



The effectiveness of the subsidized fuel distribution for fish carrier vessels in Banjarmasin Fishing Port, Indonesia

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Abstract

The effectiveness (E) of the subsidized fuel distribution for fish carrier vessels in Banjarmasin Fishing Port, Indonesia during 2017 and 2018 was investigated. A total of 58 respondents were interviewed using the structured questionnaires. The fuel distribution is locally managed by "Saraba Usaha" Cooperative. The total fuel consumption in 2017 (957,197 L/year) was 1.3 times higher than in 2018 (729,650 L/year). The total incomes received by the Cooperative in 2017 and 2018 were IDR 4,929,554,250 and IDR 3,757,697,500 respectively. The fuel distributed appears to still be inferior to the target quota, and falls between 'fairly effective' (E = 53%) and 'ineffective' (E = 49%). For the time being, the greatest user of the subsidized fuel was the large vessels. It is necessary to adjust the fuel allocation ratio between large, medium and small vessels to increase the effectiveness rates. The strategy for improvement of Cooperative business performance was further discussed.

Keywords: fuel subsidy, effectiveness, "Saraba Usaha" cooperative, fish carrier vessel

1. Introduction

It is generally accepted that the fuel is one of the crucial factors in fisheries sector that makes up a substantial component of fishing costs. It has become a sensitive issue from time to time due to its potential impact to socio-economic and natural resource sustainability (Munro and Sumaila, 2002; Tyedmers *et al.*, 2005; Sharp and Sumaila, 2009; Mallory, 2016) [12, 13, 14, 20]. Most countries create powerful interests in support of ongoing subsidies and continued high fishing quotas to support their commercial fishing industries. While USA, New Zealand, Australia, Chile, Ireland and Norway agreed to ban harmful subsidies (Harpera *et al.*, 2012) [7]. According to Lee and Midani (2013) [10], the main reasons to scrutinize fuel subsidies are overcapacity with high fishing efforts and depletion of stocks. In South Korea, fuel subsidies do not always help for reducing the fishing effort because the fishermen will still look for new fishing grounds and spend more fuel without considering fuel costs. The fuel cost varies by fishery, it accounted for about 34% of the total cost for Fijian artisanal fishery (Reddy, 2004) [21] or more than 50% for Senegalese fishing fleets (Dahou *et al.*, 2001) [4]. While in China, fishing fleets received fuel subsidies up to 94% (Mallory, 2016) [12]. Moreover, direct fuel inputs account for an estimated 75–90% of total energy inputs to fishing activities. Subsidies can be given directly to the fishermen in the form of grant, loan, income support program, fuel tax exemptions or budget reallocation (Clark *et al.*, 2005; Khan *et al.*, 2006; Sumaila *et al.*, 2008; Harpera *et al.*, 2012; Dartanto, 2012) [3, 5, 7, 9, 17] or given through a third party such as fishing cooperatives (Sumaila *et al.*, 2007) [16]. The amount of fuel subsidies given varies depending on the number and size of fishing fleets, the type of fishing gears used and the required fuel quota. In line with this issue, Sumaila *et al.* (2008) [17] estimated the amount of fuel subsidies to the fishing sector by governments globally

ranged of US\$ 4.2–8.5 billion per year. While Tyedmers *et al.* (2005) [20] reported that fishing fleets globally consumed average 620 liters (or half a ton) of fuel for every ton of catch landed. Tuna longliner and deep water trawler was the highest consumers, averaging 1,500 L per ton landed (Sumaila *et al.*, 2006) [15]. Reducing fuel subsidies would affect household welfare directly through higher costs for fuel consumption and indirectly through higher costs for fuel-based goods and services (Breisinger *et al.*, 2012) [2]. Thus, fuel subsidy reform should be encouraged to scale up economic growth and reduce the poverty (Hope and Singh, 1995; Von Moltke *et al.*, 2004; Breisinger *et al.*, 2012; Yang *et al.*, 2017) [2, 8, 22, 23].

