

Investment potentials for the tilapia production in Myanmar

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ABSTRACT

Myanmar is renowned as a nation with good investment environment due to its prosperity of natural resources and high labor force. It has been gaining attentions from the world for its current economic and political development. Myanmar has started to join ASEAN in 1997 and the members of ASEAN are becoming the major investors in Myanmar. The ASEAN nations are gaining better opportunities to invest in Myanmar due to the free trade agreement. However, most of the investments are based on the extractive nature such as oil and gas, mining and power extraction sectors. There is considerably small number of investments in several other potential sectors which are agriculture and fishery. The investors will find Myanmar with tons of opportunities for the country's aquaculture sector. This study focus on the potential of aquaculture of Tilapia in Myanmar, which is one of the world most cultured fish with high market price. Presently, the production of Tilapia in Myanmar is still under its potential due to several bottlenecks that are hindering the promotion of Tilapia Industry of the country.

Based on the feasibility study, sensitivity analysis, and switching values analysis, the investment of Tilapia production in Yangon Township of Myanmar is worthwhile. Moreover, SWOT analysis and TOWS matrix were identified the potential opportunities

and challenges of Tilapia production investment in Myanmar. Thereby the potential investors from the ASEAN's member country and around the globe are provided with the strategies for engaging in the Tilapia Industry of Myanmar.

Keyword: ASEAN; Aquaculture; Investment; Myanmar; Tilapia

1. Introduction

The Association of South East Asian Nations (ASEAN) free trade is an agreement of trade liberalization among the ten member countries of South East Asian which are Thailand, Laos, Cambodia, Myanmar, Vietnam, Brunei, Philippines, Singapore Indonesia, and Malaysia. The ASEAN Economic Community (AEC) has been the final destination of economic integration of ASEAN countries. According to AEC blueprint, ASEAN will be a single market and base of production which comprises of free flow of five major elements a) goods, b) services, c) investment d) capital and e) skilled labor. Developing ASEAN as a single market for the goods and services will promote the facilitation for the production networks in the ASEAN member countries and the ASEAN will become the hub of global production and one critical part of the world supply chain.

Intra and Extra ASEAN trade of ASEAN's food, agriculture and forestry products and their long term competitiveness has been enhanced by several actions by implementing CEPT-AFTA schemes for agricultural and forest products, by applying the fisheries quality management systems to ensure the competitive position of ASEAN fishery products and establishing the good agricultural/aquaculture practices for the agricultural products which has significant potential for trading in ASEAN market. Several actions on promotion of ASEAN agricultural cooperatives by establishing linkages among the agricultural cooperatives within the ASEAN and enhancing the direct investment and partnership among the ASEAN agricultural cooperatives producers, consumers and traders, has been done to boost the market access of agricultural and fishery produce.

By developing ASEAN as a single production base and market will enhance the production network of goods and services in the ASEAN region and its capacity to function as a crucial part of the global supply chain. (AEC, 2008)

In addition to free flows of goods and services, a regime of free investment is crucial to improve the competitiveness of ASEAN for attracting the foreign direct investment and for investment within ASEAN members. The attempts for promotion of free investment include expanding non-discrimination among investors in ASEAN with limited exceptions, eliminating restriction on the entry of investments from abroad.

In terms of agricultural production, ASEAN nations have been standing of the major producers particularly fishery products. The total production from ten ASEAN member nations accounted for a quarter of total global fish production. Thailand, Indonesia, Vietnam and Philippines are four major top ten largest global fish producers. Indonesia is the largest producers in the Southeast Asian region and its production of fisheries reached to 10.83 million tonnes in 2010 and the growth of it was 10.29% than the previous year. Likewise, the production of Vietnam and Philippines also reached to 5.2 million tonnes each in the same year.

