Since June 2006, the Malaysian government has started providing coastal fishers with subsidized petrol at RM1 per liter, a subsidy of RM0.92 (US\$0. 25) (New Straits Times, 2006). However, fishers from three fishing settlements in Malaysia have not been able to go out to sea as often as they used to because of the increased diesel price (New Straits Times, 2005). Compared to the total value of landings (yearly average of RM 9.11 billion or USD 3 billion) the yearly fuel subsidy represented around 8% of the total value of the catch. In Malaysia government expenditure had increased from RM 4.3 billion to RM 205.5 billion over the period 1974 – 2012 while subsidies increased from RM 25 million to RM 44 million during this period (Ministry of Finance Malaysia).

3.2.2 Illegal activity on fuel subsidy

It is widely accepted that some fishers in Malaysia have abused the subsidized diesel by selling this fuel to the other neighboring countries such as Thailand. It is estimated that for a purse seine fisher who gets a monthly quota of 30,000 liter of subsidized diesel (depending on the size of his boat), he could make a profit of RM24,000 by selling the diesel without having to go out to sea. Policy options that rely on cheap energy inputs and delays in subsidy rationalization pose a significant

threat to Malaysia's continuing economic competitiveness in the region (Hamid and Rashid 2012).

There is excess capacity in fisheries and fisheries resources are in general over exploited in Malaysia. More than 125,000 people are working on various fishing vessels (DOF, 2010). In addition, about 25,000 people are working on aquaculture farms. Marine capture fisheries account for about 75% of total fish production (marine landings 1.4 million tonnes). Fisheries contribute a positive balance of trade of RM 601 mil (DOF 2009). There are two main issues of fisheries subsidies in Malaysia: fuel and non-fuel subsidy. Information on the impact of subsidies on fisheries and livelihoods to fishermen around Malaysia being explored. The fisheries sector has always been considered a poverty sector by the Government of Malaysia. Subsidies are used to reduce the incidence of poverty among fishers. Its impact on the resource have however not been systematically studied.

3.2.3 Perception on impact of fisheries

Using 2003 data Sumaila and Khan (2010) study indicated that close to 90 percent of fisheries subsidies in Malaysia are capacity enhancing subsidies which are categorized as bad subsidies as such subsidies are likely to increase fishing pressure and thus lead to further over exploitation of the resource. Current subsidy schemes continue to emphasize fuel subsidies which are basically capacity enhancing subsidies.

Subsidies using to natural resource industries bring more investment into that natural resource sector than would have been made in an undistorted market. Then come out of fisheries activities is more land devoted to agricultural use, more fishing

boats, more coal mining and more processing plants using logs. Agricultural subsidies in OECD countries have increased the area under production at the expense of forests and wetlands (Porter, 2014).

Another investment can be related effect on natural resource subsidies is that make it more attractive to an industry to use technologies that have greater impact on the environment than alternative technologies. This is either because they harvest renewable resources more efficiently or are more polluting-intensive or otherwise disrupt environmental services. The coal subsidies example makes it cheaper in relation to using as alternative energy technologies, including renewable energy, and thus contribute to air pollution and climate change. In such field of agricultural, subsidies provide incentives for farmers to increase massively their use of pesticides and fertilizers in order to increase their yields (Porter, 2014.).

Looking more on subsidies to natural resource industries bring result in lower prices for the resources and lead to over consumption of the good. The over consumption effect is even more pronounced if implicit subsidies are included in the calculation. The combination of explicit and implicit subsidies to the fisheries sector have lowered fish prices and resulted in greater consumption than would have been the case in an undistorted market, which in turn leads to over fishing (Porter, 2014).

The implement of “modernization approached” under the development New Economy Policy (1970-1990) to helping the fisherman under the poverty line, by using the modern equipment and technic in fisheries activities. This implements is increasing their income and not using the traditional way in fisheries activities. The strategies to reduce more poor fisherman include efforts by approach more boat

ownership, infrastructure facilities, R & D in fisheries and others. All of this approach understanding that the fisherman poor is because of their lower productivity (Raduan, Sharir, & Aziz, 2007).

According to the report annually department of fisheries, most of 80 and 90 percent of the total fish collected is under area fishery coast and their over exploitation there. This is showing how effort, increasing the total catching fish effect on the resources extinction. This over exploitation regarding on the increases of boat under approaches of modernisation of fisheries.

Habitat quality is the beginning of research in the management of fisheries. The problem of controlled over fishing, and the failure to adequately account for natural fluctuations in environmental conditions. The decline in the fisheries stock is contributed by one of the main factor which is the lack of protection of habitat fisheries. Ecosystem regarding on the fisheries management is defined as a strategy for maintaining long term sustainability under of regulated human activity (Fluharty, Applications, & Apr, 2014).

3.2.4 Sustainable Fisheries subsidies

Mere decades ago and this recent years, the fisheries management become seriously towards on maintaining fisheries sustainability. The aspect in term of fishery management, which is the first is policies and the action to protect on habitat quality of fish, secondly the reduction on the other component of the ecosystem. Furthermore, the capital investment in term of direct and indirect subsidies, allocation of fish among commercial and recreational users, financial return of fees

of use public resources and lastly decrease in overall harvest of many fish species (Fluharty *et al.*, 2014).

What might be called "accepted" fishery management in theory and practice in the United States is summarized by Wilson *et al.* (1994). State that the principal focus of long-term biological control is on the assumed relationship between spawning stock and recruitment numbers of a given species over the range of the population. Knowledge of this relationship would allow us to utilize long-term sustainable control through manipulation of the amount of fishing mortality of a given species (Fluharty *et al.*, 2014).

On the economic side, in the process of creating the institutions such as ITQs (Individual Transferable Quotas) that assign a portion of the total allowable catch to fishing entities and allow them to be traded efficiently that are consistent with the idea of numerical control and that effectively rate biological concerns. The overall quota or amount of effort it sets of socioeconomic concerns about the fishes for how much can catch (Fluharty *et al.*, 2014).

Fluharty makes some explore on the side of the classical fisheries management, and lots of academic researcher found that whether the fisherman possible to manage the sustainability of ecosystems. There will always be major uncertainties in how ecological systems will respond to management actions and that society must make important decisions in the face of such uncertainty. Politicians, resource managers, and user groups should not, and cannot look to more ecological research as the primary tool to tell them what to do. This is because the first is the rate of learning about ecological systems is slow enough that waiting for better

scientific knowledge scientific to provide iron-clad answers is futile. Second, decisions have to be made now, given current knowledge and finally in many resource systems the only way to learn about their sustainability is to exploit them. This brings them to conclude it is over exploitation of fish stocks is inevitable and often irreversible (Fluharty *et al.*, 2014).

The implications of loss of biodiversity from the fisheries activities had been examined by Boehlert (1996) and conclude that many effects on biodiversity from the marine fisheries are obvious and distinct. The time scale of decades, fisheries change genetic, species and ecosystem diversity from the achievement in natural selection. Some opinion come out that such changes in biodiversity relate to decrease the resiliency of species, communities and ecosystems, happen when the natural perturbations occur on a longer time scale (Fluharty *et al.*, 2014).

United States on the marine environmental issue, relate to the policy response to the marine environment. Preventing over fishing and rebuilding stocks it how the councils set harvest quotas in light of scientific information, uncertainty, and risk. This suggestion had been made fixing the over fishing situations. In the United States Congress set the national program for the conservation and management of the fishery resources, in way to rebuild the stocks and prevent the over fishing. The secure its make to facilitate on long term protection of fish habits and realize the full potential of Nation fishery stock.

The Sustainable Fisheries Act (SFA) of 1996, make on the explain more about over fishing criteria as level or rate on the fishing mortality that risk the capacity of a fishery to produce the maximum sustainable yield. The SFA makes

each fishery management plan must be specific, objective of determining when the fish stock is over fishing (Fluharty *et al.*, 2014).

3.3 Protection of Habitat

Ecological Application Vol.2 stated on mostly the program that build by the government it is main function in the fishery subsidies to protect the habitat as well to develop the fishing activities as well. The federal permit by government its review of the fisheries conducted in such way the protection of habitat. The essential fish habitat mean of those waters is needed by fish for spawning, breeding, feeding or growth to maturity. Regarding to the maximum area at a given time in a year within which the species or stock can be expected to find is refer to the estuaries, rivers and lakes as well with the high sea and the Exclusive Economic Zones (EEZs) (Fluharty *et al.*, 2014).

Fluharty *et al.* (2014) make explore on there are two arguments regarding on Congress in United States of the legislative efforts and the taking approach of ecosystem management. Firstly the ecosystem-based approach depend upon management institutions that at least will demonstrate on the control over harvest rates and the method that are used in the fishing activities. Secondly, interest in changing the fishery management paradigms and coherent ecosystem approach.

The Congress in US by SFA also makes practices on fisheries activities in protection of habitat, which call as “Bycatch and discards”. Its fundamental regarding on the situation, wasting the fish. The catch reduction whether direct or

indirect is such a way impacts on ecosystems, marine biodiversity, target species as well. The term of the ‘economic discards’ it’s the target fish under the fisheries activities and collected and retained because of their size, sex, quality and other economic reasons. Other than that, the regulatory discard means on the fish harvested in a fishery which fisherman are required to discard the sight and retain not for sell under order of regulation. This is the U.S policy, and others that as well in the section that bycatch mean the fish are hareby vested in fishery activities not for sale and kept on personal (Fluharty *et al.*, 2014).

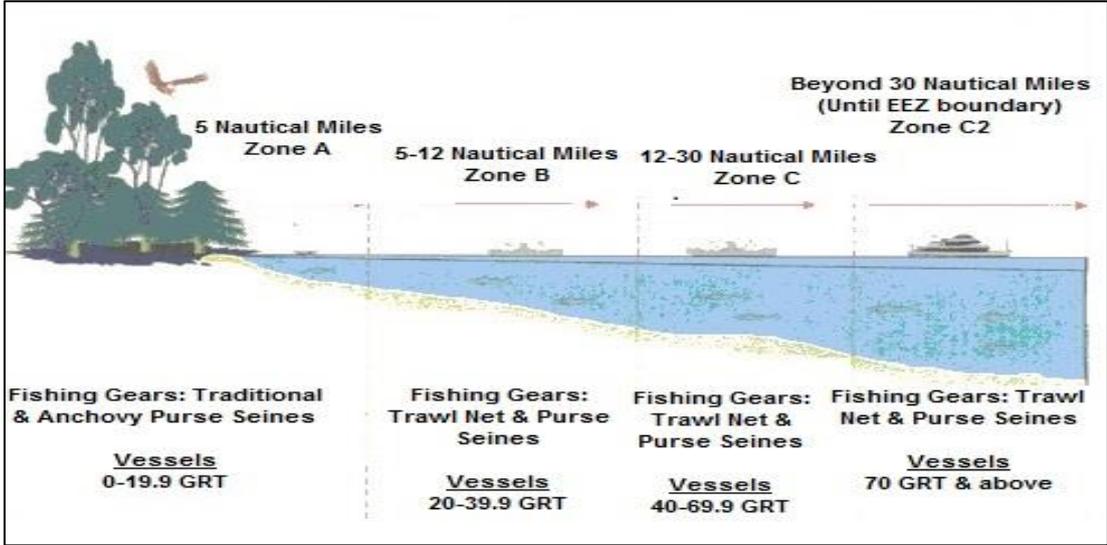
3.4 Types of subsidies and incentives

A whole range of subsidies and support programs are available for fishers in Malaysia. The fisheries subsidy programs consist of a livelihood subsidy, catch subsidy, fuel subsidy, other support programs and infrastructure development. Local fisheries associations (*Persatuan Nelayan*) are responsible for managing these subsidies at the community level. The Department of Fisheries Malaysia is responsible for the registration of fishing boats that entitle the registered fishers to obtain livelihood subsidies. Each boat is entitled to receive livelihood subsidy for two fishers (captain and one crew). Fishers have been provided with cards such as e-diesel or e-petrol cards to receive livelihood subsidy.