Many countries have regulations to regulate, supervise and control the supply, distribution and retail price of subsidized fuel at fishermen level. In Indonesia, fuel subsidy protocols have been set under the Law Number 22 of 2001, Presidential Regulation Number 191 of 2014, and Ministerial Decree of Marine Affairs and Fisheries Number 13 of 2015. In the present study, fuel subsidy procedure is made based on the Cooperation Agreement between PT. AKR Corporindo. Tbk (first party) and "Saraba Usaha" Cooperative (second party). As a distributor of subsidized fuel, the cooperative has the authority to sell and distribute the fuel to the registered fish carrier vessels in Banjarmasin Fishing Port. Before this, fishermen bought the solar fuel from local retail traders without any supervision and control from the local authority in term of fuel distribution, the selling price, the quality of the fuel and security aspect, potentially leading to illegal practices. To get a clear picture of the rule and function of "Saraba Usaha" Cooperative as the subsidized fuel distributor, we conducted field survey to ensure whether or not fuel distribution system to fish carrier vessels is effectively done, and what the appropriate strategies for increasing the effectiveness of fuel distribution at Banjarmasin Fishing Port, as well as for improving the

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work performance of "Saraba Usaha" Cooperative especially in making the most of the subsidized fuel distribution and service quality.

2. Materials and methods

2.1 Site study

The field survey was carried out in Banjarmasin Fishing Port of South Kalimantan Province, Indonesia (Figure 1), located on 03°18'03" S and 114°33'02" E; while "Saraba Usaha" Cooperative belongs to this Fishing Port. Banjarmasin Fishing Port is one of the regional technical Implementing Units (UPTD) under the Marine and Fisheries Service of South Kalimantan Province. It is administratively bordered with Barito Kuala District at the western and northern, and with Banjar District at eastern and southern parts. It is only about 4 km from the heart of Banjarmasin City. To run its function, the fishing port is equipped with main office, meeting hall, fish landing site, fish marketing place, fuel supply station, ice plant, jetty, and car park. Banjarmasin Fishing Port is the oldest fishing port in Kalimantan Island and very strategic area because it is also accessible by fish carrier vessels from Java and Sulawesi. In addition, Banjarmasin Fishing Port was built on 1975 and positioned in the edge of Barito River.



Fig 1: The red circle indicates the location of the solar fuel station in Banjarmasin Fishing Port, Indonesia

2.2 Characteristic of respondents

A total of 58 respondents were selected consisted of 7 staffs of "Saraba Usaha" Cooperative, 8 employees of SPBN Barito Hulu, 32 fishermen group (ship owners, captains and crews) and 11 Fishing Port officers. They were deeply interviewed using the structured questionnaires. The age of respondents was ranged of 17-63 year old. They originated from ethnic groups of Banjar (66%), Java (22%) and Bugis (12%). The highest education level achieved was junior high school (50%), followed by elementary school (28%) and senior high school (16%). Differ from general fishing cooperatives over the world; the full member of "Saraba Usaha" Cooperative was civil servants who work for Banjarmasin Fishing Port.

2.3 Fish carrier vessels and proportion of fuel quota

The only 179 fish carrier vessels having license certificates (SIKPI) to be recommended for receiving the subsidized fuel. All the ship owners are registered in PT. AKR Corporindo. Tbk and have ID cards from "Saraba Usaha"

Cooperative as fixed customers. The actual proportion of total fuel quota varies by the size of vessels (gross tonnage). In this case, a total fuel quota of 1.808.700 L/year are proportionally distributed to each vessel group, i.e. 117,000 L/year for 17 vessels of 1-10 GT (6.47%), 166,000 L/year for 18 vessels of 11-20 GT (9.18%) and 1,525,700 L/year for 144 vessels of 21-30 GT (84.35%). The sample of 32 registered ship owners in the present study (18%) was considered a representative of each vessel group the above mentioned.

2.4 Fuel subsidy procedure

The quantity of fuel quota was based on the ship owner's request and then the Head of Banjarmasin Fishing Port verified and made a recommendation letter to "Saraba Usaha" Cooperative to be forwarded to PT. AKR. Corporindo. Tbk and BPH Migas (Downstream Regulatory Agency for Oil and Gas) for the approvals. According the regulation, the fuel subsidized was only given up to 30 GT fishing vessels.