Other countries around the world have been depending upon the catch of ASEAN fishery. The demand of fish produce from ASEAN has been rising. For example, Australia is consuming almost half of the fishery demand from ASEAN. It was expected that the Australia demand will reach to 776,000 tonnes in 2020 and 610,000 tonnes will be imported. Likewise, Japan is the leading importers of seafood around the globe and its imports of shrimps are particularly from Vietnam, Indonesia and Thailand. United States is also a major importer of seafood from an ASEAN nation which is Vietnam. Thailand and Vietnam are two of the world largest exporters of fish and fishery produce.

Nowadays, Thailand and Vietnam are also face major problem of fishery. Aquaculture is the alternative choice for these countries. Therefore, Myanmar has been gaining attention of the investors from these countries. This is because Myanmar is the one with relatively higher competitive advantages for fishery due to its favourable environment.

2. Literature Review

Presently, under AEC, many countries expand their investments to other ASEAN country as the single production base. Therefore, the project analysis to make sure that is it whether or not to invest. The socioeconomic in host country should be analyzed. In this regard, for the Tilapia investment opportunity in Myanmar, general information related freshwater aquaculture in Myanmar and investment opportunities are presented below;

2.1. Freshwater aquaculture

In Myanmar, the freshwater aquaculture was commenced in 1954 by the introduction of exotic species such as tilapia, gourami and common carp. Tilapia is one of the first kinds of fish farmed as freshwater aquaculture in Myanmar. In aquaculture history of Myanmar, people had little interest on farming and more likely to harvest from wild sources since the country was rich in ample fishery resources. In the early 1960, seed production by breeding techniques has proved success and the freshwater aquaculture started to spread countrywide. Tilapia is one of the species that are being cultured in Myanmar. The seeds of tilapia have been produced by the fish hatchery under the department of fishery. (DOF, 2011) Myanmar is endowed with rich freshwater resources since it occupies large rivers and massive tributaries networks. Inland water bodies of Myanmar comprises of 8.2 million hectares of lakes, rivers and reservoirs. In addition, the inundated flood plains are also breeding grounds for freshwater fishes during the period of monsoon season with high rainfall. Fish is one of the staple foods for people and aquaculture is one of the potential industries for the economy of the nation. Commercially important fish species are cultured by stocking fish seeds and broodstocks in natural and anthropogenic water bodies. (Godfrey, 2013)

Fishery is the third largest export earning sector in Myanmar. Fishery is the fastest developing sector, growing at 40% annually since 1988. Among 40 percent growth rate, capture fisheries contributes only five percent and the rest is aquaculture fishery. Aquaculture sector is a huge potential sector to be invested in Myanmar. There are certain major species of fishes that are being widely cultured in Myanmar. Twantay Township, near Yangon division is well known as successful culture industry since there are about half of the total fishponds located in that region. The pond size varies from 4 to 8 hectares with water depth of 1.5 meter on average. (Win H., 2004)The fisheries sector in Myanmar is crucial for national food security, income generation and export earnings. Aquaculture and fisheries directly employ more than 3 million people and that between 12 and 15 million people benefit from the sector. The industry ranks third in the earning of foreign exchange, after agriculture and forestry. Fish products are the most important sources of animal protein in the country. Aquaculture has grown considerably during the last ten years. The State provides support in research and training to promote the supply of both low-cost items for local consumption and high value shrimp and fish products for export. (FAO, 2015)According to the study of economic feasibility study during the 2007 to 2010 of organic aquaculture project in Myanmar, Thailand and Malaysia which include shrimp, freshwater prawn and freshwater finfish, the result of the study can be seen as follows;

Table (1) Production Plan-Extensive Organic Freshwater Fish Farm

Production Plan-Extensive Organic Freshwater Fish Farm	
Culture Details	
Item	Quantity
Water Spread Area	20 Hectare
Pond Size	1-4 Ha
No. of Ponds	10
Culture Periods	10 months- 2 months nursery rearing and 8 months culture
Crop per year	1.2
Main Species Cultured	3 species of Fish-tilapia, silver Barb and common carp
Other species cultured	Fresh water prawn (<i>Microbrachium rosenbergii</i>)
Average stocking density of fish-grow out	0.6 pcs per sq.m
Fish seed requirement	126,000 pcs
Fresh Water Prawn Stocking Density-grow out	0.13 pcs per sq.m
Fresh Water Prawn Juvenile Requirement	25,000pcs
Feed Used	Farm made organic feed, costs \$ 0.25 per kg
Feed Conversion Ratio	2.5
Feed Requirement (kg)	289,00 kg@14,450kgper Ha