In addition, fishers are entitled to receive other support such as loan schemes called “*Azam Tani*” program comprising of six loan schemes: subsidies for boat, engine, fishing gear (net), natural disaster (flood), tsunami, and transformation. Fishers are classified as a poverty group and are targeted by the Malaysia government in the National Policy to reduce national poverty levels. The activities

are focused on agricultural project input such like the agriculture project input giving the grant, trainings and technical advice. This program focuses on poor and hardcore poor category from the *eKasih* System (DOF). So the subsidies and incentives are more focused on the poverty issue rather than the fisheries resource issue.

Figure 3.1: Fishing Zones in Malaysia



Sources: Department of Fisheries (DOF)

Fisheries subsidies are provided to fishing boats operating in the four zones, Zone A, B, C, and C2 (Figure 3.1). Table 3.1 shows the fisheries subsidies and incentives provided in 2013 in Malaysia. Livelihood incentive is provided to two fishers per boat (captain and crew), fishers received RM200 per month.

A catch incentive scheme entitled fishers to claim RM 0.10 per kilogram of catch for zone A, B, and C and RM0.20 per kilogram of catch for zone C2. The maximum catch fishers can claim in the different zones varies between RM150-RM350 for zone A, RM750 for zone B, RM1, 500 for zone C and RM5000 for zone C2. Fuel subsidy is provided for boats with either petrol or diesel engines.

The zone A and B fishers receive both petrol and diesel subsidy at RM1.45 per liter with the maximum petrol limit of 1,560 liters (RM1,014) and maximum diesel limit of 15,000 liters (RM8,250) for zone A and 20,000 liter (RM11,000) for zone B.

Both Zone C and C2 are entitled to receive diesel subsidy at RM1.45 per liter and RM2.00 per liter, respectively with a maximum diesel limit of 28,000 liters (RM15,400) for boats operating in zone C and 32,000 liters for boats operating in zone C2. The types of fishing subsidy and incentive programs in Malaysia are summarized in Table 3.1.

Table 3.1: Fisheries Subsidy Programed by Fishing Zones, Malaysia, 2013.

Subsidy Component	Unit	Zone A	Zone B	Zone C	Zone C2
Livelihood Incentive	(RM/mth)	RM200	RM200	RM200	RM200
Catch Incentive	(sen/kg)	RM0.10	RM0.10	RM0.10	RM0.20
Maximum Catch Incentive	(RM/mth/pax)	RM 150 - RM 350	RM750	RM1,500	RM5,000
Diesel Subsidy	(RM/litre)	RM0.55	RM0.55	RM0.55	RM0.00
Petrol Subsidy	(RM/litre)	RM0.65	RM0.65	RM0.00	RM0.00
Diesel Subsidy Price	(RM/litre)	RM1.45	RM1.45	RM1.45	*RM2.00
Petrol Subsidy Price	(RM/litre)	RM1.45	RM1.45	RM0.00	RM0.00
Diesel limit	(liter/mth/boat)	15,000	20,000	28,000	32,000
Petrol limit	(liter/mth/boat)	1,560	1,560	0	0
Diesel limit	(RM/mth/boat)	RM8,250	RM11,000	RM15,400	RM0
Petrol limit	(RM/mth/boat)	RM1,014	RM1,014	0	0

Source: Sources: Annual report LKIM 2013

Note: Zone A: in-shore; Zone B: off-shore, trawlers and purse seines less than 40 GRT; Zone C: trawlers, purse seines more than 40 GRT; Zone C2: trawlers, purse seines more than 70 GRT.

Zone C2 boats are not entitled to receive super subsidy, but they receive normal subsidy as they can buy diesel at RM2.00 from pump station which is already subsidized by the government.

3.5 Special Allocation

The organizer had received a special allocation from ministries and government about RM578, 654, 705 for the year 2012. This amount of allocation, about RM410, 511, 040 (71%) is to support program incentive by the government. From this amount, about 105, 880, 000 is an incentive for livelihood allowance of fisherman. Other allocated of allocation for catch incentive about RM87, 400, 000. A Program of ‘Azam Tani’ got the amount about RM17, 231,040. Others program that’s getting allocation money is program of housing loan scheme about RM200, 000, 000). This special allocation is reported in the Table 3.2 that showing the comparison with of the year before.

Table 3.2: Special Allocation in year 2011 and 2012

Year	Special Allocation (RM)	Allocation percent margin (%)
2012	578, 654, 705	153 %
2011	228, 898, 231	

Source: Annual Report LKIM, 2012.

3.6 Other Programs (Fisherman Fund)

The fisherman, fund loan is arranged to being prepared the easier fund loan for fisherman to buy boat and new equipment to increase existing boat capacity, loan as capital operation, emergency loan to fisherman and capital for marketing by association fisherman. This fisherman, fund loan program aim to reduce reliance and

middlemen influence in fisherman life. Government through LKIM already provided of subsidy programs for fisherman. There were scheme, in 2012 as loan programs for fisherman under fisher associations (*Persatuan Nelayan*) for this following schemes:

- i. Fishers Institution Development Loan Scheme (*Skim Pinjaman Pembangunan Institusi Nelayan (SPIN)*);
- ii. Commercial Fishers Loan Scheme (*Skim Pinjaman Nelayan Komersil (SNEK)*);
- iii. Inboard Engine Loan Scheme (*Skim Pinjaman Nelayan Enjin Dalam (SNED)*);
- iv. Coastal Fishers Loan Scheme (*Skim Pinjaman Nelayan Pantai (SNEP)*);
- v. Fishers Housing Loan Scheme (*Skim Pinjaman Perumahan Nelayan (SPEN)*);
- vi. Fishers Transformation Program Scheme (*Skim Pinjaman Dana Nelayan Transformasi*).

Table 3.3 shows the subsidy distribution by two loan schemes, Fishers Program Scheme and Fishers Transformation Program Scheme. As shown in Table 3.3 the distribution of loans has increased initially from RM12 million to RM69 million in 2011 but was reduced to RM4 million in 2012. The figures show that a government's budget for these schemes fluctuate significantly from year to year, indicating that the projects are mostly adhoc in nature and are not linked to some long term programs. That the schemes did not result in the desired level of payback by the fishers is one of the factors for the reduction in the allocation for the scheme.

Table 3.3: Others Support Programs (RM) by Type of Loan, Peninsular Malaysia, 2009-2012

Type of Loan	2009	2010	2011	2012
Fishers Program Scheme	7,705,664	11,520,750	60,901,749	3,479,950
Fishers Transformation Program Scheme	4,009,950	885,000	8,227,978	720,000
Total	11,715,614	12,405,750	69,129,727	4,199,950

Sources: LKIM

In year 2012, fisherman fund loan had approved was total RM4.2 million to 20 fisherman association and about 91 individual fisherman. Division loan that had approved is following:

Table 3.4: Scheme Fund Loan Fisherman in Year 2012

Name/Scheme	Total loan (RM)	Beneficiary	
		Fisherman association	Fisherman
Scheme Fund Loan	3, 479, 950	16	65
Scheme Fund Loan (additional)	720, 000	4	26
Total	4, 199, 950	20	91

Sources: Annual report, LKIM, 2012.

3.7 Scheme Diesel and Petrol Fisherman

This scheme was implemented to help fisherman support half of their catch operation fish costs regarding the increase of fuel price in the market. Price of subsidies petrol and diesel to fisherman is RM1.25 per liter. The quota of subsidies diesel had approved regarding to the supplier and its total is RM100 million.

Table 3.5: Scheme Diesel and Petrol by supplier approved, 2011-2012

Supplier	Yearly quota approved (Litre/ month)	
	2012	2011
NEKMAT	71 million	71 million
KO-NELAYAN, SABAH	15 million	15 million
Fisherman association Sarawak (PENESA)	14 million	14 million
Total	100 million	100 million

Sources: Annual report, LKIM, 2012.

In year 2012, the government had spent almost RM1.6 billion to support the subsidies diesel and petrol to all fisherman around the country. LKIM had approved e-diesel card and e-petrol card in 2012 about 48,770 compare to last year 46, 053 in 2011. This card gives to helping fisherman getting supply diesel and petrol. Table 3.6 and table 2.8 are showing the total of card e-diesel and e-petrol had been approved in 2012.

Table 3.6: Approved e-diesel and e-petrol, 2012

Year	Category		Total
	E-Diesel	E-Petrol	
2012	17,601	31,169	48,770
2011	17,452	28,601	46,053

Sources: Annual report, LKIM, 2012.

Table 3.7: Number of e-diesel and e-petrol card by state in year 2012

State	Total Card e-diesel	Total Car e-petrol	Total
Perlis	696	525	1,221
Kedah	1,149	2,496	3,645
P. Pinang	472	2,433	2,905
Perak	3,558	2,454	6,012
Selangor	1,458	2,710	4,168
Melaka & N.	137	1,317	1,454
Sembilan	1,071	4,151	5,222
Johor	1,118	1,063	2,181
Pahang	1,389	1,878	3,267
Terengganu	1,477	950	2,427
Kelantan	2,769	4345	7,114
Sarawak	2,222	6,582	8,804
Sabah	85	265	350
WP. Labuan	17,601	31,169	48,770

Sources: Annual Report, LKIM, 2012

3.8 Project “Azam Tani”

The project as one of initiating government under program 1AZAM, that had been inaugurated by ministry of women’s development, family and society (KPWKM). This project being introduced to achieving improvement society’s well-being, especially for them in middle income. Prime minister in 2010, had introduced of this program and the Ministry of Agriculture & Agro-Based Industry Malaysia (MOA) as *champion* to being a helper of the target group in agriculture sector and agro-food through this project “*Azam Tani*”. The objective of this project is:

- i. To helping increase target group income through giving a loan of economic project in farmer, fisheries, horticulture, agricultural producing, agro-based industry and agricultural service.
- ii. Improve knowledge, skill of competitiveness target group in agriculture sector through trainings, entrepreneurship and technical.
- iii. Helping bring out participant from poverty.

This program gives the head of household in lowest income group from the *eKasih* system under category poor and hardcore that interested to developed projects under scope agriculture. Aid to this project reached value maximum to RM10, 000 giving in term of package to participate. This package by following:

- a) Prepare premise and infrastructure, crop seeds and livestock, raw material, machine, instrumentation etc. to implement project.
- b) Training on developing human capital, entrepreneurship and technical training.
- c) Support service and marketing facilities.
- d) Monitoring and guide of the department and implement agency that continues to make sure endurance and viability project.

3.9 Project Repair Platform / Bridge

This project already started in the year 2012. This project aimed at upgrading fisherman village involved further increasing society level fisherman society economy. Amount of RM6.5 million was appropriated by government to LKIM to

implement 104 platform facility project and bridge in six states, including Labuan which include 104 fisherman village. Represent in following table:

Table 3.8: Project by fisherman village

Number	State	Number of project	Beneficiary (People)	Total Fund (RM)
1	Sabah	43	1,780	3,046, 400
2	Sarawak	19	1,680	1,480,400
3	Labuan	3	80	160,200
4	Johor	21	1,238	470,500
5	Selangor	6	1,200	209,000
6	Perak	21	1,290	1,107, 000
Total		104	7,268	6,473, 500

Sources: Annual Report, LKIM, 2012

3.10 Aid and incentive program

3.10.1 Livelihood Allowance

This program had announced before by government and LKIM and started giving to fisherman from June 2008. The Objective of this implemented as scheme livelihood allowance monthly, to helping fisherman reducing burden that facing by fisherman cause of increases living cost and as well with the price of goods. The monthly incentive received by fishers about RM200 per person. Until December 2012, LKIM had given incentive about RM 130 million that include almost 53,127 fishers around Malaysia. The Table 3.9 showing all the fishers distribute by state that received this livelihood allowance.