2.5 Data analysis

The effectiveness (E) of the subsidized fuel distribution from "Saraba Usaha" Cooperative to fish carrier vessels was calculated by using the following formula (Mahsun, 2009) [11].

$$\text{Effectiveness} = \frac{\text{realization}}{\text{target}} \times 100\% \quad (1)$$

The fuel distribution is considered 'effective' if the value ranged of 76-100%, 'fairly effective' if the value ranged of 50-75%, and 'ineffective' if the value obtained is less than 50%. While 'realization' means that the quantity of the subsidized fuel given to fish carrier vessels in real time (liter per month), while the target is the maximum fuel quota set by BPH Migas as much of 150,000 L/month or 1,800,000 L/year.

The SWOT analysis was used to formulate the appropriate strategies for increasing the performance of "Saraba Usaha" Cooperative especially in managing the subsidized fuel distribution at Banjarmasin Fishing Port. SWOT Analysis is a simple but powerful tool for sizing up an organization's resource capabilities and deficiencies, its market prospects, and the external threats to its future (Thompson *et al.*, 2007) [19]. It has two dimensions: (1) internal dimension links to the strengths and weaknesses of core organization, and (2) external dimension allied to opportunities and threats toward outside environment (Gurel and Tat, 2017) [6]. The data were tabulated and analyzed using conventional statistical tools of MS Excel 2010, then presented in textual and tabular forms.

3. Results and Discussion

It is acknowledged that there are four assigned distributors of solar fuel at the national level, namely PT. Pertamina (Persero), PT. AKR Corporindo. Tbk, PT. Petronas Niaga Indonesia, and PT. Surya Parna Niaga. During 2011-2018, a total of 122,424,952 kL solar fuels have been supplied to global fishing fleets (Table 1). The smallest quantity of fuels given was 13,084,952 kL in 2011 and the largest quantity was 17,050,000 kL in 2015. It is clearly showed that PT. Pertamina is the largest solar fuel distributor in Indonesia (98.12%), followed by PT. AKR Corporindo. Tbk (1.85%), PT. Petronas Niaga Indonesia (0.03%) and PT. Surya Parna Niaga (0.01%). In 2017, "Saraba Usaha" Cooperative has

distributed 957,197 L/year or 79,766 L/month solar fuels (Table 2). The largest quantity of fuel distributed was 141,295 L in October (E = 98%) and the smallest quantity was 41,719 L in February (E = 28%). In this period, we estimated the average effectiveness rate was 53% of the total targeted quota (150,000 L/month), which is categorized 'fairly effective'. While in 2018, the average solar fuel distributed was 72,965 L/month or 729,650 L/year (Table 3). The largest quantity of fuel distributed was 101,014 L in December (67%) and the smallest quantity was 36,468 L in February (24%). The average effectiveness rate obtained was 49% of the total targeted quota, which is categorized 'ineffective'. From available data presented in Table 4, we calculated the average number of fish carrier vessel visited

to the fishing port was 63 (55-71) vessels in 2017 and 71 (56-84) vessels in 2018 or about 31-47% of total registered vessels (179). At the end of August 2018, the fuel supply being stopped temporarily due to the leakage of the fuel storage tank of SPBN Barito Hulu, as a result no solar fuels distributed by "Saraba Usaha" Cooperative was observed during September and October. The repair and maintenance of the fuel station were done for about two and half months, and it began operating normally on November. From the fuel sales, the Cooperative got income ranged from IDR 214,852,850 to IDR 754,397,750 per month in 2017 and from IDR 187,810,200 to IDR 520,222,100 per month in 2018 (Table 5).

Table 1: The annual solar fuel quotas provided by the national solar fuel distributors

Annual Fuel Quota	Solar Fuel Distributors (kilo liter)				Total (kilo liter)
	PT. Pertamina (Persero)	PT. AKR Corporindo. Tbk	PT. Petronas Niaga Indonesia	PT. Surya Parna Niaga	
2011	12,994,142	90,810	-	-	13,084,952
2012	14,875,019	90,853	34,128	-	15,000,000
2013	15,920,072	106,775	-	3,153	16,030,000
2014	14,135,000	500,000	-	5,000	14,640,000
2015	16,425,000	625,000	-	-	17,050,000
2016	15,700,000	300,000	-	-	16,000,000
2017	15,700,000	300,000	-	-	16,000,000
2018	14,370,000	250,000	-	-	14,620,000
Total	120,119,233	2,263,438	34,128	8,153	122,424,952
Percentage	98.12	1.85	0.03	0.01	100

Source: <http://www.bphmigas.go.id>

Table 2: The realization and effectiveness rate of the subsidized fuel distribution by "Saraba Usaha" Cooperative in 2017.