Organic Fertilizer (kg)	15,500 kg @75 kg per Ha per month
Calcium Carbonate	15,500 kg@ 75 kg per Ha per month

Table (2) Harvest Details of Extensive Organic Freshwater Fish Farm

Harvest Details	
Grow out survival at harvest-fish	90%
Avg. size at Harvest-fish (kg)	1
Grow out Survival at Harvest-fresh water prawn	80%
Average size at Harvest-Fresh Water Prawn (gm)	80
Production-Fresh Water Prawn (kg)	1600kg@ 80 kg per ha
Production-fish (kg)	114,000 kg@5700kg per ha
Total Production (kg)	115,600kg

Table (3) Fixed Costs and Variable Cost of Extensive Organic Freshwater Fish Farm

Fixed Cost	US\$
Land lease @US\$625	12,500
Farm Renovation @ US\$ 100/ha	2,000
TOTAL	14,500
Variable Cost	US\$
Farm Maintenance	3,000
Seed (25, 000 Fresh Water Prawn@US\$ 0.04/juvenile and 126,000 Fish Fingerling @ 0.06/seed)	8,560
Feed	72,250
Fuel/Energy	1,800
Farm Management Charges (salary and wages)	33,600
Certification Charges	5,021
Inputs (lime and Fertilizer)	1,980
Pond preparation charges	4,400
Harvesting expenses	6,300
TOTAL	136,911

In this study, the cost and benefit of the extensive organic farming of freshwater fish and prawn were calculated based on the ponds of sizes of 1 to 4 ha. The three freshwater prawn and the three species of freshwater fish (tilapia, common carp and silver barb) were stocked at the rate of 3 juveniles and 0.05 fish per square meter.

The total variable cost was calculated as 136,911 USD per year. The total production from this extensive organic fresh water fish farm were 1600 kg per ha of freshwater prawn and 114,000 kg per ha of freshwater finfish. (INFOFISH, 2011)

Table (4) Production of Extensive Organic Freshwater Fish Farm

Production		
Item	In kgs	Value in US\$
Fish@5700kg/ha-1.2crop per year, price@US\$1.2kg	136,800	164,160
Freshwater Prawn@80kg/ha-1.2crop per year, price @6/kg	1920	11520
TOTAL	138,720	175,680

Table (5) Profitability of Extensive Organic Freshwater Fish Farm

Profitability					
Item	Year 1	Year 2	Year 3	Year 4	Year 5
Fixed cost	7,250	14,500	15,225	15,986	16,786
Variable Cost	68,456	136,911	143,757	150,944	158,492
Total Cost	75,706	151,411	158,982	166,931	175,277
Annual Production in kg					
1) Fish (in kg)	68,400	136,800	143,640	150,822	158,363
2) Freshwater prawn (in kg)	960	1,920	2,016	2,117	2,223
Total Production (in kg)	69,360	138,720	145,656	152,939	160,586
Income by sales	87,840	175,680	186,464	193,687	203,372
NET INCOME	12,135	24,269	25,482	26,757	28,094

2.2. Investment opportunity

From 1989 to 2007, ASEAN region is standing as the first leading investor in Myanmar with the total value of about US\$ 10,000million, which is four times higher than that of EU. By certain Asian countries, Japan, China and India contributed about US\$ 1,800 million during the same period. At that period, top three investment value countries in Myanmar are Singapore, Thailand and Malaysia respectively.