Table 3.9: Total fishers received livelihood allowance by state, 2012

Number	State	Fishers	Incentive monthly (RM)
1	LKIM Perlis	948	189,600.00
2	LKIM Kedah	4,417	883,400.00
3	LKIM P. Pinang	4,147	829,400.00
4	LKIM Perak	8,197	1,639,400.00
5	LKIM Selangor	5,106	1,021,200.00
6	LKIM Melaka	1,019	203,800.00
7	LKIM Negeri Sembilan	430	86,000.00
8	LKIM Johor	5,021	1,004,200.00
9	LKIM Pahang	2,696	539,200.00
10	LKIM Terengganu	4,130	826,000.00
11	LKIM Kelantan	1,960	392,000.00
12	LKIM Sarawak	6,563	1,312,600.00
13	LKIM Sabah	8,186	1,637,200.00
14	LKIM Labuan	307	61,400.00
	Total	53,127	10,625,400.00

Sources: Annual Report, LKIM, 2012

3.10.2: Catch Incentive

LKIM continuously giving fish catches incentive at RM0.10 per kg to the fishers had belonged vessel zone A, B and C that have a license. While the fishers from zone C2 received RM0.20 per kg by these catch incentive. The objective giving this catch incentive such as:

- i. Collect the information about landings of each own vessel.
- ii. Encourage fisherman landings more of fish collected in our country.
- iii. Controlling and make sure of diesel fuel that purchase by fisherman only for fisheries activities through incentive given.
- iv. Support of all cost consist spending burden facing by fisherman regarding increases of price fuel.

Year 2012 showing about RM84.2 million spending on giving catch incentive to fisherman for the fish landings around 721, 207 Mt. Compare to the real landings is about 1, 343, 611 Mt and only 53% being paid to catch incentive. An Example of the unpaid catch incentive is trash fish which is about 175, 889 (13%). This is the cause of the trash fish did not include under landings catch incentive. Table 3.10 represent of catch incentive by state in Malaysia for the year 2012. The table shows that Perak, Pahang and Sarawak is the top three states contributing to fish landings in Malaysia. Perak contributed the highest landing around 27% (190, 652, 333 kg and valued at RM 22, 764, 941) of total landing in Malaysia for 2012. As result, Perak received the highest amount of catch subsidy. Secondly, Sarawak contributed around 13.5% (93, 467, 916 with value of RM11, 337, 445) followed by Pahang contributed around 12.3% (86, 629, 552 kg with RM 10, 347, 933).

Table 3.10: Catch incentive by state in Malaysia, 2012

Number	State	Quantity (KG)	Amount (RM)	Percent
1	Perlis	34, 899, 644	4, 393, 929	5.2
2	Kedah	58, 699, 787	6, 030, 993	7.2
3	Pulau Pinang	12, 523, 129	1, 252, 313	1.5
4	Perak	190, 652, 333	22, 764, 941	27
5	Selangor	76, 411, 695	7, 687, 651	9.1
6	Melaka/N. Sembilan	1, 621, 281	162, 128	0.2
7	Johor	26, 825, 191	3, 189, 708	3.8
8	Pahang	82, 629, 552	10,347, 993	12.3
9	Terengganu	21, 912, 559	2, 750, 633	3.3
10	Kelantan	32, 958, 698	5, 159, 593	6.1
11	Sarawak	93, 467, 916	11, 337, 445	13.5
12	Sabah/Labuan	88, 605, 919	9,112, 637	10.8
Total		721, 207, 703	84, 189, 964	100

Sources: Annual Report, LKIM, 2012

The table 3.11 shows by comparison the catch incentive in Peninsular Malaysia. The table shows that Perak, Pahang and Selangor are the top three states contributing to fish landings in Peninsular Malaysia. Perak contributed the highest

landing with 36% (284 million kg and valued at RM22.7 million) of total landing in Peninsular Malaysia. As a result Perak received the highest amount of landing or catch subsidy. Pahang is second and contributed around 16% (115 million kg with a value of RM10 million) followed by Selangor which contributed around 12% (114.9 million kg with a value of RM7.7 million).

Table 3.11: Total Fish landings (Million kg) with Catch Incentive (RM Million) by state, Peninsular Malaysia 2009-2012

State	2009		2010		2011		2012	
	Quantity (kg)	Amount (RM)						
Perlis	35.22	2.78	29.99	2.37	39.42	3.63	44.70	4.39
Kedah	49.08	3.64	42.94	3.08	78.89	5.14	96.78	6.03
Pulau Pinang	7.36	0.64	6.69	0.55	16.20	1.17	17.69	1.25
Perak	145.00	10.48	1,735.74	10.07	260.55	17.70	284.08	22.76
Selangor	58.94	4.06	75.20	4.85	105.27	6.74	114.95	7.69
Melaka/N.S	1.22	0.10	1.30	0.11	1.68	0.17	1.63	0.16
Johor	26.72	1.94	26.69	1.73	37.51	2.85	37.19	3.19
Pahang	94.03	6.06	110.55	7.08	126.69	9.33	115.00	10.35
Terengganu	18.65	1.47	17.90	1.35	23.57	1.97	30.44	2.75
Kelantan	28.89	2.28	37.70	3.06	43.89	4.45	42.53	5.16
Peninsular Malaysia	465.11	33.44	2,084.71	34.26	733.66	53.14	784.99	63.74

Sources: Department of Fisheries.

3.11 Quantification and Classification of the Subsidies

The kinds of subsidy programs in Malaysia can be quantified and classified using the framework developed by the UBC study on fisheries (Sumaila and Khan 2010) of classifying subsidies into three categories namely beneficial, capacity enhancing and ambiguous.

Table 3.12: Classifications of Subsidies, 2011-2012

Type of subsidy	2011		2012		Classification	Valuation
	Amount RM (millions)	Percentage	Amount RM (millions)	Percentage		
Fuel Subsidy	445.9	66.79	473.9	66.32	Capacity Enhancing	Bad
Livelihood Incentives	82.9	12.42	172.8	24.18	Beneficial	Good
Catch Incentives	53.1	7.95	63.7	8.91	Capacity Enhancing	Bad
Other Support Programs	69.3	10.38	4.2	0.59	Ambiguous	Good and Bad
Infrastructure Development	16.43	2.46	NA	NA	Beneficial	Good
Total	667.63	100	714.6	100.00		

Sources: LKIM

The bulk of the fisheries subsidy expenditure goes to fuel subsidy which amounted to more than two thirds of the expenditure on subsidies in 2011 & 2012. Fuel subsidies are generally considered bad subsidies as they contribute to capacity enhancement in the fisheries leading to an increase in fishing effort. The increase in fishing effort will lead to further deterioration of the resource and contribute to lower incomes to fishers in the long term. It must however be noted that over 70 percent of the recipients of the fuel subsidy is the Zone A fishers and the impact on their

income of the fuel subsidy is significant and thus keeps them in fishing employment. This aspect thus indicates the larger welfare and distributional impact of the subsidies to the inshore fishers who are targeted as a poverty group in the Malaysian development policy to eradicate poverty.

CHAPTER 4

RESEARCH METHODS

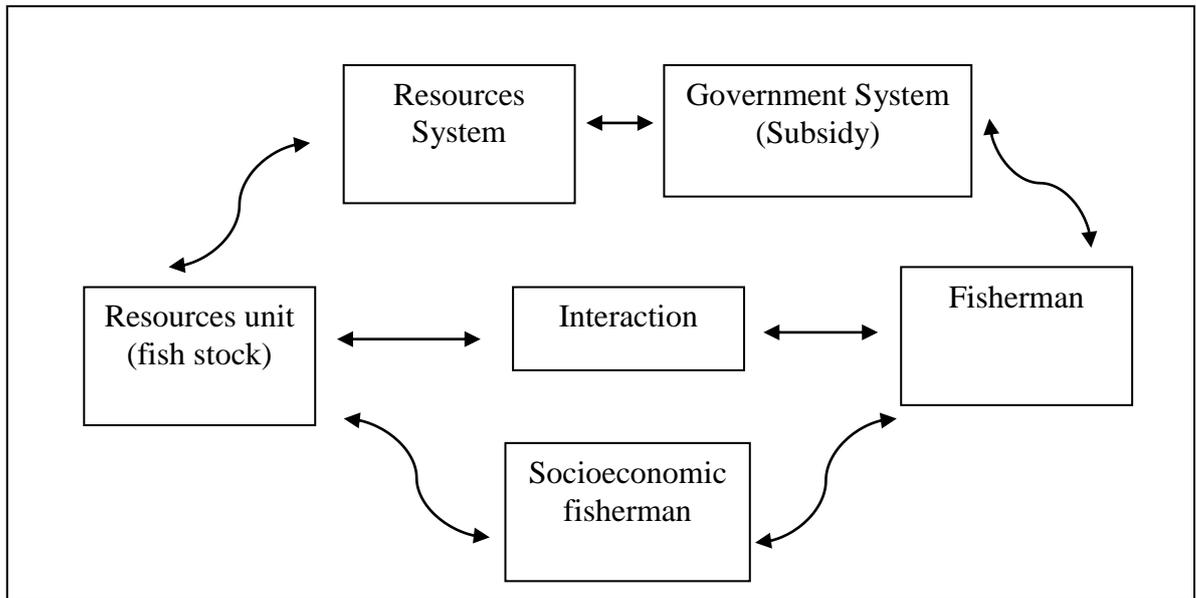
4.1 Introduction

This chapter consists the details of the methodology used in analyzing the fisherman socioeconomic with the subsidy program provided by many institutes of government. The methodology related on to the theoretical framework of the study. The set of way and moving forward into the analysis of the data set and bring out the result.

4.2 Theoretical Framework

The main assumption of economic analysis on fisherman is the socioeconomic impact to fisherman on the fisheries sector. This socioeconomic refer to the standard of living and the revenues from the fisheries activities. Government intervention fisheries sector through the scheme program that's giving aid to reduce of the cost burden that facing by fisherman. Fisheries subsidies that helping increase of revenue of fisherman and reduce the cost burden of fisherman and its giving impact to socioeconomic of fisherman life in term of the activities fisheries economy as well the standard of living. The indicator was used in evaluating and understanding on subsidies is giving and how the impact of fisheries activities, and effectiveness of the management of fisheries incentive that achieving the objective of government's intention (Rice & Rochet, 2005).

Figure 4.1: Theoretical Framework (Related Ecosystem)



Sources: A general Framework for analyzing Sustainability of Social-Ecological System. (Ostrom, 2009)

The starting point in the framework is the analysis of fisheries subsidies in the simple model framework of the interaction of government helping such as the subsidies provided towards fisheries activities and the impact towards socioeconomic.

4.3 Data and information sources

a. Two types of data were collected for this study, which is data on fuel subsidies and data from skippers in Manjung, Perak. Two types of data will be collected for this study, which is data on fuel subsidies and data from skippers. Fuel subsidies data will be collected from the Department of Fisheries (DOF) and *Lembaga Kemajuan Ikan Malaysia* (LKIM). The data for the perception fisherman in this study were collected as primary data.

b. Data on skippers was obtained from an interview of 44 skippers from the traditional and commercial vessels. The sample of fishers selected was based on the relevant background variables such as gear types, size of vessels, ages of vessel, ownership structure experience, and involvement in the fisher's association. The skippers data consists of owners of the vessel (skipper owners) or those paid for a share system (panggu system) by a company (company skippers).

c. The questionnaire used in this study (Appendix C) was developed over a period of two months during which it was tested and retested with respondents in the study areas. Most of the questions that used in the questionnaire comes from previous studies. The changes were made to the sequences of the questions and their wordings to enable easier understanding by the respondent. The actual survey was undertaken in each of the study areas from March 2014 to May 2014.

d. Some of respondent it was not easy to meet because the nature of their trip in fisheries activities. Some of the respondents were interviewed in the landing complexes and while others were interviewed by telephone. It is some of them is easier, giving feedback to the questionnaire by talking through a mobile phone. Through "*Persatuan Nelayan*" it helps in finding out the details of fisherman that can be contacted to make the interviews.