Month	Targeted quota (L)	Recommended quota (L)	Realization (L)	Effectiveness rate (%)
January	150,000	81,000	72,136	48
February	150,000	94,100	41,719	28
March	150,000	85,900	76,820	51
April	150,000	73,000	71,026	47
May	150,000	73,700	64,692	43
June	150,000	84,900	57,229	38
July	150,000	75,000	69,311	46
August	150,000	84,300	80,869	54
September	150,000	77,700	72,685	48
October	150,000	149,600	146,485	98
November	150,000	147,000	141,295	94
December	150,000	70,800	62,928	42
Total	1,800,000	1,097,000	957,197	638
Average	150,000	91,417	79,766	53

Table 3: The realization and effectiveness rate of the subsidized fuel distribution by "Saraba Usaha" Cooperative in 2018

Month	Targeted quota (L)	Recommended quota (L)	Realization (L)	Effectiveness rate (%)
January	150,000	66,800	54,373	36
February	150,000	44,800	36,468	24
March	150,000	85,000	72,473	48
April	150,000	90,200	79,274	53
May	150,000	85,600	71,149	47
June	150,000	73,000	67,013	45
July	150,000	114,400	99,649	66
August	150,000	65,600	52,340	35
September	150,000	-	-	-
October	150,000	-	-	-
November	150,000	103,500	95,897	64
December	150,000	113,400	101,014	67
Total	1,800,000	842,300	729,650	486
Average	150,000	84,230	72,965	49

Table 4: The subsidized fuel distribution by number of fish carrier vessel and the quantity of fuel distributed during 2017-2018

Year of 2017	Number of fish carrier vessel				The quantity of fuel distributed (L)			
	1-10 GT	11-20 GT	21-30 GT	Total	1-10 GT	11-20 GT	21-30 GT	Total
January	3	2	63	68	1,410	6,276	64,450	72,136
February	4	3	55	62	1,850	7,350	32,519	41,719
March	3	3	56	62	1,650	7,250	67,920	76,820
April	4	1	50	55	1,978	2,050	67,000	71,028
May	4	3	62	69	1,850	6,570	56,272	64,692
June	4	1	66	71	1,950	1,980	53,099	57,229
July	4	2	57	63	1,780	4,131	63,400	69,311
August	3	3	53	59	1,705	6,600	72,564	80,869
September	3	3	50	56	1,440	6,255	64,990	72,685
October	4	2	57	63	1,950	4,250	140,285	146,485
November	3	3	62	68	1,550	5,200	134,545	141,295
December	4	1	60	65	1,650	1,800	59,478	62,928
Total	43	27	691	761	20,763	59,712	876,522	957,197
Average	4	2	58	63	1,730	4,976	73,044	79,766
Year of 2018	Number of fish carrier vessel				The quantity of fuel distributed (L)			
	1-10 GT	11-20 GT	21-30 GT	Total	1-10 GT	11-20 GT	21-30 GT	Total
January	2	1	65	68	850	2,500	51,023	54,373
February	2	1	53	56	950	2,250	33,268	36,468
March	3	1	55	59	1,450	1,850	69,173	72,473
April	2	2	56	60	1,150	5,050	73,074	79,274
May	2	1	65	68	1,050	2,050	68,049	71,149
June	2	1	74	77	1,200	2,000	63,813	67,013
July	3	2	73	78	1,650	5,071	92,928	99,649
August	2	1	71	74	980	1,800	49,560	52,340
September	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-
November	4	2	75	81	1,650	3,430	90,817	95,897
December	4	2	78	84	1,780	3,200	96,034	101,014
Total	26	14	665	705	12,710	29,201	687,739	729,650
Average	3	1	67	71	1,271	2,920	68,774	72,965

Table 5: Sales revenue of the subsidized solar fuel received by “Saraba Usaha” Cooperative during 2017-2018