During 1988 to 2015, 657 foreign companies invested in Myanmar with the cost of US\$ 46.2 billion. However, roughly of 26 % of the investment value, the largest proportion of investment was from China followed by Thailand and Singapore which held roughly of 18% and 16% of the investment value respectively (Myanmar Times, 2015)

In terms of fishery investment environment, CAER (2014) shows that Myanmar has plentiful aqua resources and open for foreign investors. Fishery sector in Myanmar has second rank in terms of competitiveness among ASEAN countries due to high potential to attract investment. This situation confirmed by Thiha (2015) mentioned that on March 2015, Ministry of livestock, fisheries and rural development invited the joint venture business tender three fisheries camps and one cold storage which owned by department of fishery. The foreign investment environmental is now induce investors to invest.

3. Methodological Framework

The concept of feasibility, SWOT and TOWS analysis were used in this analysis. Feasibility analysis is used to identify the potential constraints and finding the concerned solution to technical, managerial and economic aspect. The financial analysis of the profitability of tilapia farming in Myanmar was done using the data obtained from filed interview in Yangon. The principal purpose of the financial analysis is to manipulate the net return indicators by using the project cash flow. The two major financial indicators are the net present value (NPV), internal rate of return (IRR), Benefit and cost analysis (BCR)

3.1. Net present value

The net present value of a project is calculated by discounting all the cash flows to the present value and deducting the present value of the cash outflows from the present value of all inflows as follows; (Paul K. and Phillip Y., 2009)

$$NPV = \sum_{t=1}^n \frac{R_t}{(1+k)^t} - \sum_{t=0}^n \frac{O_t}{(1+k)^t}$$

Where:

- t = time period (year),
- n = last period of project,
- R_t = Cash inflow in the period t ,
- O_t =Cash outflow in the period t ,
- k = Discount rate (cost of capital)

3.2 Internal rate of return (IRR)

The internal rate of return is the discount rate that will make the net present value of benefit equals to zero. (Paul K. and Phillip Y., 2009)

$$IRR = \sum_{t=1}^n \frac{R_t}{(1+r)^t} - \sum_{t=0}^n \frac{O_t}{(1+r)^t} = 0$$

In the above equation, the r is the internal rate of return.

3.3 Benefit cost ratio (BCR)

The benefit cost ratio is an economic indicator of Cost-Benefit Analysis for summarizing the overall value of money of a project/investment. BC ratio is the ratio of the net present value of benefit of a project to its net present value of cost. (Paul K. and Phillip Y., 2009)

The benefit cost ratio can be calculated as follows;

$$BC \text{ ratio} = \frac{NPV \text{ of benefits}}{NPV \text{ of costs}}$$

3.4 Payback period

The payback period is the number of years that a project will take for making an investment to return the initial investment cost through the return yearly/ the annual net cash revenues that will be generated. (Paul K. and Phillip Y., 2009)

$$\text{Payback Period} = \frac{\text{Amount of Investment}}{\text{Expected Annual Net Revenue}}$$

3.5 Sensitivity indicator

This analysis uses to explain the changes of NPV with the changes of variable consist of in the NPV analysis. The calculation is compute in terms of percentage change

$$SI = \frac{(NPV_b - NPV_1)/NPV_b}{(X_b - X_1)/X_b}$$

Where:

X_b = Value of the variable in the base case

X_1 = Value of the variable in the sensitivity test

NPV_b = Value of NPV in the base case

NPV_1 = Value of NPV in the sensitivity test

3.6 Switching value

This is also one method to identify the percentage change of variable consist of NPV analysis. Analysis result shows the percentage change of this variable that reduce NPV equals 0.

$$SV = \frac{(100 \times NPV_b)}{(NPV_b - NPV_1)} \times \frac{(X_b - X_1)}{X_b}$$

Where:

X_b = Value of the variable in the base case

X_1 = Value of the variable in the sensitivity test

NPV_b = Value of NPV in the base case

NPV_1 = Value of NPV in the sensitivity test

3.7 SWOT analysis

SWOT analysis is a business tool used for the strategic planning of a business firm/ an investment/ a country/organization by identifying the internal and external environment of it. These include the identifications of Strength, Weakness, Opportunities and Threats. The SWOT analysis provides the firm managers with the information on how to create better competitiveness of the firms by allocating its resources and capabilities.

