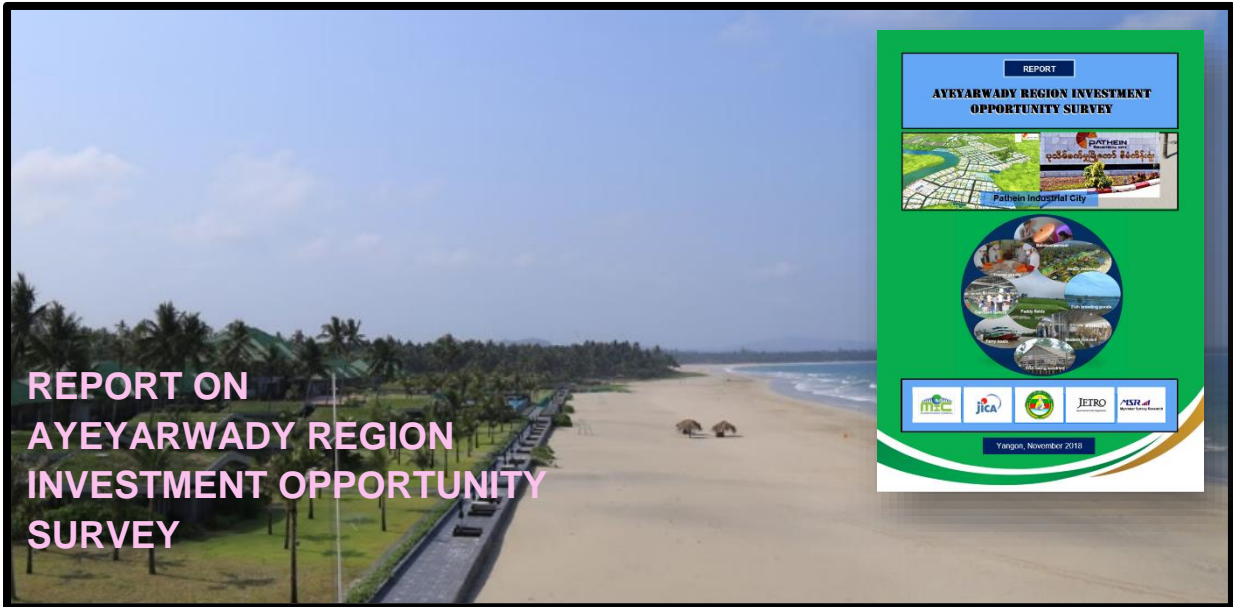


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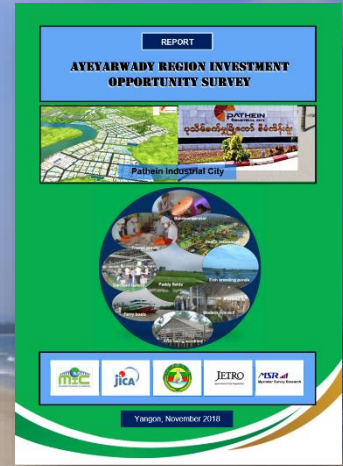
AYEYARWADY REGION INVESTMENT OPPORTUNITY SURVEY



Yangon, November 2018



**REPORT ON
AYEYARWADY REGION
INVESTMENT OPPORTUNITY
SURVEY**



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❖ Acronyms

AMD	Agricultural Mechanization Department
AR	Ayeyarwady Region
ARCCI	Ayeyarwady Region Chamber of Commerce and Industry
ARCEA	Ayeyarwady Region Construction Entrepreneurs Association
ARG	Ayeyarwady Region Government
CGI	Credit Guarantee Insurance (system)
COD	Cash on delivery
CSO	Central Statistical Organization, Ministry of Planning and Finance
DICA	Directorate of Investment and Company Administration
DRTA	Directorate of Road Transport Administration
DWT	Deadweight ton
EIA/SIA	Environment Impact Assessment and Social Impact Assessment
ENG	English
ESIA	Environmental and Social Impact Assessments
GAHP	Good animal husbandry practices
GAP	Good agricultural practice
GDP	Gross National Product
GSP	Generalized system of preferences
GTI	Government technical institute
HSD	High speed diesel
IATA	International Air Transport Association
ICAO	International Civil Aviation Association
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
KOICA	Korea International Cooperation Agency
MADB	Myanma Agricultural Development Bank
MCEA	Myanmar Construction Entrepreneurs Association
MIC	Myanmar Investment Commission
MITT	Myanmar International Thilawa Terminal Port
MLFDB	Myanmar Livestock and Fisheries Development Bank
MMR	Myanmar
MOEE	Ministry of Electricity and Energy
MOGE	Myanma Oil and Gas Enterprise
MPE	Myanma Petrochemical Enterprise
MPPE	Myanma Petroleum Product Enterprise
MPT	Myanma Post and Telecommunications
MPTA	Myanma Petroleum Product Trading Association
MS	Motor spirit (petrol)
MSME	Micro, small and medium-sized enterprises
MSR	Myanmar Survey Research Co Ltd
PIC	Patheingyi Industrial City
PPP	Polypropylene (bag) – Penang bag
PPP	Public-private partnership
PSI	Pounds per square inch
SME	Small and medium enterprises
VTC	Vocational Training Centre (Patheingyi Industrial City)

❖ Terms

Myanma:	“Myanmar” denotes the country and people and also is used as an adjective. However, government departments and enterprises use “Myanma” (without ‘r’) as an adjective. Hence, the names of some government enterprises will be found starting with “Myanma” in their names. eg Myanma Petrochemical Enterprise
Paddy:	Grain in the husk that has not been milled. (<i>zabar</i> in Myanmar)
Purchase depot:	The phrase “purchase depot” is literally translated from Myanmar. It is also translated as “Brokerage House.” It is a kind of large dealing centre which buys agricultural produce—rice and pulses—and re-distribute within the country or export them.
Rice:	Grain whose husk has been removed by milling (<i>hsan</i> in Myanmar)
U:	“U” is an honorific used before the name of a Myanmar male adult. It is an equivalent of Mr.
Daw:	“Daw” is an honorific used before the name of a Myanmar female adult, single or married. It is an equivalent of Miss/Ms/Mrs.
Seasons in Myanmar:	Myanmar has three seasons: Hot season (summer) (3 months: Mar – May), rainy season (monsoon season) (5 months: Jun – Oct), and cool season (4 months: Nov – Feb).
Fiscal year:	“Fiscal year” in this report refers to the period from April of a year to March of the following year.

❖ Measuring systems

System	Sample product	Units
Volume measuring	Rice, some agricultural produce	8 tinfuls = 1 pyi
		16 pyi's = 1 basket
	Tin = condensed milk tin	
Weighting measuring		100 ticals = 1 viss

Conversion			
Weight	1 viss	=	1.63293 kg (= 3.6 lb)
Volume (rice)	1 basket	=	3.33 kg
Volume (rice)	1.5 baskets	=	50 kg (1 bag)

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PREFACE

A YEYARWADY REGION with a population of 6.2 million is the second largest region among the 14 States and Regions of Myanmar. Popularly known as the “Rice Granary” and “Fish Bowl” of the nation, the region is unique in several ways and offers many investment opportunities in the agriculture and fisheries sectors. It also offers vast opportunities in the livestock, manufacturing, hotels & tourism, transport and energy sectors.

The newly-established industrial zones in the region are now ready to welcome potential investors. In light of the developments, investors will be able to manufacture numerous products at competitive prices. Tourist arrivals have also grown in recent years due to the pristine beaches and islands in the region.

An investment opportunity survey has been conducted under the aegis of the Myanmar Investment Commission (MIC) with the support of the Japan International Cooperation Agency (JICA) and MSR Company from July 2018 to August 2018 in the region.

It is believed that this report—The Report on Ayeyarwady Region Investment Opportunity Survey—will provide potential investors with in-depth information on the situations in Ayeyarwady Region. The report is scheduled to be presented at the Ayeyarwady Region Investment Fair on November 30 and December 1, 2018, at Ngwe Saung Beach organized by MIC, JICA and Ayeyarwady Region Government and supported by Japan External Trade Organization (JETRO) and MSR. The investment Fair is expected to host 600 delegates. It will include the following Investment Seminar, Business Exhibition, Business Matching and Site Visit Tour.

In keeping with the Twelve-Point Economic Policy of the Government, foreign direct investment plays an integral role in the economic sector. In addition, the government has adopted the “Myanmar Sustainable Development Plan” which can be regarded as a roadmap for Myanmar’s transition. Among the goals in this plan, “Economic Stability and Strengthened Macroeconomic Management,” “Job Creation and Private Sector-led Growth”, and “Human Resources and Social Development for 21st Century Society” and “Natural Resources and the Environment for Prosperity of the Nation” are important. Myanmar has also enacted the Myanmar Investment Law and introduced reforms to boost investor confidence, increase efficiency, ease of doing business and attract more foreign investment into the country.

It is hoped that the Ayeyarwady Region Investment Opportunity Survey Report will be a good reference for potential investors. I would like to express my gratitude to the Japan International Cooperation Agency for its continual support and the Myanmar Survey Research company to ensure that the report is noteworthy.