Month	Unit price (IDR/L)	2017		2018	
		Fuel distributed (L)	Sales revenue (IDR)	Fuel distributed (L)	Sales revenue (IDR)
January	5,150	72,136	371,500,400	54,373	280,020,950
February	5,150	41,719	214,852,850	36,468	187,810,200
March	5,150	76,820	395,623,000	72,473	373,235,950
April	5,150	71,026	365,783,900	79,274	408,261,100
May	5,150	64,692	333,163,800	71,149	366,417,350
June	5,150	57,229	294,729,350	67,013	345,116,950
July	5,150	69,311	356,951,650	99,649	513,192,350
August	5,150	80,869	416,475,350	52,340	269,551,000
September	5,150	72,685	374,327,750	-	-
October	5,150	146,485	754,397,750	-	-
November	5,150	141,295	727,669,250	95,897	493,869,550
December	5,150	62,928	324,079,200	101,014	520,222,100
Total	61,800	957,195	4,929,554,250	729,650	3,757,697,500
Average	5,150	79,766	410,796,188	72,965	375,769,750

Most of respondents acknowledged that the existence of fuel station was very helpful in supporting fishing operation with reasonable fuel price and simple procedure. The fuel required for one trip varies with the boat sizes. The larger fishing vessel the more fuel needed. For example, fishing vessel of 4 GT (LBD: 10.0×3.0×0.9 m) with Mitsubishi engine of 120 HP (horsepower) required about 7,000 L/month, while fishing vessel of 30 GT (20.9×4.1×1.7 m) with 180 HP requisite for about 11,500 L/month or about 1.6 times higher. In addition, Mitsubishi is the most used boat engine by fishermen, followed by Hyundai, Nissan, Fuso, Hino and Toyota Rino. Typically boat engine powers used vary between 60 and 400 HP. About 40% of total

fishing vessels (179) using engine power of 190 HP, 17% for 160 HP and 15% for 175 HP. According to fishermen, fishing activities are mostly conducted between 100 and 200 nautical miles from fishing port (41%) and some of them outside the territorial waters of South Kalimantan Province (28%) such as Masalembo, Masalima, Bawean, Kangean, Kalokuang, Mamuju, Flores and Wakatobi. The duration of fishing operation of each vessel was regularly set for 18 hours per day or 20 days per month.

From the SWOT matrix analysis, we found the intersection point between internal and external strategy factors so-called ‘the quadrant I’ (Figure 2), which is a very favorable condition of combining the strength and the opportunity (S-

O) for business development of "Saraba Usaha" Cooperative instead of fuel distribution services. The Identification and proposed strategies for increasing the performance of "Saraba Usaha" Cooperative are presented in Table 6 and 7. Fuel subsidies are defined as direct or indirect financial transfers by the government to support their fishing sector. Overall, fuel subsidies compose about 15-30% of total support, while capacity-enhancing subsidies represent 60% of global fisheries subsidies (Sumaila *et al.*, 2010) ^[18]. In general, fuel subsidies given to fish carrier vessels in Banjarmasin Fishing Port is categorized as *capacity-enhancing subsidies* instead of price and marketing support, boat and fishing port construction programs or certain aspects of foreign access agreements. One of the most important results in the present study is that the solar fuel distributed by "Saraba Usaha" Cooperative in every month mostly falls between 'fairly effective' and 'ineffective'. It means that the fuel distributed appears to still be inferior to the target quotas. Low quantity of fuels ordered by the fish carrier vessels is reasoned by (1) low transshipment activity, which depends on number of catches and season; (2) some of fish carrier vessels usually take the catches from fishermen outside the territorial waters or from remote areas; (3) the unwillingness of ship's owners to refuel the oil-tanks because of still having spare-fuel to reduce operational cost. No statistically significant difference was observed in the monthly fuel distribution in 2017 and 2018 (Table 2 and Table 3). Overall, the number of vessels visited to Banjarmasin Fishing Port for refueling is less than 50% of total registered vessels (179). From all appearances, the large vessels (21-30 GT) significantly received the subsidized fuel about 21-41 times higher than the small ones (< 20 GT). The reason why the large vessels got more fuel is that because they took the catches from fishermen outside the territorial waters of South Kalimantan Province (e.g. Java, Nusa Tenggara Timur and Sulawesi). The total income obtained from the fuel sales in 2017 was 1.3 times higher than in 2018 (Table 5). The fuel