3.8 TOWS matrix

TOWS analysis is derived from the classic economic tool which is SWOT analysis. TOWS analysis can be done by analyzing the threats and opportunities which are external environment, and the **internal environment** (weaknesses and strengths), thereby developing strategic options for better investment. The TOWS Matrix can be used to develop four distinct alternative strategies, tactics and actions. To develop the strategies for the better investment of a country can be done by drawing a matrix as Figure 1 (Wehrich H., 2012).

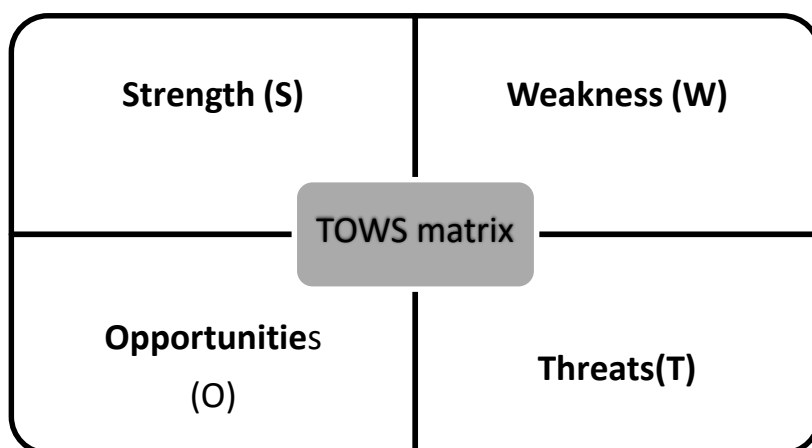


Figure (1) TOWS Matrix

Source: Wehrich H., 2012

4 Results

4.3 Profitability of Tilapia Farming in Yangon Township of Myanmar

According to the interviews with the tilapia farmed producers in Yangon, the calculation of was done based on 1 hectare for the information of investment cost. The cost of production of Tilapia can be divided into two categories as 1). Investment Cost (Fixed Cost) and 2). Operating cost (Variable Cost). The total investment cost includes 1). Cost of renting land for farming operation 2). The construction of warehouse and building needed for setting up tilapia farms, and 3). The cost of constructing tilapia ponds. The total investment cost was calculated as 3,376.10USD per hectare per year.

The operation cost or variable costs for tilapia farming include cost for 8 kinds of input which are (1) the seed stocks of tilapia (2) the feed (3) Energy needed for farming tilapia (4) The vitamin supplement for tilapia feed (5) labor (6)maintenance of pond (7) Transportation cost and (8) other miscellaneous costs. The operation cost accounts for 6,868.25 USD per hectare per crop cycle. This operation cost for one year which accounts for 1.5 crop cycle is manipulated as 10,302.38 USD (as shown in the Table1).

Table (6) The Cost of Operation for the Farming of Tilapia in the Yangon Township

Currency: USD/ha (1 ha= 6.25rai)

Type of Investment (per hectare / year) (1.5 crop cycle)	Cost (USD)
Land Rental Cost (USD/ha/year)	241.15
Building	1,929.20
Pond Construction	1,205.75
Total Fixed Cost	3,376.10
Type of Inputs (per one crop cycle per hectare)	Cost (USD)

Seed stocks of Tilapia	146.58
Feed	4,655.53
Energy Usage (fuel and electricity needed for farm operation)	96.46
Vitamin supplement need for growth of Tilapia)	964.60
Labor Cost	385.84
Maintenance (repair) cost	57.88
Transportation	327.96
Others	233.40
Total Variable Cost for one hectare per one crop cycle	6,868.25
Total Variable Cost for one hectare per year	10,302.38

Source: Interviews to Tilapia Farms of Yangon (2014)

In order to calculate the returns from culture of tilapia, one production cycle of 8 months duration is based on calculation. The return from one production cycle per hectare was manipulated to one year production period which accounts for one and half cycle of tilapia farm. The current market price of farmed tilapia is 1.30 USD per kilogram, the total production from farm is 6400kg per hectare per one crop cycle. The total return from one hectare per one crop cycle is calculated as 8,343.83 USD. The total return for one year with 1.5 crop cycle is manipulated as 12,515.74 USD per hectare as shown in the Table 2.