4.4 Survey instrument

Development of the survey instrument for this study will follow the procedure recommended by Ahmad Mahdzan (2002). A draft questionnaire for this purpose

will first be presented during focus group discussion (FGDs) with fishers and fisheries administrators. The purpose of FGDs is to provide information that will be used to refine the questionnaire to achieve the objectives of the study.

The distribution and collection of the questionnaire will be conducted using self-administered method to ensure good returns. A stratified random sampling will be used to pre-select respondents for this study. The list of fishers will be obtained from local fisheries associations (*Persatuan Nelayan*). Data collected will be subjected to rigorous statistical validation process to treat for missing data, outliers, non-responses bias, non-normality, and others statistical analysis.

4.5 Analyses

Econometric Models was used to determine the influences of fuel subsidies on the welfare of fishing communities. Analysis was conducted using SPSS in analysis the data that has been collected. A general linear-modeling framework with model selection was used to examine which vessel characteristics influence the fuel consumption. Vessel characteristics were included the following categorical variables, i.e. gear type (towed or static gear) and ownership structure, and continuous variables, i.e. vessel size (using vessel capacity units, Gross Tones (GRT)), vessel age (years), engine size (kW), and engine age (years).

Focus group discussion and open ended questions on the certain issue such as the influences of assistance and subsidies on the fishers' decision making, how their fishing behavior as a result of subsidies rationalization, and what they believe would

be the future of fishing activities in their community was used to formulate the best strategy to rationalize the fuel subsidies.

The fisherman was asked to provide information on how fuel subsidies had affected fishing practices, behavior, and their standard of living. Skippers are free to list what they think were important concerns to them. Interviews were tape-recorded. During interviews, skippers also been asked to provide their views about how rationalization on fuel subsidies will affect their community now and in the future.

4.6 Survey Instrument

The questionnaire (Appendix C) was developed over a period of two months during which it was tested and retested on fisherman in this study area. The questionnaire is organized as follows:

Section A: Fisherman household background: experience, age, marital status, household size, level of education, number of children, income of fishery, income other from fisheries, type of scheme subsidy received, age vessel, size of boat, engine size and the type of net used.

Section B: Facilities: House ownership, electrical and water supply, equipment and transport.

Section C: Impact of Fisheries Subsidy: Revenue, type of fish collected, a revenue division.

Section D: Indicator of satisfaction and awareness of subsidies.

Section E: Reason on scheme compliance in fisheries activities.

Section F: Subsidies impact of socioeconomic.

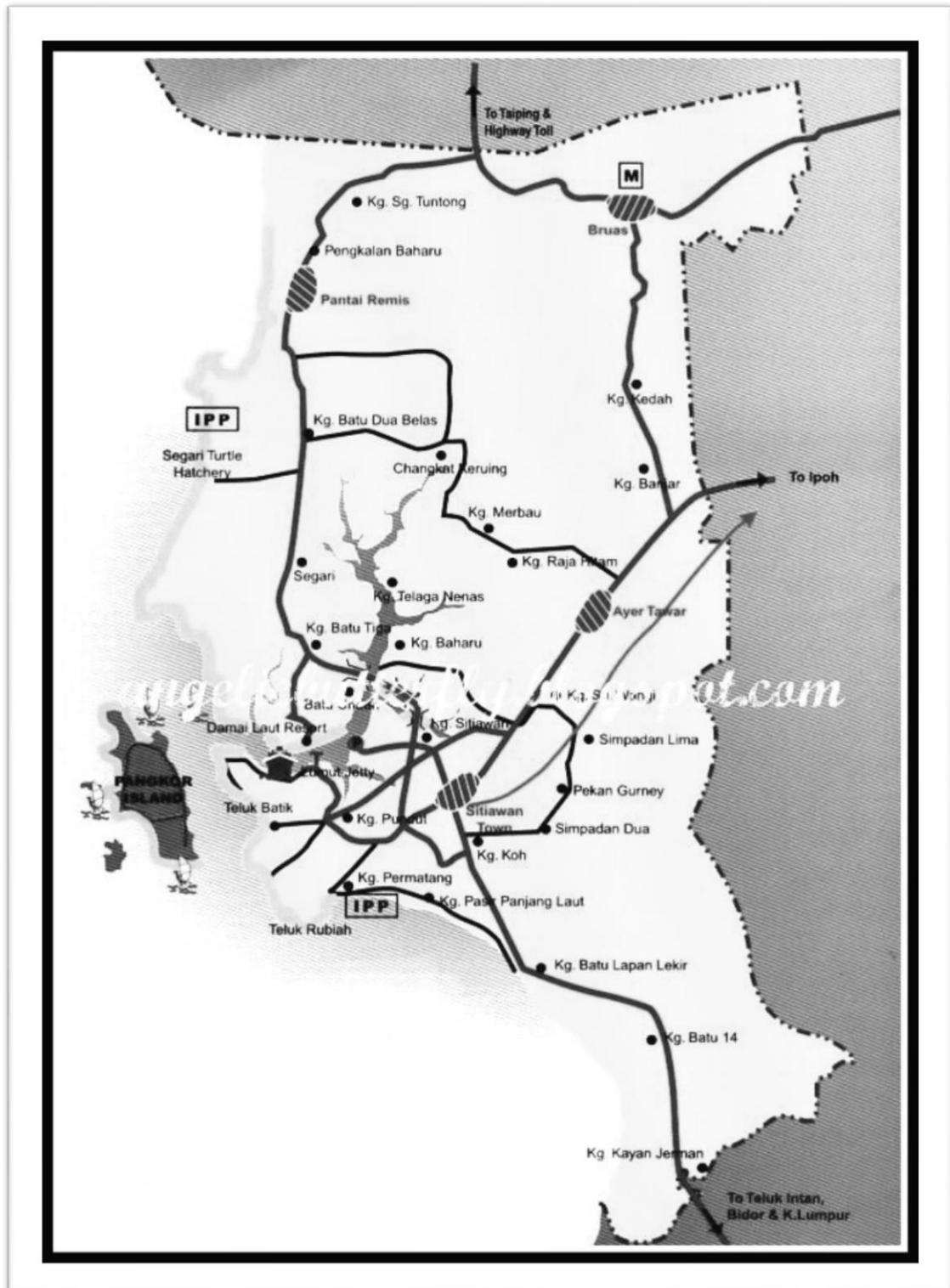
In constructing respondent' perceptions about the fisheries activities and the scheme that received under fisheries I'm using 40 questions. The scale ranged from 1 point (Highly hasn't satisfied) to 5 points (very satisfied) for the scale question of the fisherman satisfactory about scheme subsidies.

4.7 Research Design

Research methods in this study is a descriptive analysis, correlation and t-test of research design. The purpose of this descriptive is to analyze of the demographic fisherman and the fisheries background in term of frequencies. The objective was to find out the background of the fisherman in the area of studies. The correlation method is used to discover the relationship between the variable using correlation statistic (r). The correlation coefficient provided a measure of the degree and direction of the relationship. The square of a correlation coefficient yields the explained variance (r square). Research design started in order to determine properly the relationship of overall fisheries activities and fisherman itself. The *t-test* is conducted to find out the differences of the fisherman income from the fisheries and other resources. This is to look at how the fisheries subsidies impact to income of fisherman. The t value is to measures on degrees of freedom, and significant level of the relationship.

4.8 Research Area of Studies

Figure 4.2: Fisheries district in Manjung, Perak.



4.9 Chapter Summary

This chapter describes the methodology used to generate the empirical model, data collection strategies and method of analysis of the data to answer the research question. It also describes the process, conducting research design in the way of reaching the result. The next chapter will empirically test the relationship between fisheries activities, fisherman background and socioeconomic impact.

CHAPTER 5

ANALYSIS AND INTERPRETATION OF RESULT

5.1 Introduction

In this chapter will be a report on the result from the analysis all the data that had been studying under the methodology that had been mentioned before. The discussion covers the objective of the study regarding on the fishing activities by fisherman. This chapter will report all the results of the empirical analysis, starting with the descriptive analysis and followed by the regression analysis. In the section on descriptive analysis will discuss on the demographic and the background of the fisherman. The multiple regression technique is used to look at the factors that can influence the income of the fisherman. The five factors were vessel size, vessel age, training, level of education and fuel consumption were included in the regression model. The correlation analysis had been done to shows the relationship between the independent variables. The correlation coefficient is the percent variance of dependent variable (Y) being explained by the independent variables.

5.2 Descriptive analysis

This section uses this method on the data collected to interpret the final result on the demographic aspect, the background of the fisherman and others section. The descriptive that are used in providing result of finding the distribution of demographic, fisheries subsidies, fisheries background and socioeconomic condition. This comparative analysis will look on the welfare fisherman as the effect of the

scheme that taken in the fisheries sector that provided. This analysis used to answer the research question regarding on the fisherman welfare. Descriptive results of the analysis provided the characteristic of all the respondents in the study area.

5.2.1 Demographic Background

The total number of respondents for the study was 44 fishermen. The result is reported by the distribution of the frequency and the percent for every aspect in term of demographic, facilities and the indicator of satisfactory and awareness also the excuses about using the scheme.

There were participating in the study, 43 of them were men and one was women. Descriptive finding for the respondent's ethnicity are summarized in Table 5.1. The majority of the respondent are Malay (88.6% or 39 respondents), followed by Chinese (4 respondent) and Indian only one respondent. I have summarized that fisherman dominant by Malay ethnic in this study area.

Descriptive analysis on the level of education among fisherman in this study area shows that education background differs between respondent. As shown in Table 4.1, the education of primary school level is the highest percentage among respondent (34.1% or 15 respondents), the education of secondary school (*PMR*) is 11 respondents (25%). While level education of the fisherman finished their secondary school (*SPM*) is 31.8% or 14 respondents.

Study looked to information technology (IT) ability by fisherman and their family. The finding is reported in Table 5.1. The finding, reported 47.7% of the respondent that only their child knows how to use computer and internet. Sixteen of

fisherman or 36.4% fisherman reported they don't know anything about computer and internet. However, 11.4% of fisherman reported they knew how to use the computer and two respondent know how to search information through internet application.

Descriptive analysis of the number of children shows that high reported by respondent families is less than three children (43.2%) or 19 respondents. The respondent reported have between four to six children is 18 respondents (40.9%) among the fisherman in this study.

Table 5.1: Descriptive Analysis

Content	Details	Frequency	Percent
Gender	Man	443	97.9
	Women	1	2.3
	Total	44	100
Race	Malay	39	88.6
	Chinese	4	9.1
	Indian	1	2.3
	Total	44	100.0
Main Occupation	Fisherman	43	97.7
	Business	1	2.3
	Total	44	100.0
Education	Institution/ High Education	1	2.3
	STPM/STA	3	6.8
	Secondary school (SPM/SPVM)	14	31.8
	Junior high-school	11	25.0

	(PMR)		
	Primary school	15	34.1
	Total	44	100
Information Technology (IT) Ability	Know how to use computer	5	11.4
	Know how using internet for searching things	2	4.5
	Only kids know how to using computer and internet	21	47.7
	Don't know anything	16	36.4
	Total	44	100.0
Number of Children	<3	19	43.2
	4-6	18	40.9
	>6	7	15.9
	Total	44	100.0

Sources: Research (Questionnaire)

5.3 Human capital of the Fisherman.

The issue relating to the role of human capital in preserving economic growth and development of an economy quite familiar. The discussion, further on the involvement of fisherman in training, the experience of the fisherman and the association that involved by themselves. These are regarding on their involvement in training and association, given them knowledge and get the opportunity to increase their income from fisheries activities. The program to make sure all fisherman

understand and encourage fisherman to get involved as the way to assist them in the fisheries sector.