distribution activity in 2018 was only ten months due to the repair and maintenance of the fuel station. The unit price of the subsidized solar fuel prevails in Banjarmasin Fishing Port was IDR 5,150 per liter or almost 2 times cheaper than non-subsidized fuel sold at the public fuel station (IDR 9,400 per liter). This price remains far below fuel prices for transport. This fuel subsidy is indispensable to the existing users of fish carrier vessels less than 30 GT. Since the subsidized fuel is very sensitive to the possibility of illegal practices, the "Saraba Usaha" Cooperative has made an operational control by monitoring regularly the registered fish carrier vessels visit when first refueling, loading and discharging times and crosschecking with ID number and fishing logbook, as well as giving a conditional punishment for lawbreaker. Empirically, rational decision on fuel subsidies provided choices and designs for decision makers as a whole. According to Breisinger *et al.* (2012) ^[2], reducing fuel price is a part of government's policy to find a way to reform the fuel subsidies to generate incomes. The other way, increase in fuel price should have a conservation value (Sumaila *et al.*, 2006) ^[15]. It means that the fisheries companies will select competitively the operators of fishing fleets to be subsidized. This would reduce the pressure on the resources and allow for recovery time of them. In the long term, Binet and Knigge (2007) ^[11] suggested that fuel subsidies should be banished because fuel subsidies do not offer any positive aspects. In reality, inexpensive fuel is susceptible to abuse of right by bad people or the parties who involved in illegal transaction practices through oil-piling and oil-smuggling. In China, inexpensive fuel has allowed fishing companies to build a bigger fleet than necessary, which contribute to overcapacity and overfishing. Such fuel subsidies are not only harmful to ecosystems, but also an inefficient use of funds (Yang *et al.*, 2017) ^[23]. In line with this, Binet and Knigge (2007) ^[11] recommended that each member country should behave transparently on the hidden subsidies to environment and socio-economic impacts.

Table 6: Identification of internal and external factors by using the SWOT Matrix

Internal Strategy Factors	Weight	Rating	Score
A. Strength			
1. The location of the Cooperative is inside Banjarmasin Fishing Port	0.20	3.42	0.68
2. The Cooperative is a working partner of PT. AKR. Corporindo. Tbk	0.10	3.31	0.33
3. The cooperative is fully supported by the Head of Banjarmasin Fishing Port	0.20	3.77	0.75
4. The owners of fish carrier vessels are the fixed customers of SPBN Barito Hulu	0.10	3.31	0.33
Subtotal A	0.60	-	2.10
B. Weaknesses			
1. Lack of HRD soft skilled and personnel number	0.05	1.81	0.09
2. Limited business scale	0.05	3.50	0.18
3. Limited working-capital	0.10	2.27	0.23
4. Business Licensing is quite difficult	0.20	2.04	0.41
Subtotal B	0.40	-	0.90
Total (A + B)	1.00	-	3.00
Score (A – B)	-	-	1.20
External Strategy Factors	Weight	Rating	Score
Opportunities			
1. Government support in capital	0.20	2.88	0.58
2. Add business for non-subsidized fuel (> 30 GT)	0.20	2.62	0.52
3. Addition of ship owner's membership (> 30 GT)	0.05	3.19	0.16
4. The facility and services of fuel station can also be used for local retailer dealer or retail outlet	0.10	3.19	0.32
Subtotal C	0.55	-	1.58
Threats			
1. Alteration of government regulation on subsidized fuel	0.10	1.77	0.18
2. Alteration of government regulation on fishing vessels	0.10	3.23	0.32

3. The location of the fuel station is on the wood pier	0.15	2.62	0.39
4. Delay in delivering the subsidized fuel from PT. AKR. Corporindo. TBK	0.10	2.77	0.28
Subtotal D	0.45	-	1.17
Total (C + D)	1.00	-	2.75
Score (C - D)	-	-	0.41

Table 7. Strategies for increasing the work performance of "Saraba Usaha" Cooperative