With best wishes

His Excellency U Thaug Tun

Chairman

Myanmar Investment Commission



❖ EXECUTIVE SUMMARY

❖ Purpose of the survey

The main purpose of this survey is:

“To explore business sectors and sub-sectors which have great potentials in attracting foreign and domestic investments.”

The data, gathered as much as possible within the time limit, had to be processed into ones, proper and presentable. The data reflect the existing situations of the businesses in Ayeyarwady Region, which will provide the potential businessmen with ideas of how to go about them if they really invest in them. The main purpose of this survey, in other words, is to highlight the promising sectors, with assessments, made on the findings, with criteria or “primary requirements” such as the nature of the product, prospects of the market and availability of skilled labour and raw materials.

There are various factors which potential investors consider before making an investment in a country. Of them, some supporting sectors like transportation, energy, human resources and telecommunications are mentioned in this report. For other factors, too, the Union government and institutions at different levels are striving their best to improve the existing situations.

❖ Why Ayeyarwady Region?

Ayeyarwady Region is metaphorically dubbed by most people as “the Rice Granary” and some people as “Fish Bowl” of the naton. While other States and Regions also have their own significant features, Ayeyarwady Region has some unique and significant points that may intrigue the potential investors:

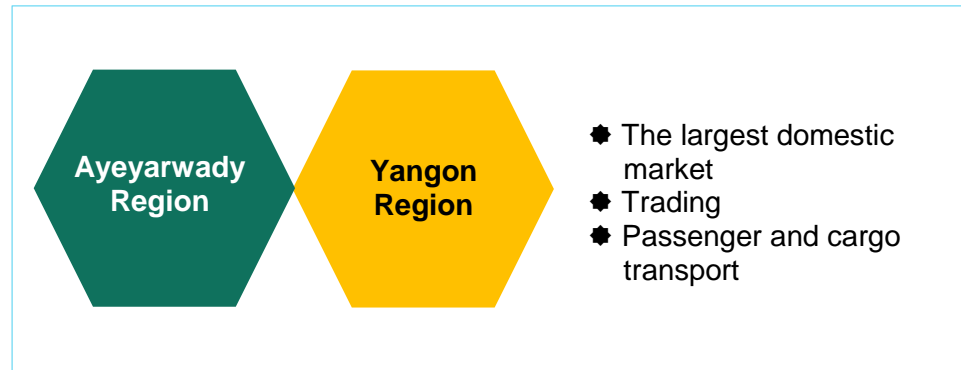
- 1 Accumulation of natural endowments
- 2 “Rice Granary” or “Rice Bowl” of the country
- 3 Proximity to Yangon, the commercial city
- 4 Having a fairly long coastline
- 5 The Delta Region with rich soil and water

❖ **FIRST:** **Accumulation of natural endowments** (uniqueness)—contiguity to sea, mangrove forests, underground resources, wide stretches of land, rivers and rivulets, beautiful beaches, islands and natural scenery.

Contiguity to sea	▶	<ul style="list-style-type: none"> • Marine products • Salt
Mangrove forests	▶	<ul style="list-style-type: none"> • Wood • Bamboo • Cane • Medicinal herbs
Underground resources	▶	<ul style="list-style-type: none"> • Gas and oil
Wide stretches of land	▶	<ul style="list-style-type: none"> • Agriculture • Livestock breeding • Aquaculture
Rivers and rivulets	▶	<ul style="list-style-type: none"> • Fishery • Transportation
Beautiful beaches, islands and natural scenery	▶	<ul style="list-style-type: none"> • Hotel and tourism

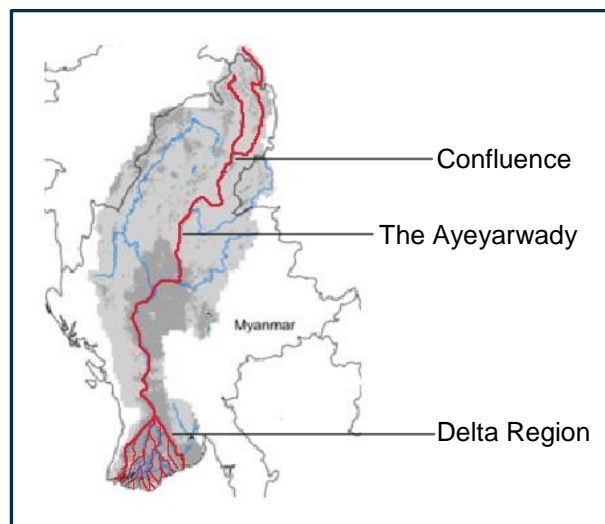
❖ **SECOND:** **Serving as “Rice Granary” or “Rice Bowl”** (uniqueness)—This region is dubbed by Myanmar people as “rice granary” or “rice bowl” of the country. Compared to other States and Regions, Ayeyarwady Region produces the largest quantity of rice.

❖ **THIRD: Proximity to Yangon, the commercial city** (significance)—Ayeyarwady Region has the second largest population (6.2 million), next to Yangon (7.4 million). Because of its proximity to Yangon, the largest market, its products can be transported easily to Yangon, and there can be busy transactions between the two regions.



❖ **FOURTH: Having a fairly long coastline** (significance)—Just like Rakhine State, Yangon Region and Tanintharyi Region, Ayeyarwady Region is contiguous to sea. It has a fairly long coastline which provides beautiful beaches and near islands and an opportunity to develop deep-sea ports.

❖ **FIFTH: The Delta Region with rich soil and water** (uniqueness)—The Ayeyarwady, that rises from the confluence of N'Maikha and Malikha Rivers in Kachin State, flows across the country from north to south and finally branches off into rivers and rivulets, forming into the shape of the fourth letter of the Greek alphabet—delta (Δ) in upper-case—before merging into the sea. Thus, the name of the region is derived from that of the longest river in Myanmar “The Ayeyarwady.” The region is a deposit of rich soil carried along by the great river.



Of the five points, the first two points and the last point are unique features of the region.

❖ **The survey in brief**

After interviewing a total of 124 respondents, the findings are presented in 60 subsectors. In each subsector, there are a number of related businesses, which all have amounted to 83 businesses. These subsectors/businesses have been rated by the four criteria—product nature, availability of raw material, availability of suitable labour, and market potential. (The detailed ratings of sub-sectors are provided in **Appendix: 17.8.**)

The ratings are the experience-based perceptions of our research team. The following top 15 subsectors/businesses have come up, based on our ratings that reflect the current situations. However, it should not be assumed that businesses with high ratings are promising, while others with low ratings are not promising. Businesses with low ratings may also become promising ones in the future. For some businesses, human resources and raw materials can be created. On the other hand, potential investors may consider other business areas that covered by this survey. Eventually it is to be said that this survey is a highlight of the promising businesses, and investors, on their part, have their own interest, own views and choices.

Main sectors

All the main sectors mentioned below are important for the economy of the region, but they have been categorized into three kinds: (1) most promising, (2) second most promising and (3) sectors open to choice for making investments.

Sr	Main sector	Most promising	Second most promising	Open to choice	Remark
1	Agriculture	■			Essential food
2	Forestry			■	
3	Manufacturing	■			Personal commodities
4	Fisheries	■			Essential food
5	Livestock	■			Essential food
6	Hotels and tourism	■			
7	Transportation		■		Supporting sector
8	Human resources			■	Supporting sector
9	Telecommunications			■	Supporting sector
10	Energy		■		Supporting sector

(See clarification in **Section 15.1: Assessment of main sectors.**)

Top first-priority 15 subsectors proposed for making investments

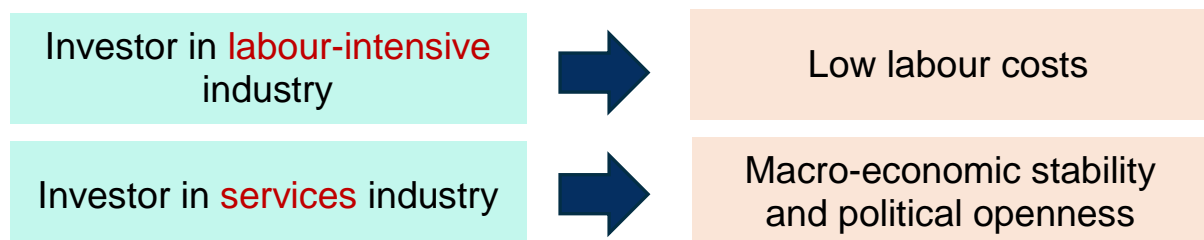
Full rating: 20

Sr	Subsector	Main sector	Total rating
1	Rice	Agriculture	20
2	Pulses	Agriculture	20
3	Rice mill	Agriculture	20
4	Mango	Agriculture	19
5	Groundnut	Agriculture	19
6	Tapioca/cassava	Agriculture	19
7	Canned coconut milk	Agriculture	19
8	Dried fish/prawn	Fisheries	19
9	Fish/prawn sauce	Fisheries	19
10	Frozen meat—chicken, pork, beef	Livestock	19
11	Hotel service	Hotels/tourism	19
12	Cargo transportation (trucks)	Transport	19
13	Marine produce transport	Transport	19
14	Passenger transport (bus)	Transport	19
15	Electricity generation (hydro, biomass, solar, wind, etc)	Energy	19

(See **Chapter 15: Analysis**)

Assessment of other important factors

There are many different factors that determine foreign direct investment (FDI) and it is hard to isolate individual factors, given there are many different variables. It also depends on the type of industry. For example, with manufacturing FDI, low wage costs tend to be the most important, as they are a labour intensive industry. For service sector FDI, macro-economic stability and political openness tend to be more important.