5.3.1 Training

The training referred as the course that has been attended by the fishermen has been offered by Department of fisheries and LKIM. This training helped fisherman improved their socioeconomic condition as a fisherman and also increase their revenue from fisheries activities. The training provided the way and information of skill in the proper way to collect on fisheries activities. From the survey in Table 5.2 show 17 fishermen (38.6%) among the respondent that are joining the training before. The rest respondent didn't get a chance to attend any training which about 27 fisherman (61.4%).

5.2: Training

		Frequency	Percent
Training	Yes	17	38.6
	No	27	61.4
Total		44	100.0

5.3.2 Experience

Descriptive analysis studies on the experience of fishermen in this study area. The highest year of experience by responding as a fisherman is 35 years. The frequency of 35 years involved in the fisheries sector is only 5 people (11.4%). The highest frequency of respondent year experience is for 20 years. There is 25 years of experience by 6 respondents (13.7%). The lowest years of experience are at least 6 years involved in the fisheries sector. This frequency showing in this area studies,

mostly fisherman are getting involved in the fisheries sector as main occupation and as the main sources of income.

Table 5.3: Experience

		Frequency	Percent
Years	<6	4	9.1
	6-10	7	15.9
	11-15	7	15.9
	16-20	10	22.7
	21-25	6	13.7
	26-30	5	11.4
	31-35	5	11.4
	Total	44	100.0

5.3.3 Association

Table 5.4: Association

		Frequency	Percent
Association	None	28	63.6
	Department of Fisheries	11	25.0
	LKIM	4	9.1
	LKIM & Department of Fisheries	1	2.3
	Total	44	100.0

This is the association that provides the training to fisherman. It is providing the program and other workshop to all fishermen around Malaysia. This is giving chance to fisherman improved their living life as a fisherman, and improve their skill in fisheries activities. Other more getting opportunities received loan and other scheme in terms of fisheries improvement. Under reported in this study, it shows the frequency of respondents in this study area joining the training by the association

under fisheries industries. There are 16 respondents joining the association under the Department of Fisheries (DOF) and LKIM.

5.3.4 Revenue

The result in Table 5.5 is reported the revenue of fisherman in a month. In that period of time, most fishermen in this study area are getting revenue of fish collected more than RM1000. The total of that fisherman is about 34 people (77.3%). The other respondents reported their income is more than RM1500 to RM2000 is five respondents or 11.4 percent and the same respondent stated their income more than RM2000 which five respondents too.

Table 5.5: Revenue (per month)

		Frequency	Percent
Revenue	RM1000-RM1500	34	77.3
	RM1600-RM2000	5	11.4
	More than RM2000	5	11.4
Total		44	100.0

5.3.5 Type of Fisheries Subsidies

Fisheries subsidies that categories as beneficial, its advantage to increase the revenue collected by fishermen. Under this aid by the government there are subsidies such as boat, fuel subsidies, incentive scheme catches, diesel and petrol subsidy scheme and others. Fisheries subsidies that fisherman got in this area of studies had been reported by analysis before. The fisheries subsidies that are provided by government in varying types, but there are only few schemes that are taken by the fisherman in this area of studies.

Table 5.6: Fisheries Subsidies

		Frequency	Percent
Fisheries subsidies	Incentive scheme catch	8	18.2%
	Living allowance payment scheme	33	75.0%
	Diesel and petrol subsidies scheme	19	43.2%
	Others Scheme	1	2.3%

Regarding on the fisheries subsidies that are provided, there are only four types are taken in this area of studies. The highest of subsidies are taken is living allowance payment scheme is about 33 fisherman (75.0%). The result from observation its showing there is 19 fisherman (43.2%) taking diesel and petrol subsidy scheme. For the fisheries subsidies in term of incentive scheme catch, there are 8 fishermen (18.2%) getting this. There is one fisherman getting other's term of subsidies. From this descriptive finding indicate there is only such of schemes that are taken by the fisherman in this area of studies.

5.3.6 Horse Power of Fishing Gear

Gear is one of the important in fisheries activities to fisherman. The gear size will be indicated on the fish collected as one important role as well. The total frequency of

the horsepower of fishing gear own by the fisherman in this study is the highest of respondent using the fishing gear with 40 horsepower. This is reported is 18 over 44 respondents with the percentage of 40.9 percent. Another respondent reported that using the 60 horsepower of gear in their fisheries activities among the fisherman (36.4 % or 16 respondent). There are 10 respondents or 22.7 percent using the 30 horsepower of gear.

Table 5.7: Fishing gear

		Frequency	Percent
Horse power	30	10	22.7
	40	18	40.9
	60	16	36.4
Total		44	100.0

5.3.7 Net type

Most of the fishermen in this studying using variety type of nets in fisheries activities. There are 26 fishermen (59.1%) using drift nets in fisheries activities that reported in this study area. Others of the fisherman using net other than drift nets. Net varieties using by fisherman in the fisheries sector in this area of studying like hooks and lines, long line, prawn and charm crab. The net type using by the respondent in this area is significant as the traditional fisherman. The traditional fisherman using this kind of net and doing their fisheries activities in the beach shore area.

Table 5.8: Net type

	Frequency	Percent
Drift Net	26	59.1
Others	18	40.9
Total	44	100.0

5.4 Socioeconomic indicator

From the Table 5.9 show that the indicator of socioeconomic in term of home ownership. From the studying on this fisherman socioeconomic, mostly of respondent have their own house. The total is about 35 people (79.5%) its being in the group that has their own house. Other than that, 6 respondents (13.6%) have rented the house. In terms of basic supply, all of the respondents have all that facilities. No one of the respondent is having problem to get access on to electricity and water supply.

Table 5.9: Home ownership

	Frequency	Percent
Own house	35	79.5
Rent	6	13.6
Others	3	6.8
Total	44	100.0

The equipment of fisherman things, it had been reported to seeing the welfare of fisherman social life being. The equipment reported its show the welfare side as the fisheries and its represent in Table 5.10. The respondent in this area study, mostly have their basic equipment in their own house. The equipment that's less frequently has is the microwave and internet facilities only. Most of the respondents have their basic equipment like fridge, television, cell phone, and washing machine.

Table 5.10: Equipment

	Yes	No
Fridge	43 (97.7%)	1 (2.3%)
Television	44 (100%)	0
Sofa	30 (68.2%)	14 (31.8%)
Radio	29 (65.9%)	15 (34.1%)
Telephone	21 (47.7%)	23 (52.3%)
Cellphone	39 (88.6%)	5 (11.4%)
Washing machine	35 (79.5%)	0 (20.5%)
Microwave	7 (15.9%)	37 (84.1%)
Dining Table	26 (59.1%)	18 (40.9%)
Astro	20 (45.5%)	24 (54.5%)
Air-cond	6 (13.6%)	38 (86.4%)
Internet	9 (20.5)	35 (79.5)

The transport or mobility that fisherman is one of the indicators to fisherman socioeconomic as well. The high frequency is to the motorbike and its show most of the respondents have their own motorbike. The total of fisherman that have own motorbike is 41 people (93.2%). The same goes to the car, most fishermen have that transport by their own. It is 36 number of fisherman with 81.8%.

Table 5.11: Transport

	Yes	No
Motorbike	41 (93.2%)	3 (6.8%)
Car	36 (81.8%)	8 (18.2%)
Bicycle	16 (36.4%)	28 (63.6%)
Van	0 (0%)	35 (100%)
Lorry	1 (2.3%)	43 (97.7%)

5.5 Relationship between demographic factor variable on fisherman income

To examine the link between the demographic factor of fisherman income and Pearson correlation had been done. The value of the correlation showing of the value variable changes, makes the value of variable others changing the same way. This correlation coefficient, measures the strength or degree of linear association between the two variables.

The following regression test had done were conducted on the factors influencing on fisherman income. The correlation coefficient test 0.557 is indicated the positive relation between the experience and the age of vessels. More experience by the fisherman support more of age vessels belong to the fisherman. The fisheries income and the income not from the fisheries activities, shows the findings were related between these variables to the fisheries income. In Table 5.12 in addition shows the relation coefficient between the fisheries income 0.569 indicates the significant to the total income. The significant of fisheries income that the influence of the total income strong related to the revenue from the fisheries activities and the fisheries subsidies that received by the fisherman. The positive significant of income

not from fisheries is contributed by the given of children and other resources of income. In other words fisherman in this area of studies, receiving income from other sources from fisheries as a side income.

Table 5.12: Correlation between demographic factor variable on fisherman income

	Experience	Age Vessel	Fisheries income	Income not from fisheries income	Total income
Experience	1.00	.557**	-.144	.158	.033
Age Vessel		1.00	-.148	-.274	-.274
Fisheries income			1.00	-.137	.569**
Income not from fisheries income				1.00	.736**
Total income					1.00

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

5.6 Determination of Fisherman Income

This method is more amenable to *ceteris paribus*. It is because allows us to explicitly control of many other factors that affect the dependent variable. This method is used to test the economic theories and to evaluate on the factors influencing. This multiple regression can accommodate on the explanatory variable that may be correlated. We add the factors to our model in a way to explain of the dependent variable *y*.

This multiple regression analysis was used, employing the entire method. This is beginning to estimate the variance explained in the factors influence fisheries revenue per month by five factors of vessel age, vessel size, training, level of

education and the frequency of fuel consumption per month were included in the regression model using the default enter method, to evaluate the effect of variance.

The result is shown by the table as follows.

Multiple Regression equation: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$

Y = Fisheries income per month

X₁ = Vessel age

X₂ = Vessel size (GRT)

X₃ = Level of education

X₄ = Frequency fuel consumption per month

X₅ = Training

Table 5.13: Coefficients

Model	Coefficient (B)	t	Sig.
(Constant)	-848.501	-3.977	.000
Vessel age	-.402	-.196	.846
Vessel size	66.522***	4.333	.000
Frequency fuel consumption	33.524***	3.008	.005
Level of education	6.307	.999	.324
Training	116.500**	2.419	.020

a. Dependent Variable: Fisheries income per month

The result following of examined the link between the factors influenced on fisherman income per month. The high probability factors of influence, the higher of the fisherman income. There was the positive relationship between these variables. The result also showed that the factor influence different among determinant on fisherman income.

The result of regression model showed the link of variables regarding the influence of the variable (see Table 5.13). The finding was that higher fuel consumption and the vessel size are associated with fisheries income per month. There is strong significant interaction between vessel size used and fuel consumption in fisheries activities to fisherman income per month. In Table 5.13, the coefficient of vessel size and fuel consumption indicated on the positive relation of these variable affected on the fisherman income. The increases of 1 percent of vessel size bring to increase 66.522 percent in fisheries income per month. The increases of fuel consumption by 1 percent will leads to increase 33.524 percent in fisheries income per month. The significant of vessel size and fuel consumption significant at 0.01 level. Training that attended by the fisherman offered by the department of fisheries mainly worked through increasing the fisherman income. The fisherman that participated in the training increase 1 percent really leads to increase 116.500 percent an income per month.

5.7 Contribution of fuel subsidies to the welfare of fisherman

Table 5.14 report the total amount of subsidies and incentives that has been received by the fisherman in Peninsular Malaysia from year 2009 to year 2012. Among the subsidy components, diesel accounts for most of the subsidies averaging above 60 percent of the total value of subsidies. This is expected as in 2012 fuel contributed to 66.3 percent of the total operation costs of fishing with costs increasing by 9.8 percent from the previous year.

Looking forward on the others incentive like livelihood incentives is the next highest subsidy which accounts for 24% (RM173 million), of total subsidy in 2012, catch subsidy contributed 9%, (RM64 million) while other support subsidies was reduced substantially from RM 69 million in 2011 to RM4 million in 2012 (or a 94% reduction).