External factors	Internal factors	
	<i>Strength (S)</i>	<i>Weakness (W)</i>
	<ol style="list-style-type: none"> The location of the Cooperative is inside Banjarmasin Fishing Port The Cooperative is a working partner of PT. AKR. Corporindo. Tbk The cooperative is fully supported by the Head of Banjarmasin Fishing Port The owners of fish carrier vessels are the fixed customers of SPBN Barito Hulu 	<ol style="list-style-type: none"> Lack of HRD soft skilled and personnel number Limited business scale Limited working-capital Business licensing is quite difficult
<p>Opportunity (O)</p> <ol style="list-style-type: none"> Government support in capital Add business for non- subsidized fuel (> 30 GT) Addition of ship owner’s membership (> 30 GT) The facilities and services of fuel station can also be used for local retailer dealer or retail outlet 	<p>S-O Strategy</p> <ol style="list-style-type: none"> Provide a non- subsidized fuel for fish carrier vessels > 30 GT to increase the Cooperative business income and also to support fish processing industry. Disseminate information on SPBN Barito Hulu facilities and services via internet to extend fishery business network. 	<p>W-O Strategy</p> <ol style="list-style-type: none"> Put in the way of staffs to attend technical training held by PT. AKR. Corporindo, Tbk. Providing additional services for non-subsidized fuel distribution (> 30 GT)
<p>Threat (T)</p> <ol style="list-style-type: none"> Alteration of government regulation on subsidized fuel Alteration of government regulation on fishing vessels The location of the fuel station is on the wood pier Delay in delivering the subsidized fuel from PT. AKR.Corporindo. TBK 	<p>S-T Strategy</p> <ol style="list-style-type: none"> Strive for addition of fuel storage tanks to overcome delays in fuel shipments as well as to ensure the availability of fuel to be distributed. Take apart the area of fuel station with other fisheries activities on the pier by a guardrail. 	<p>W-T Strategy</p> <ol style="list-style-type: none"> Add business capital to increase the distribution of non-subsidized fuel Increase the time for fuel distribution services for all fish carrier vessels

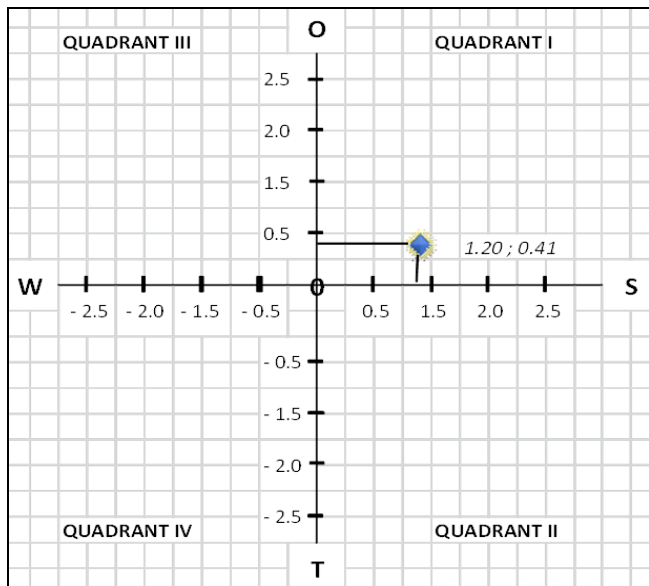


Fig 2: The graph showing ‘the quadrant I’ of the SWOT matrix analysis, provides the S-O strategy for improving the work performance of "Saraba Usaha" Cooperative.

After all, we provided a fundamental suggestion to improve the work performance of "Saraba Usaha" Cooperative particularly in maximizing the subsidized fuel distribution and service quality, inter-alia: (1) by increasing the fuel tank capacity from 10,000 to 20,000 L in order to ensure the availability of the fuels in place; and (2) by managing working hour and number of the personnel to optimize fuel

distribution services in proper time and in proper order to the needs of the users. Beyond regular business, the Cooperative can also create a new business of non-subsidized fuel distribution for fishing vessels over 30 GT with a competitive price.

4. Conclusion

It can be concluded that the solar fuel distributed by "Saraba Usaha" Cooperative to fish carrier vessels is still below the target quota and falls between ‘fairly effective’ and ‘ineffective’. The large vessel is the greatest user of the subsidized fuel for the time being. Therefore, it is necessary to adjust the fuel allocation ratio between large, medium and small vessels to increase the effectiveness rates.

5. Acknowledgements

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