In this assessment, the two most important sectors in the infrastructure—transportation and energy will be dealt with.

TRADE ROUTES

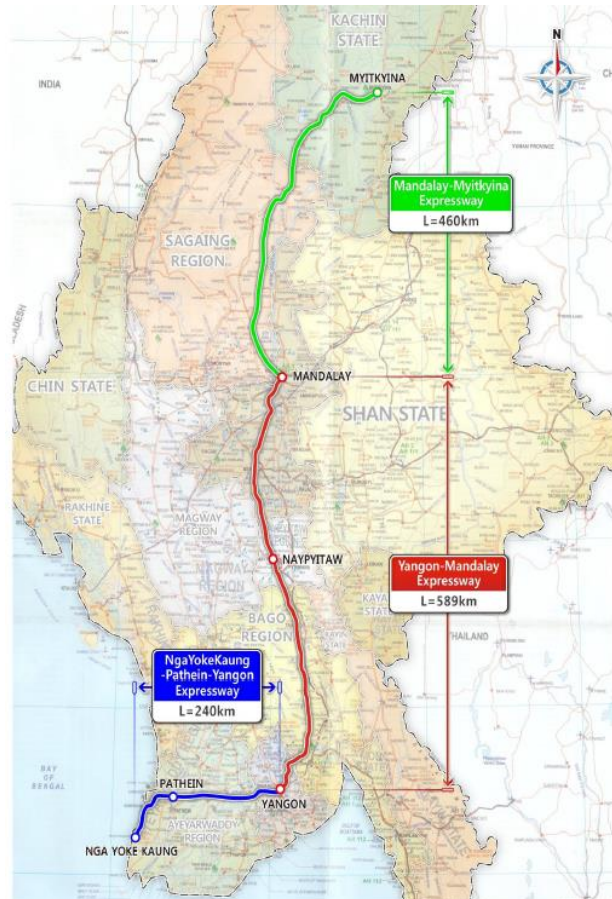
It is now a time when the Union Government striving its best to improve the transport links between States and Regions for domestic trade and between manufacturing places to the international ports for international trade. Ayeyarwady Region, itself a great potential for becoming a manufacturing base and having a coastal line, is located in a strategic position.

- ❖ **East-West Economic Corridor:** Under China's Belt and Road Initiative, the corridor will start from Vietnam (Danang) as the East end and reach Mawlamyaing as the West end, crossing Thai and Lao provinces and Kayin State (Myanmar), leading to Yangon, and then to Nga Yoke Kaung (Ayeyarwady Region). Transport route between Bangkok and Myanmar will be shorter than the sea route. This route will further be connected to India via India-Myanmar-Thailand Trilateral Highway.

The planned 3 expressways are:

- 1 Mandalay-Yangon
- 2 Mandalay-Myitkyina, and
- 3 Yangon-Nga Yoke Kaung

- ❖ **Deep Sea Ports:** With the emergence of transport routes, the role of deep sea ports will become prominent.¹ In addition to Patheingyi Deep Sea Port Project under implementation, Nga Yoke Kaung is also being considered as its offshore water has a depth of 20 meters under which vessels with 100,000 tons to 300,000 tons can berth.²



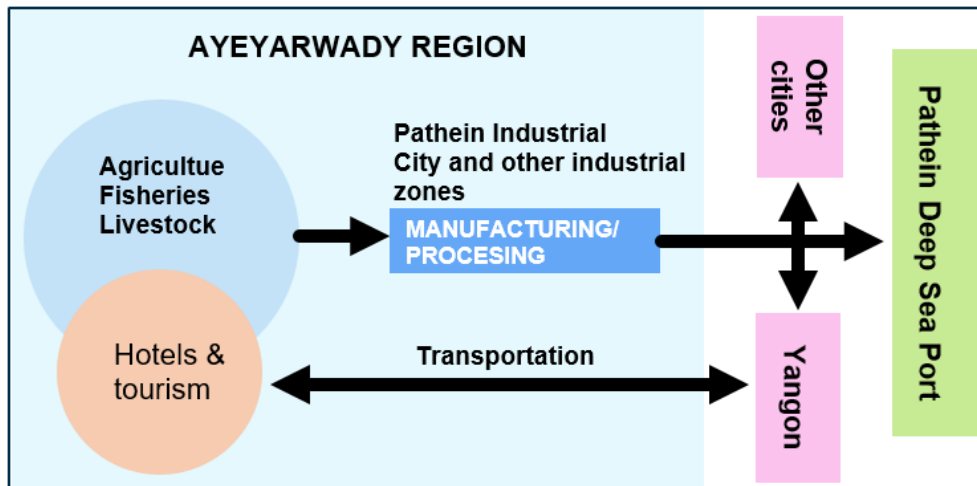
INDUSTRIAL ZONES

In preparation for the potential growth in various businesses, industrial zones are being implemented. Among them, the Patheingyi Industrial City, with an area of 2,700 acres is the largest with customs and immigration services along with the port facilities.

Factors—government stability, political openness, business law, conditions of risks, lack of corruption, low crime rate, financial security, tax rates, GDP growth rate, condition of FDIs, population growth rate, inflation, etc—do not allow space and time in this study and a separate study will be needed to be able to provide in-depth information on these factors.

¹ Feasibility Study Module for the Three Expressways in Myanmar (PDF)

² Responses by Ayeyarwady Region Minister U Htay Win regarding Invest Myanmar Summit 2019



❖ General conclusion

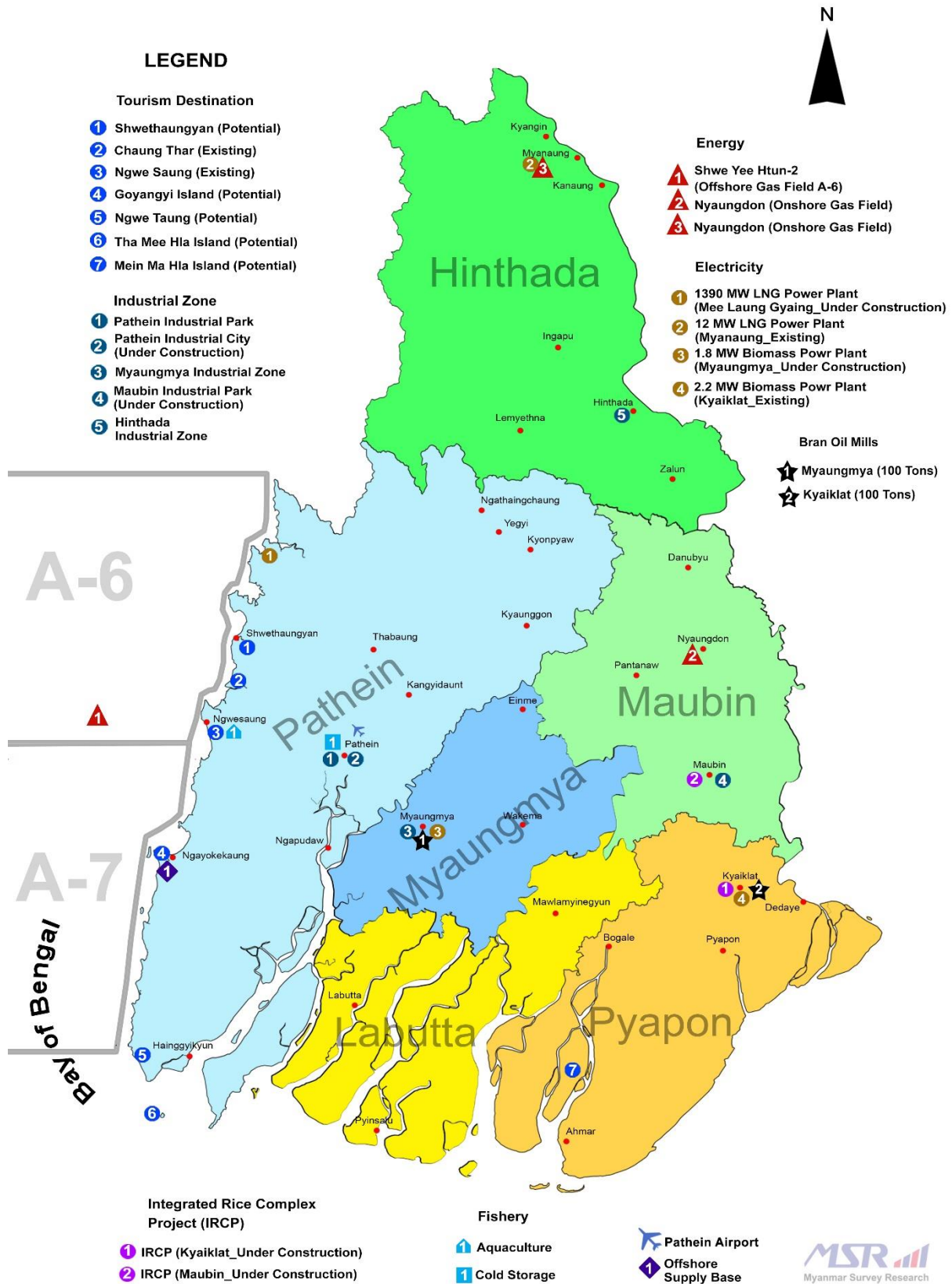
There can be a number of factors causing challenges to some businesses, but the chief factors are found to be as follows:

- 1 Lack of technologies/techniques in various stages of process
- 2 Lack of packaging technology
- 3 Inability to have access to the foreign market.
- 4 Lack of finance
- 5 Appearance of alternative products

According to our survey, Ayeyarwady Region possesses a great number of businesses which potential investors will find interesting. Just as national peace process is progressing in a positive light, Ayeyarwady Region itself is a peaceful region with attractive, potential untapped or latent businesses that have not reached the international market. With the employment of the potential businessmen's technological and business experiences, this region is in a position to become a crucial manufacturing base not just for the nation but also for the international market.