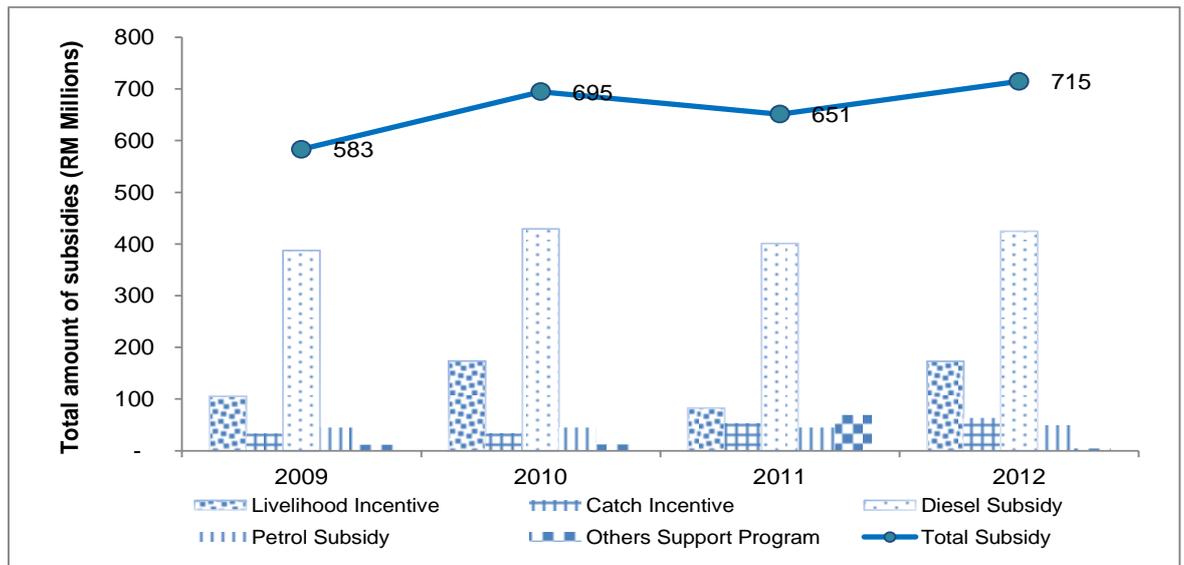
Table 5.14: Total Amount of Subsidies (RM) and Percentage Composition, Peninsular Malaysia, 2009-2012

Components of Subsidies	Year			
	2009	2010	2011	2012
Livelihood Incentive	105,382,400 (18.07%)	173,761,400 (25.01%)	82,924,000 (12.74%)	172,831,200 (24.18%)
Catch Incentive	33,437,417 (5.73%)	34,258,752 (4.93%)	53,135,869 (8.16%)	63,739,882 (8.92%)
Diesel Subsidy	387,518,780 (66.44%)	429,390,275 (61.81%)	400,952,761 (61.58%)	424,433,933 (59.38%)
Petrol Subsidy	45,168,116 (7.74%)	44,845,339 (6.46%)	44,933,360 (6.90%)	49,522,623 (6.93%)
Others Support Program	11,715,614 (2.01%)	12,405,750 (1.79%)	69,129,727 (10.62%)	4,199,950 (0.59%)
Total Subsidy	583,222,327	694,661,515	651,075,717	714,727,588

Sources: LKIM

The total amount of subsidy showed an increase by 10% in 2012 compared with 2011 (RM651 million to RM714 million) even government reduce others support program incentive but increasing in livelihood incentive (108%) due to increasing number of fishers license in zone A. The total amounts of subsidies given out fluctuated from year to year but the fuel subsidies are stable and hovered around half a billion ringgit over the 2009 to 2012 period (Figure 5.1).

Figure 5.1: Total amount of Subsidies (RM), Peninsular Malaysia 2009-2012



Sources: LKIM

5.7.1 Distribution of Fuel Subsidy in Malaysia

The government introduced fuel subsidy in 2008 in Malaysia. All licensed fishers are entitled to receive the fuel subsidy. The fuel subsidy reduces the fishing operation cost for the fishers as they received fuel at subsidized rate. The fuel subsidy is RM0.55 per liter for Zone A and B, and RM0.65 per liter for zone C.

Table 5.15 and Table 5.16 show that diesel and petrol subsidy increased over the period 2009-2012. In 2012, diesel use increased from RM401 million (729 million liters) to RM424 million (772 million liters), similarly petrol use also increased from RM69 million (745 million liters) to RM76 million (49.5 million liters).

Table 5.15: Total Diesel Subsidies by State ('000), Peninsular Malaysia, 2009-2012

State	2009		2010		2011		2012	
	Quantity (Liters)	Total (RM)						
Perlis	37,177	20,447	40,757	22,416	43,163	23,740	46,861	25,774
Kedah	60,756	33,416	69,084	37,996	77,292	42,511	84,363	46,400
Pulau Pinang	13,975	7,686	13,461	7,404	13,774	7,576	14,645	8,055
Perak	270,593	148,826	273,359	150,347	212,761	117,018	243,681	134,025
Selangor	87,192	47,955	94,262	51,844	91,217	50,169	98,515	54,183
Melaka/N.S	595	327	601	330	612	336	841	462
Johor	46,532	25,593	52,364	28,800	48,813	26,847	52,685	28,977
Pahang	108,232	59,528	121,111	66,611	123,759	68,067	121,698	66,934
Terengganu	31,294	17,212	38,048	20,926	35,430	19,486	36,953	20,324
Kelantan	48,234	26,529	77,663	42,715	82,184	45,201	71,456	39,301
Peninsular Malaysia	704,580	387,519	780,710	429,390	729,005	400,953	771,698	424,434

Sources: LKIM

Fuel used by states show that bulk of the fuel subsidy (70 percent) was distributed to Perak, Selangor, Pahang and Kedah. This is because the number of large vessels (boat zone C and C2) was higher in these states in Peninsular Malaysia. A total of 772 million liters of diesel and 76 million liters of petrol was distributed which shows that diesel use is 10 times higher than petrol use by the fishers.

The LKIM approved 46,053 fuel e-cards in 2011 compared to 44,808 in 2010, almost a 3% increase in number of fuel e-cards approved. LKIM has approved 173 stations for diesel and 196 stations for petrol distribution to fishers in Malaysia. The amount of subsidized fuel quota for the approved suppliers amounted to 100

million liters per month which is being managed by the National Fishers Association (NEKMAT), KO-NELAYAN, and Sarawak Fishers Association (PENESA).

Table 5.16: Total Petrol Subsidies by State ('000), Peninsular Malaysia, 2009-2012

State	2009		2010		2011		2012	
	Quantity (Liters)	Total (RM)						
Perlis	1,077	700	1,315	855	1,777	1,155	2,242	1,458
Kedah	3,938	2,560	6,155	4,001	7,158	4,653	7,648	4,971
Pulau Pinang	631	410	11,618	7,552	11,207	7,285	11,521	7,488
Perak	3,198	2,079	15,515	10,085	16,279	10,581	17,698	11,504
Selangor	1,876	1,219	12,738	8,280	12,960	8,424	14,604	9,492
Melaka/N.S	14,196	9,227	3,321	2,159	3,508	2,280	3,832	2,491
Johor	11,592	7,535	11,766	7,648	10,490	6,819	11,602	7,541
Pahang	10,483	6,814	2,349	1,527	1,744	1,133	1,991	1,294
Terengganu	12,774	8,303	3,177	2,065	3,074	1,998	3,712	2,413
Kelantan	9,724	6,321	1,038	675	930	604	1,339	870
Peninsular Malaysia	69,489	45,168	68,993	44,845	69,128	44,933	76,189	49,523

Sources: LKIM

5.7.2 Total Recipients of Fuel Subsidies by State.

Table 4.21 shows the total recipients of fuel subsidy by state and fishing zone in 2012. The table shows that the petrol is mostly distributed to zone A fishers, a total 24,483 fishers received petrol and a total of 23,610 fishers received diesel. The fishers in zone A were the largest subsidy recipients amounting to 73% (35,247) of the total fishers receiving subsidised fuel, while the share of petrol subsidy was 51%. The zone B fishers were the next largest group of fishers (15%) of the total fishers to receive fuel subsidies. The fishers in zone C2 are not entitled for super subsidy, but

they are still considered to receive normal subsidy as they are entitle to purchase diesel at pump stations at RM2.00 per litre, which is also a subsidized price. The fishers in Perak are the largest subsidy recipients in Peninsular Malaysia where a total 10, 057 fishers (21%) received fuel subsidies.

Table 5.17: Total Recipients of Fuel Subsidies by State and Zone, Peninsular Malaysia, 2012

State	Zone A		Zone B		Zone C		Zone C2
	Diesel	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
Perlis	314	678	114	-	115	-	71
Kedah	1,122	3,616	687	-	606	-	31
Pulau Pinang	696	3,663	292	-	25	-	-
Perak	2,240	3,446	2,802	-	1,239	-	330
Selangor	1,209	2,785	1,313	-	636	-	17
Melaka	140	1,071	-	-	-	-	-
Negeri Sembilan	68	411	-	-	-	-	-
Johor	1,251	4,490	630	1	351	-	113
Kelantan	1,281	939	262	-	105	-	285
Terengganu	1,738	2,042	760	-	246	-	62
Pahang	705	1,342	376	-	958	-	420
Grand Total	10,764	24,483	7, 236	1	4,281	-	1,239
Grand Total Based by Zone	35,247		7,237		4281		1,329
Grand Total (%)	22.38	50.91	15.05	0	8.9	0	2.76
Grand Total Based by Zone (%)	73.29		15.05		8.9		2.76

Sources: LKIM

5.8 Fisherman awareness and satisfaction on fisheries subsidies

This section consists of the statement from fishermen perception towards on awareness and perception regarding of fisheries subsidies. As can be seen in the table result, the fisherman perception received for all questions that they were highly satisfied with the fisheries subsidies. With respect to satisfaction on standard living now as the fishermen, mostly the fishermen satisfied with current occupations as fishermen which about being 27 respondents (77.1%) satisfied. With respect to the

quality of the fisheries program by the institutes fisheries provided, was 25 respondents (71.4%) satisfied.

The further question of the perception regarding the fisheries activities in this area of studies there are 7 respondents (20.0%) unsatisfactory that respond to this question. But the satisfied respondent among the fishermen is about 18 fishermen (51.4%) and there were 10 fishermen answer for particularly satisfying. The next question related to the fisheries subsidies in the future, there were 22 respondents answer satisfactory for this question. In the future about 9 fishermen want the fisheries subsidy program to continue as the support program to fisheries activities. From the frequency on last question related to the guarantee of government towards the fisheries subsidy program, 21 fishermen were satisfied with the guarantee of the fisheries program in future.

Table 5.18: Fisherman awareness and satisfaction on fisheries subsidies

	Highly Unsatisfactory	Unsatisfactory	Satisfactory	Particularly Satisfying	Highly satisfying
Satisfaction on standard living	0	0	27 (77.1%)	7 (20.0%)	1 (2.9%)
Quality of fisheries subsidies	0	1 (2.9%)	25 (71.4%)	8 (22.9%)	1 (2.9%)
Satisfaction of fisheries activity	0	7 (20.0%)	18 (51.4%)	10 (28.6%)	0
Fisheries subsidies in future	0	3 (8.6%)	22 (62.9%)	9 (25.7%)	1 (2.9%)
Guarantee by government on fisheries subsidies program	0	4 (11.4%)	21 (60.0%)	9 (25.7%)	1 (2.9%)

5.9 Discussion summarization

Training participated by the respondent in this study is less than the fisherman that none attend the training. The department of fisheries needs to encourage more participation of fisherman involved with the association and attend the training that provided. The participation will benefit to fisherman which impact on the socioeconomic of fisherman itself. The increasing of income and the total fish catch by fisherman can be happen when they're getting assist by the association and it is the alternative of their shortage in cost operation due to fuel price increase. Facing the reality of the increases of cost operation, lack of fishing tools, reduction of job security and other situation is covered by the aid from the department of fisheries and other institute.