Table (7) Returns from Tilapia Farming (calculation for the production of one hectare per one crop cycle) with the Exchange Rate: 1 USD = 1,138.70 kyats

Production	Amount
Amount of Tilapia culture	6400 kg/ha
Survival Rate	80%
Crop Cycle (no. of months of farming per year)	8 months

Total production per year	1.5 cycle/year
Farm gate price of Tilapia	1.30 USD/kg
Total farm income from farming of tilapia per hectare per one crop cycle	8,343.83 /ha/cycle
Annual Return from tilapia farm (1.5 crop cycle)	12,515.74 USD/year
Profit (per year)	2,213.37 USD
Profit per kilogram	0.23 USD

Source: Interviews to Tilapia Farms of Yangon (2014)

For the estimation of cash movement of farmed tilapia in Myanmar, the age of five years for the production was used due to its duration of ponds. The estimated cash flows of the investment for farmed tilapia included the initial investment cost of 3,376.10 USD, annual operation cost of 10,302.38 USD. The estimated cash flows of the investment for farmed tilapia will include the cost of initial investment of 3,376.10 USD will then pay the annual 10,302.38 USD in cash flows are comprised of return. distribution of fish per year 12,515.74 USD when applied to or deducted from the cash flow each year to net cash flow per year 2,213.37 USD plus net cash flow during the 5 years of the investment will find the project's net cash flows with the profit of USD 7,690.73.

To evaluate the profitability of tilapia farms in Yangon Township of Myanmar, the life of the project is assumed as 5 years according to the current government incentives on first five year exemption of tax. The *discount rate is used as 10%* which is the current interest rate of banks in Myanmar. According to the calculation, the present value of net benefit from tilapia farming is obtained as 5,014.30 USD per year, which indicates that the project of establishing tilapia farming is profitable and worthwhile.

The internal rate of return (IRR) is the discount rate that makes the net present value of benefit equal to zero, it was found to be 59.13%. The benefit cost ratio was calculated to be 1.12 for five year project of tilapia farming in Myanmar. The payback period was

obtained as one year six months and nine days. The breakeven point in the investment of tilapia aquaculture for one hectare in Myanmar is equal to 14643.12kg per hectare

Furthermore, sensitivity analysis was also analyzed. This study revealed that in case of total variable cost and total fixed cost increase 10%, changes in total variable cost will large impact on NPV and IRR. This is because NPV will reduce from \$5,014.3 to \$1,108.88 and IRR will decrease from 59.13 to 22 respectively. At the same time Sensitivity analysis in both case; either SI or SV revealed that change in price of Tilapia results in a change of 94.6% of NPV and change in 10% of Tilapia price will case in NPV become 0. (as shown in Table 3).

Table (8) The Result of NPV, IRR, B/C Ratio and Sensitivity analysis

Item	Change	NPV (USD)	IRR%	B/C ratio	SI (NPV)	SV (NPV)
Base case		5,014.30	59.13	1.12		
TVC	increase 10%	1,108.88	22	-	7.79	12.84%
TFC	increase 10%	4,676.68	52	-	0.67	148.52%
Price	decrease 10%	269.84	13	-	9.46	10.57%
	SI = sensitivity indicator, SV = switching value					

Source: Interviews to Tilapia Farms of Yangon (2014)

4.2. Result of the SWOT analysis

Myanmar has several advantages attracting not only the ASEAN member nations but also other countries around the world. It can be seen that Myanmar is a country for more suitable for aquaculture of Tilapia than any other regions. In this part in depth-interview of Myanmar fishery in Yangon and some investors in ASEAN countries as well as literature reviews were synthesized to identify lists of SWOT for foreign investors who interest to

investment Tilapia farming in Myanmar. Several strength of Myanmar over other region can be identified as follows;

1. Strength

Location: Myanmar is situated in a strategic area between China and India, the two powerful countries with strong economy.