MULTIPLE SUBSECTORS:

MAP 1: Existing businesses and potential places





INTRODUCTION

❖ Background

In accordance with the Twelve-Point Economic Policy of Government laid down in July 2016 “to create good economic situations in which Regions and States will develop equally”, Directorate of Investment and Company Administration (DICA) has successfully held Mandalay Investment Fair in 2015 and Shan State and Kayin State Investment Fairs in February 2017 with the support from Japan International Cooperation Agency (JICA).

These fairs achieved success and attracted great interest from both public and private sectors. There were over 600 attendees in Kayin State Investment Fair and received interest from other States and Regions. As an example, Kayah State Government has used their budget to conduct their investment opportunity survey and has successfully held the Kayah State Investment Forum in May 26, 2018.

As the investment opportunity surveys are very important to investigate specific opportunities for the investment, these surveys can make both potential foreign and local investors to be familiar with investment opportunities available outside of Yangon and Mandalay.

Making use of these successful experiences, MIC and DICA plans to conduct another Investment Opportunity Survey and Investment Fair in Ayeyarwady Region in late November 2018 with the support of JICA in order to encourage potential investors to take advantage of the investment opportunities in the Ayeyarwady Region.

❖ Objective

The major objectives of this survey are:

- To identify untapped opportunities for investment in Ayeyarwady Region with evidence.
- To promote the identified investment opportunities in Ayeyarwady Region for potential investors.
- To enhance linkages between Ayeyarwady Region local business and foreign/domestic investors
- To assist capacity building of DICA Patheingyi Branch and demonstrate its services for industries.

❖ Scope of work

The overview of the scope is as follows:

- To prepare and submit the work plan of the whole process including stakeholder meeting, investment opportunity fair and Survey report and receive suggestion from DICA/JICA during kick off meeting in June 2018.
- To conduct literature review and field survey including interviews with local industries, public and investors which will implement in June and July 2018
- To prepare and submit Interim report in early August 2018 before stakeholder meeting
- To organize the stakeholders meeting in Patheingyi during August 2018 in consultation with DICA and JICA to receive feedbacks and inputs from local stakeholders
- To prepare and submit draft final report revised with the stakeholder meeting feedbacks and inputs before Investment Fair
- To compile list of invitees together with DICA and JICA and do invitation in October 2018
- To produce final survey report (English & Myanmar) in early November 2018 to publish and distribute at the Investment Fair (600 copies).

- To draw implementation plan for the Investment Fair in collaboration with DICA and JICA
- To organize Ayeyarwady Region Investment Fair in Ngwe Saung in mid to late November which include seminar, exhibition, business matching and site visits.
- To produce the report of survey process and the Investment Fair in early December 2018 to keep as record and lessons learned.

❖ Methodology to conduct Investment Opportunity Survey

The project will be implemented with qualified human resources and methodical operation with the utilization of human and material resources which MSR has nurtured for the past 22 years for achieving realistic results.

The survey will be conducted with the methods mentioned below.

- A. Desk study method
- B. Key Informant Interviews with Government Officials and Business Associations and Business to Business (B2B) interviews with companies

A. Desk study method

MSR has its own databank, and the MSR survey team will conduct desk study prior to making field visits. The study will cover secondary data gleaned from records at MSR data bank, Statistical Yearbooks issued by the Central Statistical Organization (CSO), and documents issued by the government departments.

MSR databank has stored data and information, especially on market, FDI, economy and politics of the country, gleaned by monitoring the media, for the last 21 years.

Source	Information	Storage
Media (Newspaper, Journals, Magazines, etc)	Government announcements ▶	MSR Databank (Library)
	Market information ▶	
	Foreign Direct Investment ▶	
	Local Business companies▶	
Press releases, publications	Economic information ▶	
	Political information ▶	
	Social information ▶	
Ministry of Information	Government gazettes ▶	
Customs Department	Export-import data ▶	
Television monitoring	Proceedings at Parliamentary sessions ▶	

B. Key Informant Interviews and Business to Business (B2B) Interviews

There are 6 districts in Ayeyarwady Region. Under the six districts, there are a total of 26 townships. Of the 6 districts, MSR has selected Hinthada District (in the extreme north of the Region), Patheingyi District (in the west of the Region) and Pyaw Oon District (close to Yangon, in the south-east of the Region).

The reasons for selecting the three districts are:

- 1 The number of townships under the three districts—17 townships—is an adequate sample out of the total 26 townships.
- 2 Myingyan District has the similar business types to Patheingyi District.
- 3 Labutta District has the similar business types to Patheingyi and Pyaw Oon Districts.
- 4 Maubin District has the similar types to the Hinthada and Pyaw Oon Districts.

Hence, it is assumed that the three districts represent the entire region.

MSR conducted Key Informant Interviews (KIIs) with related government officials and business associations and business to business (B2B) interviews in the selected 3 districts. The questionnaires were developed in accordance with the data and information requirements mentioned by JICA.

❖ Sampling

MSR conducted Key Informant Interviews (KIIs) as follows:

Main sector	Sub-sector	No of respondents					
		Patheingyi District	Magway District	Pyawbwe District	Hinthada District	Total	
1	Agriculture	1 Department of Agriculture	1	0	1	1	3
		2 Paddy/rice	0	0	1	1	2
		3 Beans and pulses	0	0	0	2	2
		4 Edible oil crops	0	0	0	1	1
		5 Chilly	0	0	0	1	1
		6 Banana	0	0	0	1	1
		7 Mango	0	0	0	1	1
		8 Cashew	1	0	0	0	1
		9 Dried taro stalk (pein-yoe-chauk)	1	0	0	0	1
		10 Tapioca (pi-law pi-nan)	0	0	0	1	1
		11 Coconut	2	0	0	0	2
		12 Wa-u (Konjac)	1	0	0	0	1
		Agriculture ▶		6	0	2	9
2	Forestry	13 Department of Forestry	1	0	0	0	1
		14 Fishing rods	1	0	0	0	1
		15 Bamboo and cane products	1	0	0	1	2
		16 Rubber	1	0	0	0	1
		17 Acacia mangium and eucalyptus	1	0	0	0	1
Forestry ▶		5	0	0	1	6	
3	Manufacturing	18 Department of Industrial Supervision and Inspection (DISI)	1	0	0	0	1
		19 ARCCI	1	0	0	0	1
		20 Zone Management Committee	1	0	0	1	2
		21 Rice mills	1	0	1	1	3
		22 Wood-based industries: plywood	1	0	0	0	1
		23 Edible oil mills	0	0	0	1	1
		24 Ice factory	1	0	1	0	2
		25 Purified drinking water	1	0	1	0	2
		26 Slippers	1	0	0	0	1
		27 Salt mill	1	0	0	0	1
		28 Fertilizer	1	0	0	0	1
		29 Bio-organic fertilizer	1	0	0	0	1
		30 Patheingyi parasol	1	0	0	0	1
		31 Patheingyi Halawa-traditional snack	1	0	0	0	1
		32 Sausages (Chicken and pork)	1	0	0	0	1
		33 Canned food production	(Secondary data)				
		34 Rice syrup production	0	1	0	0	1
35 Coir	1	0	0	0	1		
Manufacturing ▶		15	1	3	3	22	
4	Fisheries	36 Department of Fisheries	1	0	1	1	3
		37 Offshore fisheries	1	0	0	0	1
		38 Sea prawn	1	0	0	0	1
		39 Fresh-water fish	1	0	0	0	1
		40 Cold storage	1	0	0	0	1
		41 Fish and prawn products	4	0	4	0	8
Fisheries ▶		9	0	5	1	15	
5	Livestock breeding	42 Department of Livestock & Therapy	1	0	1	1	3
		43 Chicken (Broiler)	0	1	1	1	3