CHAPTER 6

SUMMARY AND RECOMMENDATIONS

6.1 Conclusion

Fisheries subsidies among fishermen should be implemented with the right way and to the fishermen output from fisheries activities will be increased by the helping of variety of scheme and program. For that government should take seriously in term of subsidies provided to the fisherman around Malaysia. From the implement of subsidies as the aid to the fisheries sector is giving a lot of increases to the standard of living among the fisherman family.

The receiving of subsidies, however should be looking again to make sure both small and large-scale of the fishermen's group received the right of subsidies among them. The right of receiving fisheries subsidies has actually contributed to fisheries development, especially to the small scale of the fishermen's group. This is regarding to the operational cost which transport, service and others support activities.

Studies, founded that not all fisherman received the subsidies and the fisherman that received the subsidies is not relevant to the right to receive the subsidies. The reality today the fisherman face with the higher cost operation and shortage with the equipment of fisheries activities. The problem is becoming serious when the increases of the operation cost happen related to the fuel cost. The higher of cost operation and the small revenue received and not fixed make the fisherman having problem to achieve development in the fisheries sector.

6.2 Recommendation

The efforts to develop this fisheries sector, especially to increase standard living of fishermen by fisheries subsidies under all this institute of fisheries like Department of Fisheries, LKIM and the “*Persatuan Nelayan*”. Encourage on fisheries activities to increase the fisheries catch revenue need to improve by giving the incentive like catch incentive that giving based on the fish stock collected. The department of fisheries as an institute that responsible for the fisheries activities should play the role in giving information and training to fisherman as a practical way in many fisheries districts in Malaysia.

The collected of fisheries subsidies of this study is recommended to few methods that can be done relate to this issue of fisheries subsidies. Firstly the socioeconomic of fisherman can be increased by improving the total received of fisheries subsidies, training under fisheries sector, and improve the incentive receives of the fishermen.

Secondly, the awareness of subsidies to the fisherman in term of effectiveness in fisheries activities can be done by the institute of fisheries example, like the department of fisheries as the way to reduce the cost of operation and effectively increase the incomes of fisherman.

Thirdly, development of fisheries sector only can be done by the liberation of all institutes, government and the fishermen. The satisfaction among fisherman can only be achieved by the improvement of fisheries activities, whether large or small fisherman.

REFERENCES

- Abernethy, K. E., Trebilcock, P., Kebede, B., Allison, E. H., & Dulvy, N. K. (2010). Fuelling the decline in UK fishing communities? *ICES Journal of Marine Science*, 67(5), 1076–1085. doi:10.1093/icesjms/fsp289.
- Allison, E. H., & Mvula, P. M. (2002). Fishing Livelihoods and Fisheries Management in Malawi, (22).
- Atta-mills, J., Alder, J., & Sumaila, U. R. (2004). The decline of a regional fishing nation : The case of Ghana and West Africa, 28, 13–21.
- Boehlert, G. W. 1996. Biodiversity and the sustainability of marine fisheries. *Oceanography* 9:28-35.
- Bott Atta-mills, J., Alder, J., & Sumaila, U. R. (2004). The decline of a regional fishing nation : The case of Ghana and West Africa, 28, 13–21.
- Bottom, A., Re, U. P., Of, E., & Subsidies, G. F. (2006). Fisheries Centre Research Reports, 14(6).
- Breu, F., Guggenbichler, S., & Wollmann, J. (2008). No Title. *Vasa*, (December), 3–6. Retrieved from <http://medcontent.metapress.com/index/A65RM03P4874243N.pdf>
- Clark, C.W., Munro, G.R., Sumaila, U.R. 2005. Subsidies, buybacks, and sustainable fisheries. *Journal of Environmental Economics and Management*, 50: 47-58.
- Cox, A., & Schmidt, C. (2002). Subsidies in the OECD Fisheries Sector: A review of recent analysis and future directions. *Background Paper for the FAO Expert Consultation on Identifying, Assessing and Reporting On Subsidies In The Fishing Industry*, 3(6).
- Code, S., Round, T., Agreement, W. T. O., Measures, C., Report, T., Accounts, N., Agreement, S. C. M. (2000). The definition of subsidies : conceptual issues.
- Crowder, L., Hazen, E., Avissar, N., Bjorkland, R., Latanich, C., & Ogburn, M. (2008). The impacts of fisheries on marine ecosystems and the transition to ecosystem-based management. *Annual Review of Ecology, Evolution, and Systematics*, 39, 259--278.
- Daw, T., Cinner, J., McClanahan, T., Brown, K., Stead, S., Graham, N., & Maina, J. (2012). To fish or not to fish: factors at multiple scales affecting artisanal fishers' readiness to exit a declining fishery. *Plos One*, 7(2), 31460.
- Dof.gov.my. (2014). Retrieved 13 April 2014, from

<http://www.dof.gov.my/documents/10157/08b0e96a-e9c4-4a0e-899f-5b2a2d64fdf4>

- Dof.gov.my. (2014). Laman Utama - Portal Rasmi Jabatan Perikanan Malaysia.
Retrieved 15 March 2014, from <http://www.dof.gov.my/>
- Enchelmaier, S. (1998). Agriculture, Fisheries and Environment. *International and Comparative Law Quarterly*, 706--712.
- Ekonomi, U. P., & Menteri, J. P. (2010). Rancangan Malaysia kesepuluh.
- Fluharty, D. (2000). Habitat protection, ecological issues, and implementation of the Sustainable Fisheries Act. *Ecological Applications*, 10(2), 325--337.
- Food, U. N. (2015). Briefing, (November 2013).
- Hapter, C., Khan, A. S., Sumaila, U. R., Watson, R., Munro, G., & Pauly, D. (2006). GLOBAL NON-FUEL FISHERIES SUBSIDIES 1, 14(2002), 5--37.
- Heymans, J., Mackinson, S., Sumaila, U., Dyck, A., & Little, A. (2011). The impact of subsidies on the ecological sustainability and future profits from North Sea fisheries. *Plos One*, 6(5), 20239.
- Ishak Haji Omar. (1994). *Market power, vertical linkages, and government policy* (1st ed.). Kuala Lumpur: Oxford University Press.
- Issue, A., & Paper, O. (2005). Artisanal Fishing : Promoting Poverty Reduction and Community Development through New WTO Rules on Fisheries Subsidies.
- Jaafar, A. H., Ekonomi, F., Alam, I., & Lestari, P. (2007). Penangkapan ikan oleh nelayan negeri sembilan: satu kajian empirikal, 14(1), 219--230.
- Khan, A. (2005). The nature and magnitude of global non-fuel fisheries subsidies.
- Kuperan, K., & Sutinen, J. (1998). Blue water crime: deterrence, legitimacy, and compliance in fisheries. *Law & Soc'y Rev.*, 32, 309.
- Lang, K., Wooders, P., & Charles, C. (2010). Defining Fossil-Fuel Subsidies for the G-20: Which Approach is Best? Available At SSRN 1577690.
- Lkim.gov.my,. (2014). Portal Rasmi Lembaga Kemajuan Ikan Malaysia - Laman Utama. Retrieved 15 March 2014, from <http://www.lkim.gov.my/>
- Marcarelli, A., Baxter, C., Mineau, M., & Hall Jr, R. (2011). Quantity and quality: unifying food web and ecosystem perspectives on the role of resource subsidies

- in freshwaters. *Ecology*, 92(6), 1215--1225.
- Milazzo, M. 1998. Subsidies in world fisheries: a re-examination. World Bank Technical Paper. No. 406. Fisheries series, The World Bank., Washington, DC.
- Mohd Ariff, M. Sharir, M. Ali, I. Majid, M. & Hussin. H (n.d). PERKEMBANGAN PERUSAHAAN PERIKANAN DI SEENANJUNG MALAYSIA: ISU DAN PERSOALAN.
- Mohd. Noor Mohd. Shariff., Jamal Ali., & Badruddin A. Rahman., (2007). *Kajian pembangunan usahawan di sektor perikanan Malaysia* (1st ed.). Sintok: Universiti Utara Malaysia.
- Mondaca-schachermayer, C. I., Aburto, J., Cundill, G., & Lancellotti, D. (2011). An Empirical Analysis of the Social and Ecological Outcomes of State Subsidies for Small-Scale Fisheries : A Case Study from Chile, *16*(3).
- Pauly, D. 2006. Major trends in small-scale marine fisheries, with emphasis on developing countries and some implications for the social sciences. *Journal of Maritime Studies (MAST)*, 4: 7–22.
- Pauly, D., Christensen, V., Guénette, S., Pitcher, T.J., Sumaila, U.R., Walters, C.J., Watson, R. Zeller., D. 2002. Towards sustainability in world fisheries. *Nature*, 418: 689-695.
- Perikanan.perak.gov.my,. (2014). MJG. Retrieved 27 April 2014, from <http://perikanan.perak.gov.my/dmjg/fpagemjg.htm>
- Poole, E. (2001). Income subsidies and incentives to overfish. *International Institute Of Fisheries Economics and Trade*.
- Raduan, M., Sharir, M., & Aziz, Z. (2010). The Problems of Traditional Fishermen in Peninsular Malaysia: Solutions without an End (MASALAH NELAYAN TRADISIONAL DI SEMENANJUNG MALAYSIA: PENYELESAIAN TANPA KESUDAHAN). *Journal of Southeast Asian Studies*, 12(1).
- Ru, C. N. E. W., Subsidies, O. N. F., & Idies, S. U. B. (2004). Healthy Fisheries , ES ON FISHING SUBSIDIES, (June).
- Schwartz, G., & Clements, B. (1999). Government subsidies. *Journal of Economic Surveys*, 13(2), 119--148.
- Soegiarto, Aprilani (1994). "Sustainable Fisheries, Environment and the Prospects of Regional Cooperation in Southeast Asia." Paper presented at the Nautilus Institute Workshop on Trade and Environment in Asia-Pacific: Prospects for Regional Cooperation, 23-25 September 1994, East-West Center, Honolulu.
- Sumaila, U., & Pauly, D. (2006). Catching more bait: A bottom-up re-estimation of

global fisheries subsidies (2nd version). *Fisheries Centre. University Of British Columbia.*

Sumaila, U., Teh, L., Watson, R., Tyedmers, P., & Pauly, D. (2008). Fuel price increase, subsidies, overcapacity, and resource sustainability. *ICES Journal of Marine Science: Journal Du Conseil*, 65(6), 832--840.

Talib, B., Jaafar, A., & Siwar, C. (2007). Penangkapan ikan oleh nelayan Negeri Sembilan: satu kajian empirikal. *IJMS*, 14(1), 219--230.

Vagliasindi, M. (2012). Implementing Energy Subsidy Reforms An Overview of the Key Issues, (July).

APPENDIX

APPENDIX A: Multiple Regression Analysis

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Size vessel, Vessel size, Experience, Level of education, Frequency fuel consumption ^a	.	Enter

a. All requested variables entered

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.964 ^a	.930	.920	93.664

a. Predictors: (Constant), Size Vessel, Vessel size, Experience, Level of education, Frequency fuel consumption

b. Dependent Variable; Fisheries income per month

ANOVA^b

Model		Sum of Square	df	Mean Square	F	Sig
1	Regression	4408619.742	5	881723.948	100.506	.000 ^a

	Residual	333368.894	38	8772.866		
	Total	4741988.636	43			

- c. Predictors: (Constant), Size Vessel, Vessel size, Experience, Level of education, Frequency fuel consumption
d. Dependent Variable; Fisheries income per month

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	907.09	2100.86	1403.41	320.197	44
Std. Predicted Value	-1.550	2.178	.000	1.000	44
Standard Error of Predicted Value	18.254	51.066	33.582	8.374	44
Adjusted Predicted Value	889.87	2060.71	1401.63	318.763	44
Residual	-147.073	348.448	.000	88.050	44
Std. Residual	-1.570	3.720	.000	.940	44
Stud. Residual	-1.806	4.037	.009	1.021	44
Deleted Residual	-201.779	410.327	1.779	104.803	44
Stud. Deleted Residual	-1.864	5.271	.038	1.149	44
Mahal. Distance	.656	11.805	4.886	2.805	44
Cook's Distance	.000	.482	.032	.080	44
Centered Leverage Value	.015	.275	.114	.065	44

- a. Dependent variable: Fisheries income per month

APPENDIX B



KESAN SOSIOEKONOMI DAN ALAM SEKITAR ATAS PELAKSANAAN SUBSIDI PERIKANAN DI KAWASAN MANJUNG PERAK

Kajian Sosio Ekonomi ini dijalankan adalah untuk melihat pola perubahan yang dialami oleh para nelayan dalam kawasan Manjung. Ianya untuk melihat keberkesanan program subsidi perikanan yang diberikan kepada para nelayan. Aspek yang diberi penekanan dalam kajian ini ialah perubahan dari taraf hidup, peningkatan pendapatan dan indeks kemakmuran nelayan seperti pemilikan aset, tahap pendidikan serta lain-lain pendapatan sampingan. Sokongan dan maklumat serta kerjasama yang diberikan kami hargai.