Rich Natural Resources: It has huge natural resources in terms of large area of inland freshwater body with 8.2 million hectares. Floodplain serves as breeding ground for freshwater fish in monsoon season.

High Labor Force and Lower Wage Rate: Myanmar has a total labor force of 37.35 million according to estimates for 2011. (Nwe K., 2013)

2. Weakness

Banking System: Myanmar has antique banking system and the few banks operating in the country do not have strong correspondent links with international banking networks. Money laundering is an old and recurring issue with some banks operating in Myanmar.

Political Instability: Myanmar has a history of political instability. Under the new government regime, during this year of 2015, the current political instability encountering are (1) civil war in Kachin State, bordering China, (2) local protest on Lat Pa Daung Mining Project of China, and (3) Student Union Protest for New Education Laws. This political instability might lead to uncertainty in the future of the country and its economy. Violence and protest might disturb the markets and operation of farms. (Mostly economics, 2010) These protests might affect human capital by accumulating in them and reducing less number in work force and education. Thus high political instability induced lower economic growth of a country and depreciates the incentives for foreign Investors.

High Fluctuation of Exchange Rate: This highly discourages the current and potential investors to set up a business in Myanmar. The unofficial exchange rate of Myanmar has shown high fluctuation throughout a decade. The Yangon Price Index has risen about 57% meanwhile the exchange rate of Myanmar kyats was depreciated by about 56%. This rate is higher than that of the trading partners of Myanmar. (Dapice D. et al., 2011)

Poor Infrastructure: Only about half quarter of Myanmar population is accessible to regular electricity supply. Myanmar per capita electricity consumption was the lowest among the ASEAN nations. There are also poor quality of transportation system which will hinder the operation of farms and market. Insufficient power supply of electricity and transportation systems is one of the major weaknesses for investment environment of Myanmar. (KPMG, 2012)

Poor Technology of Aquaculture and Skilled Labor: Myanmar aquaculture has been still relying on traditional farming practices in their operations for example using the agricultural byproducts mostly rather than factory produced ones for their aqua feeds. Disease outbreak has also been another major problem of Myanmar Aquaculture. Enhance technology of Hatcheries is important for promoting huge supply of tilapia. So far, Myanmar has only limited number of hatcheries for tilapia aquaculture. Factory produced feeds is another technology needed for promoting tilapia industry in Myanmar.

3. Opportunity

Market Potential: Due to lift of sanction from EU, there are several potentials to international markets which are Singapore, China, Korea, Hong Kong, UK and France. Its domestic market is huge which is comprised of 51 million populations. Emergence of ASEAN Free Trade Area with free flows of goods and services provide further market opportunities. Myanmar is well connected to two large Asia power markets which are China and India. (Nwe K., 2013). United States have been providing support to Myanmar

Aquaculture Sector to enhance export of high quality fish and fish products according to Myanmar Fishery Federation. Due to the lift of Sanction from EU, EU is going to be major importers of Myanmar Seafood Products. (Qiang H., 2014)

Recent Economic Reform: Myanmar has adopted market oriented economy in 1988 and started opening to foreign investment. Since then, the Foreign Direct Investment inflow into the country rose significantly. EU sanction has lifted on Myanmar due to its political reform for democracy. A new foreign investment laws was enacted in 2012. According to recent taxation law, tax rates were reduced significantly to attract foreign investment. The export tax has been reduced from 12 to 2 percent. This is very promising for foreign investors especially ASEAN investors under the agreement of free flows of goods and services.

The Special Economic Zone Law: This law was enacted on 23 January 2014 and it provides the foreign investors with opportunities to invest longer terms leases up to 75 years. This is an opportunities for potential investors who are interested not only in Myanmar Aquaculture Sector but also other sectors.