		44	Beef and dried beef	1	0	1	1	3
		45	Pork	0	1	1	1	3
		46	Duck egg	0	1	1	1	3
		47	Chicken (Egg)	0	1	1	1	3
			Livestock breeding ▶	2	4	6	6	18
6	Hotels and tourism	48	Directorate of Hotels & Tourism	1	0	0	0	1
		49	Hotel Zone Management Committee	2	0	0	0	2
		50	Hotels and tourism industries	4	0	1	0	5
			Hotels and tourism ▶	7	0	1	0	8
7	Transportation	51	Road transport – passengers	2	0	0	0	2
		52	Road transport – cargo	1	0	0	0	1
		53	Rail transport	0	0	0	1	1
		54	Boat transport – passenger/cargo	2	0	0	0	2
		55	Storage service (Warehouse)	1	0	0	0	1
			Transportation ▶	6	0	0	1	7
8	Human resources	56	Labour Forces	1	0	0	0	1
		57	Vocational institutions	2	0	0	0	2
			Human resources ▶	3	0	0	0	3
9	Telecommunications	58	Telecommunication services	1	0	0	0	1
			Telecommunications ▶	1	0	0	0	1
10	Energy	59	Petroleum products	1	0	0	0	1
		60	Electricity	1	0	0	0	1
			Energy ▶	2	0	0	0	2
11	Untapped opportunities	61	Health care	2	0	0	0	2
		62	Government/Private school	2	0	0	0	2
		63	Hair products	1	0	0	0	1
		64	Dockyard	2	0	0	0	2
			Untapped opportunities ▶	7	0	0	0	7
12	Other related sectors	65	Agricultural machinery	1	0	0	0	1
		66	Small and medium enterprises	1	0	0	0	1
		67	Construction	5	0	0	0	5
		68	Department of Land Record	1	0	0	0	1
		69	Department of Planning	1	0	0	0	1
		70	Myan Trade	1	0	0	0	1
		71	Department of Consumers Affairs	1	0	1	1	3
		72	DICA	1	0	0	0	1
		73	General Administration Department	1	0	1	1	3
		74	Patheingyi Industrial City & Port	1	0	0	0	1
			Other related sectors ▶	14	0	2	2	18
			Total ▶	77	5	19	23	124

Regarding field interviews, all the interviews were recorded in pen and paper and also with a recorder (if allowed), from which transcripts were compiled and translated to English. MSR assigned permanent staff members who have enough experiences in industrial surveys. There were four data collection teams. In each team, there were a moderator and note taker. The teams were managed by the Junior Survey Specialist 1 & 2 and Junior Staff Administrator and they also accompanied the data collection teams in some interviews with the key stakeholders.

Team No	No of moderator	No of note taker	Location	Assignment/ No of interviews
1	1	1	Patheingyi District	39
2	1	1	Patheingyi District	38
3	1	1	Pyaw Bwe District	19
4	1	1	Hinthada District	23
5	1	1	Myaungmya District	5
			Total ▶	124

❖ Implementation plan 2018

JUL	Jul 18: Kickoff Meeting	Jul 23 – Aug 17: Field data collection	
AUG	Aug 20 – Sep 2: Compile Interim Report		
SEP	Sep 3: Submit Interim Report	Sep 8: Stakeholders Meeting	Sep 10 - 28: Compile Draft Final Report
OCT	Oct 1: Submit Draft Final Report	Oct 2 – 8: Review Draft Final Report	Oct 8: Invite guests to Investment Fair
NOV	Oct 9 – Nov 7: Compile Final Report	Nov 8 – 25: Print report (Eng & Mmr), prepare for Investment Fair	Nov 30 – Dec 1: Investment Fair
DEC	Dec 15: Review Report on Survey and Fair		

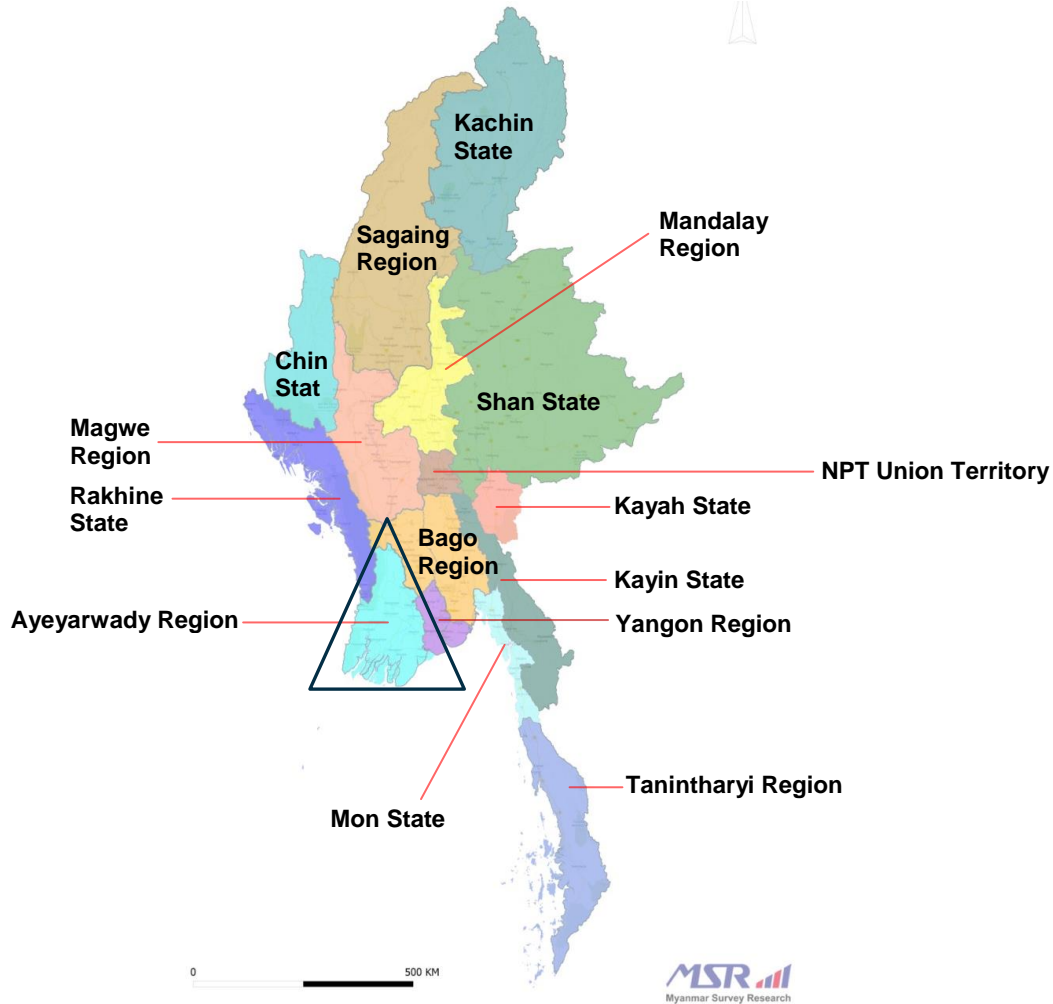
❖ Limitations of study

This survey has been conducted within a short period of time for as many as 60 sub-sectors with the collection of surrounding data (secondary data). Hence, the data presented in this survey are meant to highlight the promising sectors and cannot be said to be all-embracing, in-depth findings. If an investor is interested in investing in a particular sector, he will certainly need to delve into it, having a thorough, in-depth study of it conducted in the initial stage before entering the business.

**NATIONAL AND REGIONAL
INFORMATION**

❖ NATIONAL DEMOGRAPHIC INFORMATION

MAP 2: Fourteen States and Regions and Nay Pyi Taw Union Territory



❖ **State/Region-wise Union population**³

	State/ Region		Population (Enumerated data)	Population (Plus estimated data)	Remark
1	Kachin	State	1,642,841	1,689,441	With estimated data
2	Kayah	State	286,627	286,627	
3	Kayin	State	1,504,326	1,574,079	With estimated data
4	Chin	State	478,801	478,801	
5	Sagaing	Region	5,325,347	5,325,347	
6	Tanintharyi	Region	1,408,401	1,408,401	
7	Bago	Region	4,867,373	4,867,373	
8	Magway	Region	3,917,055	3,917,055	
9	Mandalay	Region	6,165,723	6,165,723	
10	Mon	State	2,054,393	2,054,393	
11	Rakhine	State	2,098,807	3,188,807	With estimated data
12	Yangon	Region	7,360,703	7,360,703	
13	Shan	State	5,824,432	5,824,432	
14	Ayeyarwady	Region	6,184,829	6,184,829	
15	Nay Pyi Taw	Region	1,160,242	1,160,242	
	Total ▶		50,279,900	51,486,253	

TABLE 1:

³ The 2014 Myanmar Population and Housing Census, The Union Report, Ministry of Immigration and Population, May 2015

At the time of census-taking in April 2014, the entire country, there was insecurity in three States—Kachin, Kayah and Rakhine—due to insurgency. Census could not be taken in some parts of these three States, and so the immigration officials had to estimate the population in these parts. The estimated population has been added to the enumerated population data.