Arahan:

Sila Lengkapkan butiran dalam borang kaji selidik ini dengan menanda dan mengisi petak-petak yang disediakan dengan menggunakan HURUF BESAR.

BAHAGIAN A: MAKLUMAT LATAR BELAKANG RESPONDEN

1a No. K/P*:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

1b Lokasi: i. Kampung ii. Kawasan Perikanan

1c Nama (seperti dalam K/P) :

2 a. Jantina* : i. Lelaki ii. Perempuan

b. Umur :

--	--

 tahun

c. Tarikh Lahir :

--	--	--	--	--	--	--	--

 (cth16051970)

3 Kewarganegaraan* : Warganegara Bukan Warganegara

4 Bangsa

- a. Melayu
- b. Cina
- c. Siam
- d. India
- e. Lain-lain

Sila nyatakan : _____

5 Agama

- a. Islam
- b. Buddha
- c. Hindu
- d. Lain-lain

Sila nyatakan : _____

6. Status Perkahwinan

- a. Bujang
- b. Berkahwin
- c. Duda (Lelaki)
- d. Lain-lain

Sila nyatakan : _____

- 7 a. Bilangan Anak yang tinggal bersama
- b. Bilangan isi rumah

8 Pekerjaan Utama

- | | |
|----------------------|----------------------|
| a. Petani Padi | <input type="text"/> |
| b. Berniaga | <input type="text"/> |
| c. Buruh Pertanian | <input type="text"/> |
| d. Penternak | <input type="text"/> |
| e. Nelayan | <input type="text"/> |
| f. Buruh Am | <input type="text"/> |
| g. Kakitangan Swasta | <input type="text"/> |
| h. Pesara | <input type="text"/> |
| i. Pekerja Kilang | <input type="text"/> |
| j. Penjaja | <input type="text"/> |
| k. Pekerja Tak Tetap | <input type="text"/> |
| l. Lain-lain | <input type="text"/> |

Sila nyatakan: _____

9 Pekerjaan Sampingan

- | | |
|------------------------|----------------------|
| a. Petani | <input type="text"/> |
| b. Berniaga | <input type="text"/> |
| c. buruh Pertanian | <input type="text"/> |
| d. Penternak | <input type="text"/> |
| e. Nelayan | <input type="text"/> |
| f. Buruh Am | <input type="text"/> |
| g. Kakitangan Swasta | <input type="text"/> |
| h. Kakitangan Kerajaan | <input type="text"/> |
| i. Pesara | <input type="text"/> |
| j. Pekerja Kilang | <input type="text"/> |
| k. Penaja | <input type="text"/> |
| l. Pekerja Tak Tetap | <input type="text"/> |
| m. Lain-lain | <input type="text"/> |

Sila nyatakan: _____

10 Tahun pengalaman dalam aktiviti perikanan _____ tahun.

11 Pernahkah menghadiri kursus perikanan _____

1. Ya 2.

Jika Ya, siapakah yang menganjurkan kursus tersebut _____

12 Tahap Pendidikan / Kelulusan anda

- a. Institusi Pengajian Tinggi
- b. STPM/STA
- c. Sekolah Menengah (SPM/SPVM)
- d. Sekolah Menengah Rendah (PMR)
- e. Sekolah Rendah
- f. Sekolah Pondok
- g. Tiada Pendidikan

13 Nyatakan Kebolehan anda dan keluarga di dalam penggunaan Teknologi Makluma (IT) (Jawab satu shaja)

- a. Tahu cara menggunakan komputer
- b. Tahu cara menggunakan internet di dalam mencari maklumat
- c. Hanya anak-anak yang tahu mengguna komputer dan internet
- d. Tidak tahu langsung
- e. Anak-anak juga tidak tahu

14 **PENDAPATAN KETUA ISI RUMAH**

i. PENDAPATAN DARI PERIKANAN (SEBULAN)

Bil	Jenis Pendapatan	Jumlah (RM)
1	Jumlah pendapatan perikanan (RM sebulan) termasuk subsidi	
2	Lain-lain (RM) (Sila nyatakan)	
	Jumlah Pendapatan dari perikanan (RM sebulan)	

ii. PENDAPATAN DARI BUKAN PERIKANAN

Bil	Jenis Pendapatan	Jumlah (RM)
1	Pengajian (kerka kerajaan/kerja swasta) (RM Sebulan)	
2	Ambil upan (bukan perikanan) (Rm sebulan)	
3	Sewaan bot tujuan perikanan (RM sebulan)	
4	Sumbangan anak-anak/saudara mara (RM sebulan)	
5	Lain-lain	
	Jumlah pendapatan bukan dari perikanan (RM sebulan)	

b. Jumlah Pendapatan Ketua Isi Rumah (i+ii) RM_____

15. Adakah pendapatan ke laut sebulan yang anda perolehi boleh menampung keperluan keluarga

- a. Mencukupi
 - b. Tidak mencukupi
 - c. Kadangkala mencukupi kadangkala tidak cukup
- | |
|--|
| |
| |
| |

16. Adakah pendapatan ke laut di campurdengan sumber pendapatan lain sebulan boleh menampung keperluan keluarga

- a. Mencukupi
 - b. Tidak mencukupi
 - c. Kadangkala mencukupi kadangkala tidak cukup
- | |
|--|
| |
| |
| |

17. Apakah jenis skim bantuan yang diterima

- i. Bot
- ii. Enjin
- iii. Perkakas
- iv. Skim insentif hasil tangkapan
- v. Skim bayaran elaun sara hidup
- vi. Skim subsidi diesel dan petrol
- vii. Tabung bencana alam dan kebajikan nelayan
- viii. Insentif kotak ikan berinsulasi fodd grade (KIBFG) bagi ikan tempatan
- ix. Lain lain bantuan Nyatakan

18. Berapakah umur bot?

_____ Tahun

19. Apakah saiz bot yang digunakan?

GRT

- a. Kurang 20
- b. 20-39.9
- c. 40-69.9
- d. Lebih 70

20. Apakah saiz enjin yang digunakan?

_____ KW

21. Jenis pukot yang digunakan?

- a. Pukat Hanyut
- b. Pukat Tunda
- c. Pukat Jerut
- d. Lain-lain

Nyatakan: _____

BAHAGIAN B: KEMUDAHAN

(BOLEH JAWAB LEBIH DARI SATU JAWAPAN)

22. Pemilikan rumah kediaman

- a. Rumah sendiri
- b. Sewa
- c. Lain-lain

23. Bekalan asas di rumah

- a. Bekalan air
- b. Bekalan elektrik

24. Peralatan di rumah

- a. Peti ais
- b. Televisyen
- c. Sofa
- d. Radio
- e. Telefon rumah
- f. Telefon bimbit
- g. Mesin basuh
- h. Ketuhar
- i. Set meja makan
- j. Televisyen ASTRO
- k. Hawa dingin
- l. Internet

25. Kenderaan yang dimiliki

- a. Motorsikal
- b. Kereta
- c. Van
- d. Lori

**BAHAGIAN C: KESAN PENGGUNAAN SUBSIDI KEPADA
PENINGKATAN HASIL LAUT**

26. Hasil daripada aktiviti perikanan yang dijalankan

Sila nyatakan jawapan anda. Sila jawab secara tepat yang mungkin mengikut ingatan anda.

a. Hasil RM _____

b. Jenis ikan yang ditangkap

- i. _____
- ii. _____
- iii. _____
- iv. Lain-lain _____

- c. Cara pembahagian hasil tangkapan?
- i. _____
 - ii. _____

BAHAGIAN D: PETUNJUK KEPUASAN DAN KESEDARAN
PENGGUNAAN SUBSIDI DI KAWASAN PERIKANAN

Sila nyatakan tahap kepuasan anda terhadap soalan-soalan mengikut skala yang diberikan:

	Amat tidak memuaskan	1	2	3	4	5	Amat memuaskan
27	Pada keseluruhannya, sejauh manakah anda berpuas hati dengan taraf hidup and kini?	1	2	3	4	5	
28	Pada keseluruhannya, sejauh manakah anda berpuas hati dengan kualiti program yang diperolehi?	1	2	3	4	5	
29	Pada keseluruhannya, sejauh manakah anda berpuas hati dengan kegiatan penangkapan di kawasan perikanan anda?	1	2	3	4	5	
30	Pada keseluruhannya, sejauh manakah anda berpuas hati dengan penggunaan skim dan bantuan di masa hadapan?	1	2	3	4	5	
31	Pada keseluruhan, sejauh manakah anda berpuas hati dengan jaminan yang diberikan kerajaan atas bantuan dan skim?	1	2	3	4	5	

**BAHAGIAN E: ALASAN MENGGUNAKAN SKIM DALAM AKTIVITI
MENANGKAP HASIL LAUT**

Sila nyatakan alasan nelayan menggunakan skim dalam aktiviti perikanan, dengan skala yang diberikan:

Amat tidak gembira

1	2	3	4	5
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 Amat gembira

- | | | |
|----|---|-----------|
| 32 | Selesa semasa bekerja | 1 2 3 4 5 |
| 33 | Semua nelayan di kawasan saya juga menggunakan skim dan bantuan | 1 2 3 4 5 |
| 34 | Tidak dirasakan perlu dalam aktiviti perikanan | 1 2 3 4 5 |

BAHAGIAN F: KESAN SUBSIDI ATAS SOSIOEKONOMI RESPONDEN

- 35 Kesan penggunaan dan peranan

Bil	Perkara	Ya	Tidak
a	Penggunaan bot sendiri		
b	Penggunaan bot sewa		
c	Ketua		
d	Pembantu		
e	Pekerja/awak-awak		
f	sendirian		
g	Tidak diketahui		

36 Kekeapan

Bil	Perkara	Mengikut kekeapan		
		Jam/Hari	Hari/Minggu	Hari/Bulan
a	Kekeapan menangkap hasil laut			

37 Kekeapan membeli petrol atau diesel (sebulan) (Anggaran)

Bil	Perkara	Jenis bahan api	
		Petrol	Diesel
a	Pembelian bahan api		

38 Hasil tangkapan menikut kekeapan (Anggaran)

Bil	Perkara	10-15 hari	16-25 hari	26-30 hari
a	Hasil			

39 Berapakah anggaran perbelanjaan yang dijalankan dalam sebulan?

Bil	Perkara	Minggu (RM)	Bulan (RM)
a	Makanan		
b	Pakaian		
c	Tempat tinggal		
d	Lain-lain		

40 Adakah anda menyimpan hasil daripada aktiviti penangkapan?

Ya

Tidak

RM_____ Sebulan

KERTAS SOALAN TAMAT

**TERIMA KASIH ATAS KERJASAMA TUAN DALAM MENJAWAB SOAL
SELIDIK INI**