ASEAN Economic Community (AEC): Free flow of investment between ASEAN countries is major factor encouraging ASEAN investors to investing in Tilapia aquaculture.

4. Threat

FAO (2006) identified major threat for fishery sector as lack of awareness concerning fisheries resources, poor fishery data reporting systems and need for capacity building supporting future fishery industry

Difficult to establish landowner or has customary usage rights, who should be consulted, and how to obtain free, prior informed consent (FPIC). Under international standards, indigenous communities have the right to FPIC, but many companies recognize that it is good practice to seek informed consent of all affected parties and vulnerable groups before seeking to use or acquire land (IHRB, 2012).

Government plays a large role in Myanmar's economy. Due to political developments in the past year the EU and the US have suspended some sanctions, and some individuals, including businessmen, are no longer on the prohibited list. But companies will have to be extremely careful in electing potential partners. Almost all companies currently operating in Myanmar have some relationship with the government, and local laws may require foreign companies to have local partnerships.

5 Conclusion and Recommendation

Myanmar is a country endowed with large amount of natural. This prosperity makes the country gain attentions from the world to be a potential investment area. Since the ASEAN is becoming a single market and production base with free flows of investments, the investors from ASEAN have far more greater chances than any other nations around the world due to the agreement of ASEAN free trade area. Currently, the total ASEAN region is the largest investor in Myanmar.

ASEAN members are encouraged to be invested in Myanmar. This is because Myanmar has huge area of freshwater resources and provides long term leases for foreign investors. This situation will be able to develop Tilapia aquaculture from labor intensive to high technology export oriented Tilapia Industry either in Asia or in the global market

By using the TOWS matrix, the strategies for potential investors from ASEAN and around the world have been generally identified as followed;

Cooperation with the fisheries department as well as joint venture is suitable for foreign investors for Tilapia business. This is because the fishery department can facilitate foreign investors to operation their Tilapia aquaculture. Moreover, local investors know adequate information related investment requirements and some essential statistic. At the initial stage, the operation under labor intensive should consider due to huge of labor supply

By supporting technology and training on good aquaculture practices to Myanmar labor and producers, the investment on Myanmar Tilapia Sector would further be promoted and export-orientation of Tilapia produce can be succeeded.

Due to lack of technology and poor infrastructure, investments in related industry of Tilapia production in Yangon such processing plant, aqua feeds, cold storage etc. should also be considered.

The competitive advantages of Myanmar for Tilapia aquaculture include its rich sources of freshwater resources and land area availabilities, and huge labor force with low wage rate. The recent reform on economy and political situation of the country gains significant attentions from the world to invest in the intact resource rich environment of Myanmar. There still exists the weakness of the country itself to promote production of Tilapia aquaculture within the country. The competitive advantages of Myanmar are considered too far overweigh the weakness of it.

Tilapia can be identified as highly suitable fish species for Myanmar investment environment. It fetches relatively high market prices in Asia and around the world. The feasibility of this paper shows the Tilapia farming is a considerably profitable aquaculture in Yangon Township, which is the capital of Myanmar. European and United States are providing Myanmar with support on technology and good aquaculture practices and they will likely to be the major importers of Myanmar Tilapia. Myanmar is also situated in the strategic location between China and India and it has strong market connection with them.

Financial analysis revealed that investment of Tilapia aquaculture is profitable. Under 5 year project life, even investment cost and total variable cost increases 10% the Tilapia investment still worthwhile. However, the most factor affecting Tilapia aquaculture is Tilapia price. In depth-interview identified that to investing Tilapia aquaculture investors should initiate their Tilapia business in Myanmar by the cooperation of government of government Fishery sector. Fishery sector is the type of investment that needs approval

from the Ministry of Fishery and Livestock. The foreign investors should engage in joint venture with domestic producers.

The potential benefits for ASEAN nations to involve in Myanmar Tilapia Production far outweigh the risks. All in all, ASEAN nations are better positioned than any other nations around the world. The investors from ASEAN can optimize their future investments by dealing with the bottlenecks of Myanmar due to their proximity and familiarity of country.

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