❖ Population ratios of States and Regions⁴

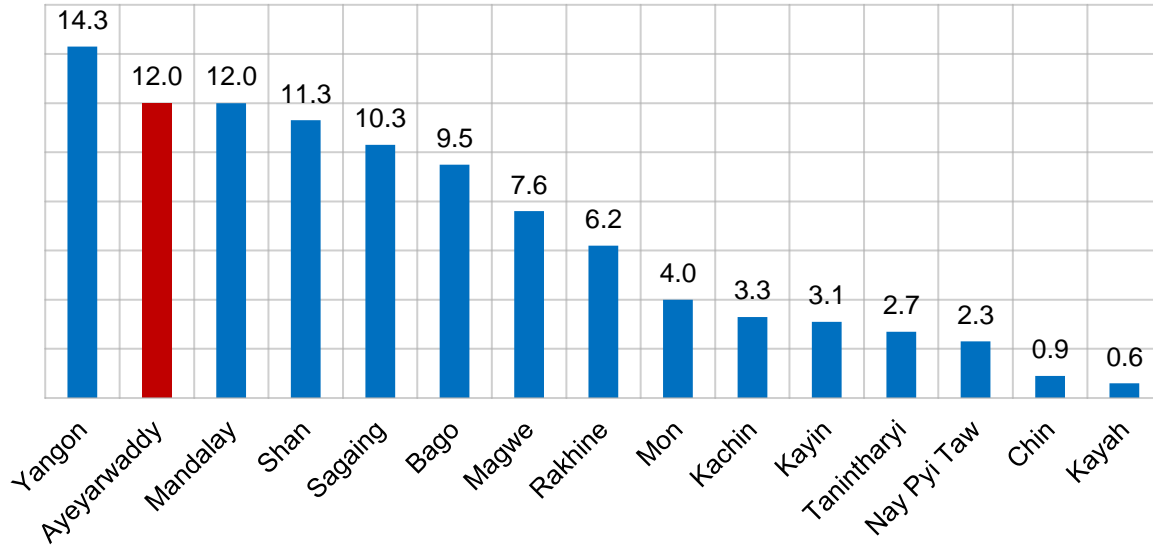


CHART 1:

❖ Comparison of urban and rural populations between the Union and Ayeyarwady Region⁵

Urban/rural	Description	Union	Ayeyarwady	Share in the Union
	Total population	50,279,900	6,184,829	12%
Urban	Both sexes	14,877,943	872,600	6%
	Male	7,114,224	412,693	6%
	Female	7,763,719	459,907	6%
	% of urban population	30%	14%	—
Rural	Both sexes	35,401,957	5,312,229	15%
	Male	17,114,490	2,597,115	15%
	Female	18,287,467	2,715,114	15%
	% of rural population	70%	86%	15%

TABLE 2:

❖ Sector-wise contribution to National GDP⁶

The national GDP in fiscal 2015-16 increased from MMK 72,714,021.2 million to MMK 79,720,897.9 million in fiscal 2016-17, showing an increase by 9.6%.

- Production in agriculture sector increased by 4.3%.
- Production in industry sector increased by 11.4%.
- Production in services sector increased by 11.8%.

Fiscal 2016-17

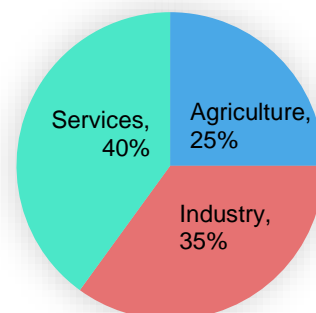


CHART 2:

⁴ Ibid

⁵ Ibid

⁶ Myanmar Statistical Yearbook 2017, CSO, Ministry of Planning and Finance

Million MMK

Main sectors	2015-16	Share	2016-17	Share
Agriculture	19,466,836.8	27%	20,300,035.6	25%
Industry	25,063,666.0	34%	27,917,838.0	35%
Services	28,183,518.4	39%	31,503,024.3	40%
Union GDP ▶	72,714,021.2	100%	79,720,897.9	100%

TABLE 3: Sector-wise contribution to National GDP

❖ **Sub-sector-wise contribution to national GDP**

Sectors and sub-sectors	205-16	Share in total GDP	2016-17	Share in total GDP
Agriculture	13,417,668.2	18.5%	13,736,113.2	17.2%
Livestock and fisheries	5,906,519.1	8.1%	6,505,195.6	8.2%
Forestry	142,649.5	0.2%	58,726.8	0.2%
Agriculture	19,466,836.8		20,300,035.6	
Energy	3,687,516.1	5.1%	2,669,961.3	3.3%
Mining	759,981.8	1.0%	835,279.5	1.0%
Processing/manufacturing	15,130,436.7	20.8%	18,167,436.6	22.8%
Electric power	1,030,836.9	1.5%	1,111,243.5	1.4%
Construction	4,454,894.5	6.1%	5,133,917.1	6.4%
Industry	25,063,666.0		27,917,838.0	
Transportation	8,239,652.8	11.3%	8,948,034.7	11.2%
Communications	1,512,271.1	2.1%	1,638,899.7	2.1%
Financial and institutions	173,401.9	0.2%	233,833.0	0.3%
Social and administrative services	2,686,743.5	3.7%	2,806,426.9	3.5%
Rental and other services	1,812,108.0	2.5%	2,159,037.1	2.7%
Trade	13,759,341.1	18.9%	15,716,792.9	19.7%
Services	28,183,518.4		31,503,024.3	

TABLE 4: Sub-sector-wise contribution to National GDP

❖ **Comparison of GDP growth between fiscal 2015-16 and 2016-17** (Unit: Million MMK)

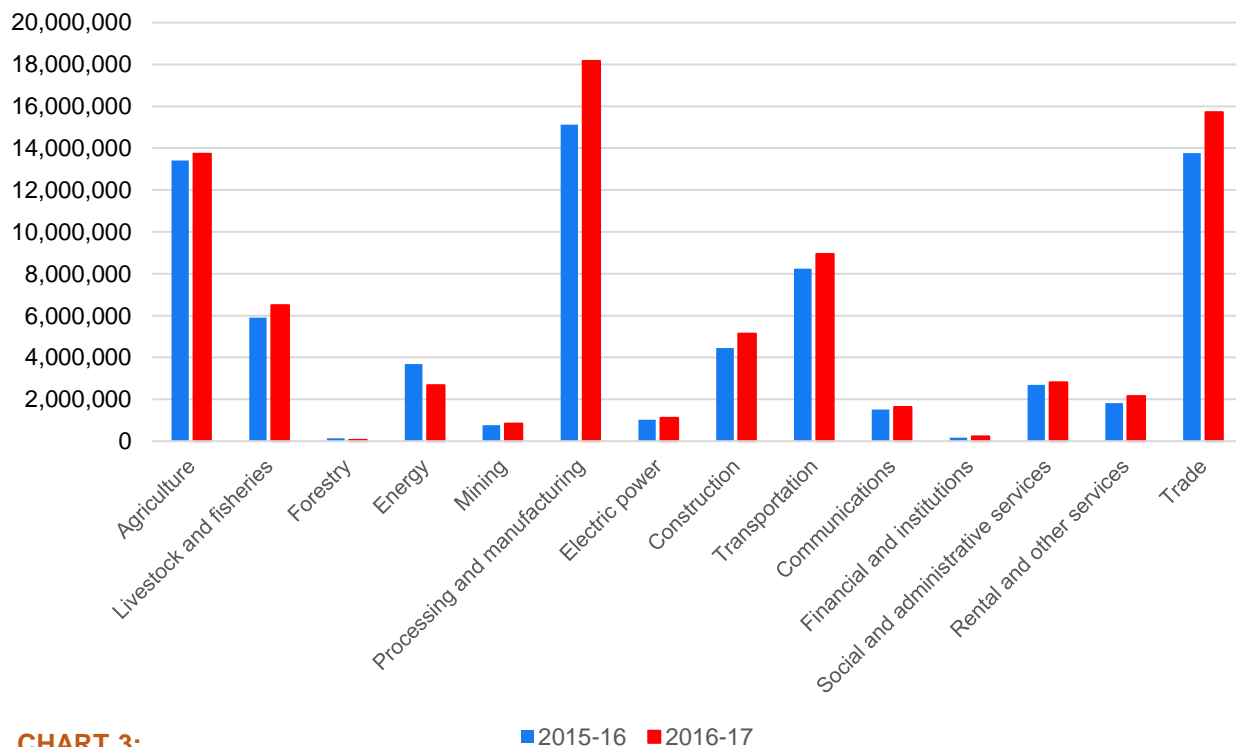


CHART 3:

■ 2015-16 ■ 2016-17

❖ Comparison of population with other countries in the ASEAN region

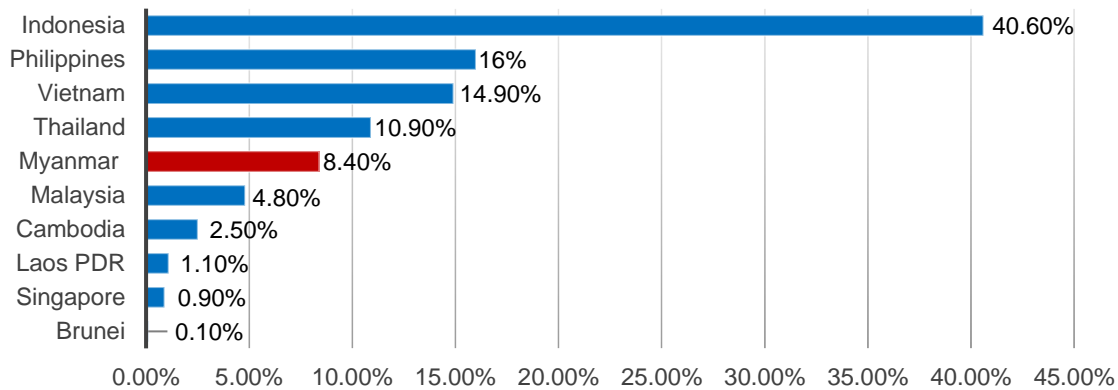


CHART 4:

❖ Investment climate in Myanmar

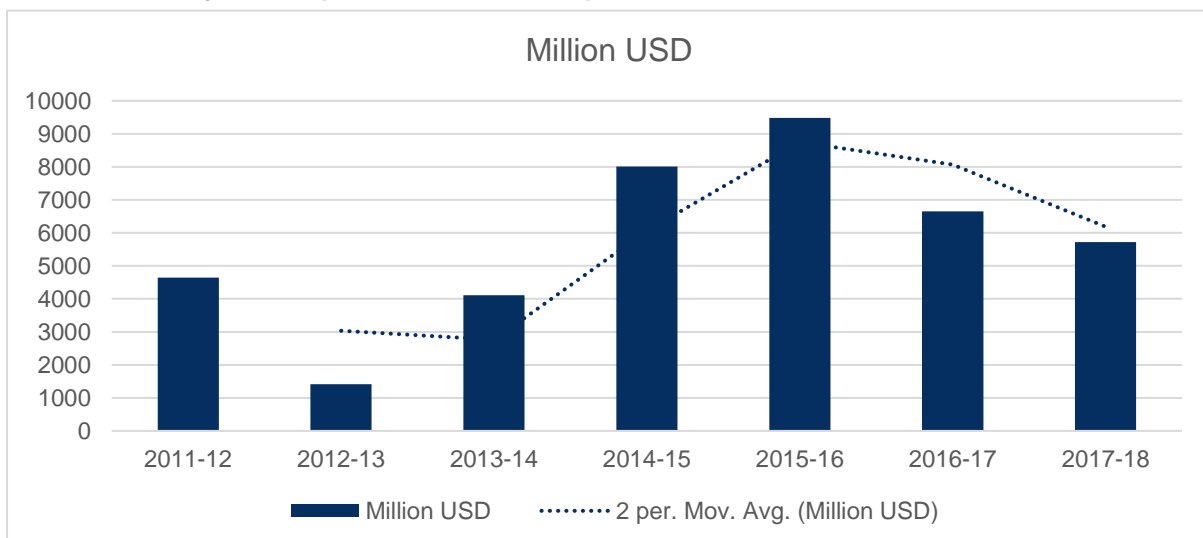
NOTE: The data in Tables 5 & 6 and Charts 5 & 6 are accumulated since the foreign direct investments were allowed in 1988-89.

Foreign investments of permitted enterprises as of July 31, 2018 – by sector

Sr No	Sector	Permitted enterprises		
		Number	Approved amount (Million USD)	Percentage
1	Oil and gas	154	22,410.368	29.16%
2	Power	18	20,993.922	27.32%
3	Manufacturing	910	9,919.288	12.91%
4	Transportation and communication	55	9,195.923	11.97%
5	Real estate	51	5,001.347	6.51%
6	Hotel and tourism	74	3,036.043	3.95%
7	Mining	71	2,904.916	3.78%
8	Livestock and fisheries	50	586.988	0.76%
9	Agriculture	28	395.001	0.51%
10	Industrial estate	6	271.631	0.35%
11	Construction	2	37.767	0.05%
12	Other services	104	2,097.206	2.73%
Total ▶		1,523	76,850.400	100.00%

TABLE 5:

FDI trend of Myanmar (2011-12 to 2017-18)



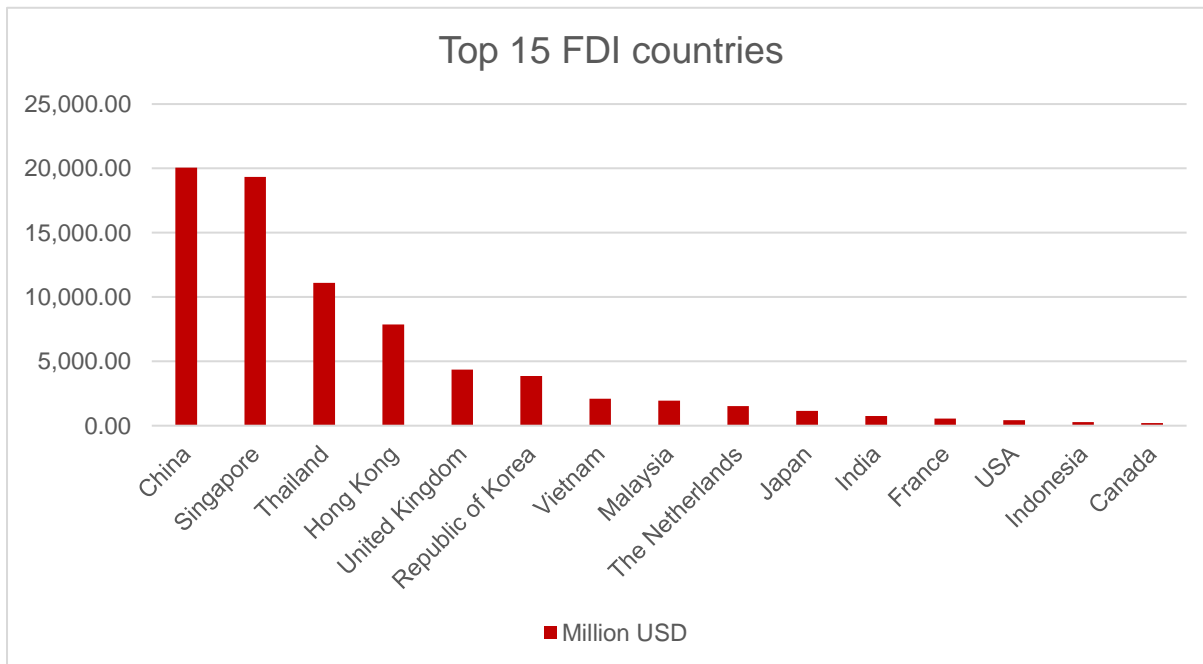
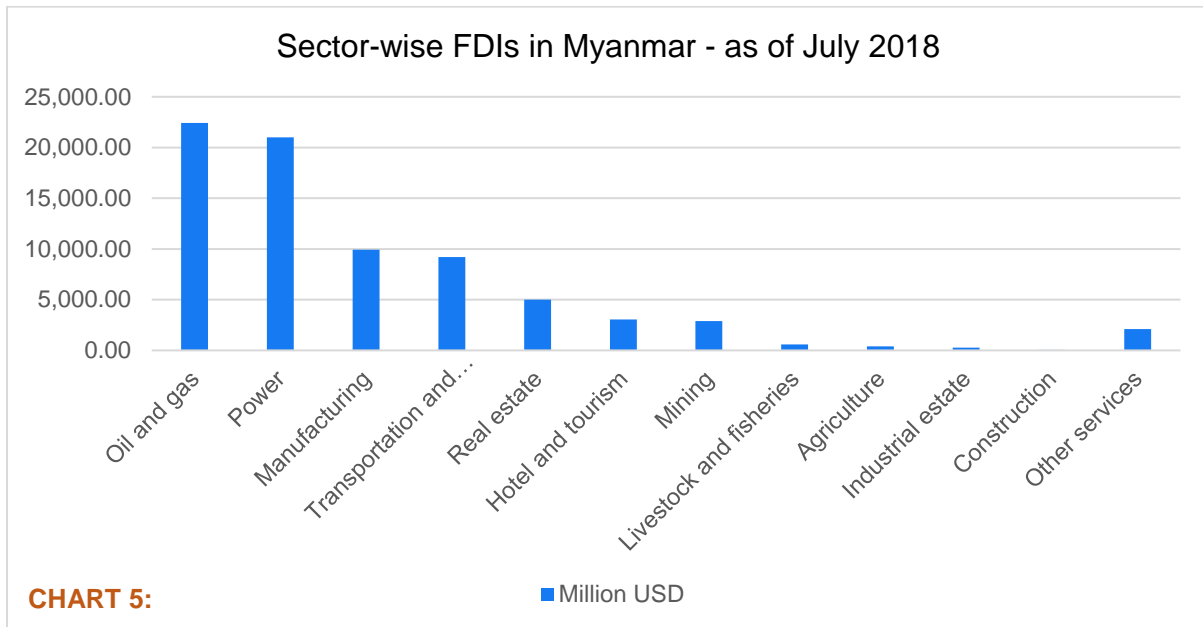


CHART 6:

Foreign investments of permitted enterprises as of July 31, 2018 – by country

Sr No	Sector	Permitted enterprises		
		Number	Approved amount (Million USD)	Percentage
1	China	256	20,054.830	26.10%
2	Singapore	286	19,326.593	25.15%
3	Thailand	118	11,090.748	14.43%
4	Hong Kong	171	7,867.000	10.24%
5	United Kingdom	90	4,351.517	5.66%
6	Republic of Korea	159	3,853.774	5.01%
7	Vietnam	20	2,106.513	2.74%
8	Malaysia	63	1,954.605	2.54%
9	The Netherlands	21	1,528.489	1.99%
10	Japan	107	1,161.426	1.51%
11	India	30	763.567	0.99%

12	France	20	549.740	0.72%
13	USA	20	432.796	0.56%
14	Indonesia	15	273.580	0.36%
15	Canada	20	203.594	0.26%
16	United Arab Emirates	3	147.692	0.19%
17	The Philippines	3	147.173	0.19%
18	Australia	18	145.799	0.19%
19	Samoa	5	133.404	0.17%
20	Brunei Darussalam	23	105.122	0.14%
21	Russian Federation	2	94.000	0.12%
22	Republic of Liberia	4	79.201	0.10%
23	Austria	2	74.365	0.10%
24	Panama	2	55.101	0.07%
25	Luxembourg	3	47.277	0.06%
26	Taiwan	18	49.868	0.06%
27	Mauritius	3	39.584	0.05%
28	Germany	4	32.651	0.04%
29	Switzerland	4	30.087	0.04%
30	Norway	1	17.800	0.02%
31	Demark	1	13.370	0.02%
32	Lebanon	1	12.980	0.02%
33	Seychelles	4	16.532	0.02%
34	Republic of the Marshall Island	2	12.009	0.02%
35	Ireland	1	8.053	0.01%
36	Macau	3	8.040	0.01%
37	Bangladesh	5	7.890	0.01%
38	New Zealand	1	6.950	0.01%
39	Cyprus	1	5.250	0.01%
40	Qatar	1	4.500	0.01%
41	Sri Lanka	2	3.500	0.00%
42	Israel	1	2.400	0.00%
43	Sweden	1	2.050	0.00%
44	Cambodia	3	24.175	0.03%
45	South Africa	1	1.309	0.00%
46	Cook Islands	1	1.150	0.00%
47	Laos	1	0.883	0.00%
48	Belize	1	0.810	0.00%
49	Afghanistan	1	0.653	0.00%
Total ▶		1,523	76,850.4	100.00%

TABLE 6:

Comparison of minimum wages between Myanmar and selected countries⁷

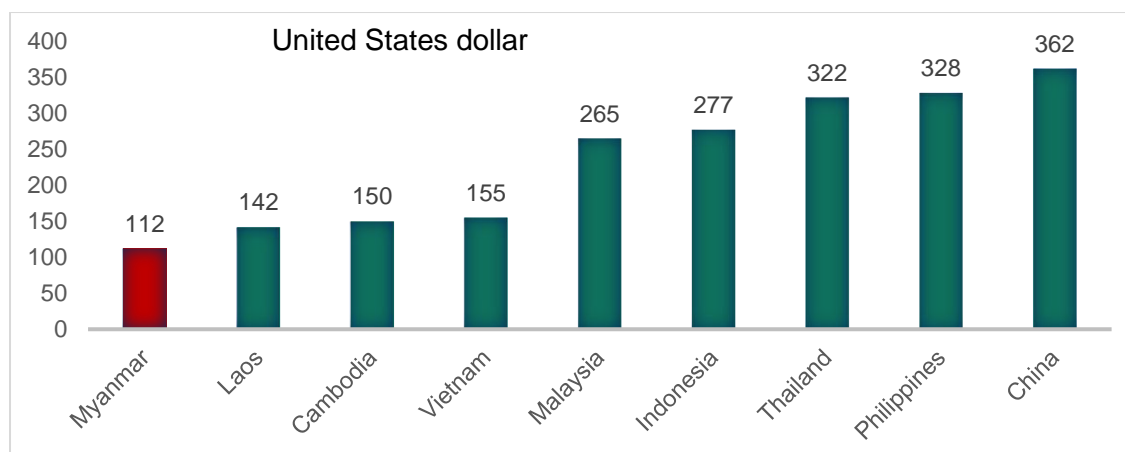


CHART 7:

⁷ www.vietnam-briefing.com/news/vietnam-minimum-wages-on-the-rise-in-2018.html/
www.sgsgroup.com.hk/sas
<http://economists-pick-research.hktdc.com/business-news/article/Regulatory-Alert-Asia/LAOS-Monthly-Minimum-Wage-Set-to-Increase-to-US-142/raasean/>
 Myanmar: MMK 150,000/1340 Market Rate = 112 USD (As of May 2018)

❖ Investments made in Ayeyarwady Region⁸

Myanmar Investment Commission (MIC) has specified the regions for tax relief as Zone 1, Zone 2 and Zone 3 under Section 100 (B) of the Myanmar Investment Law, promulgated on October 18, 2016, and Notification 10/2017, issued on February 22, 2017 as follows:

- (1) Zone 1: Less Developed Region – 7 consecutive years
- (2) Zone 2: Moderately Developed Region – 5 consecutive years
- (3) Zone 3: Developed Region – 3 consecutive years

Acting in accordance with the law and notification, the Ayeyarwady Region has also designated townships according to the development zone status as follows:

Status	Definition	No of townships in AR	Tax relief
Zone 1	Less Developed Region	10 townships	7 consecutive years
Zone 2	Moderately Developed Region	17 townships	5 consecutive years

TABLE 7: Designation of townships in Ayeyarwady Region according to tax relief (corporate income tax relief) status

ZONE 1: Townships designated Less Developed Region

District	Sr	Townships designated LDR	
Pathein District	1	Thabaung	
	2	Ngapudaw	
	3	Pathein	Only Shwethaungyan, ChaungThar and Ngwesaung Sub-townships
Hinthada District	4	Myanaung	
	5	Kyangin	
	6	Ingapu	
	7	Lemyethna	
Labutta District	8	Labutta	
	9	Mawlamyinegyun	
Pyapon District	10	Bogale	

ZONE 2: Townships designated Moderately Developed Region

District	Sr	Townships designated MDR	Sub-townships
Pathein District	1	Pathein (Downtown)	3 sub-townships in Pathien are not included.
	2	Kangyidaung	
	3	Yeygi	
	4	Kyaunggone	
	5	Kyonpyaw	
Hinthada District	6	Hinthada	
	7	Zalun	
Maubin District	8	Maubin	
	9	Pantanaw	
	10	Nyaungdon	
	11	Danubyu	
Myaungmya District	12	Myaungmya	
	13	Einme	
	14	Wakema	
Pyapon District	15	Pyapon	
	16	Kyaiklat	
	17	Dedaye	

NOTE: Pathein Township is included in both of the above tables. Pathein can be divided into **Downtown Pathein** and **Sub-townships**. Downtown Pathein is designated as Moderately Developed Region (MDR) and Pathein's subtownships as Less Developed Region (LDR).

⁸ Cost of Doing Business in Myanmar – Survey Report 2018, DICA

Foreign and local investments made in Ayeyarwady Region⁹

During the two-year period—April 1, 2016 to March 31, 2018—18 businesses of domestic and foreign investments, including foreign partnerships, were permitted in Ayeyarwady Region in accordance with the Myanmar Investment Law.

Investments permitted by Ayeyarwady Region Investment Committee

The Chairman of the AR Investment Committee is Chief Minister U Hla Moe Aung of Ayeyarwady Region Government and the Secretary is U Soe Aung, Director, Head of Ayeyarwady Region DICA.

Investments made in Ayeyarwady Region from April 1, 2016 to September 30, 2018

Type of investment	No of businesses	Investment amount		Jobs created
		Million USD	Million MMK	
Foreign investment	5	12.2504	0	3,127
Local investment	15	0	49,767.516	
Total ▶	20	12.2504	49,767.516	3,127

TABLE 8:

Investments made in Ayeyarwady Region from April 1, 2016 to September 30, 2018 (Sector-wise)

Sr	Sector	No of businesses	Investment amount	
			Million USD	Million MMK
1	Industrial	5	4.3654	11,740.045
2	Housing construction	6	2.88	14,687.031
3	Electric energy	1	3.685	0
4	Livestock and fisheries	1	0	500.000
5	Hotels and tourism	3	0	11,149.890
6	Agriculture	1	1.32	0
7	Other sectors	3	0	11,690.550
	Total ▶	20	12.2504	49,767.516

TABLE 9:

Investments made in Ayeyarwady Region from April 1, 2016 to September 30, 2018 (Detailed)

Sr	Company/business	Location	Investment amount		Jobs created	Type
			Mil. USD	Mil. MMK		
1	Myaungmya FM Biomass Power Co Ltd Rice husk-powered electricity generation	Myaungmya Township	3.685	0	16	JV
2	MKor Green Co Ltd Banana cultivation through contract-farming	Pantanaw Township	1.32	0	18	JV
3	MEF International Co Ltd Soft-shell crab production	Labutta New Town	0	500.00	169	MCI
4	Shwe Wah Nadi Agriculture Production Co Ltd Rice-based value-added production	Nyaungdon Township	0	5,975.62	218	MCI
5	Hte Wah Lin Let Construction Co Ltd Transport of scene-enjoyers and tourism	Ngwe Saung	0	1,000	14	MCI

⁹ Directorate of Investment and Company Administration, Office of the Head of Ayeyarwaddy Region Office

6	Ayeyarwady Beach Resort Housing Development Co Ltd Advanced residences – construction, leasing and sales	Ngwe Saung	0	5,500	279	MCI
7	i Green Construction Co Ltd Residences – construction, leasing and sales	Ngwe Saung	0	2,418.64	12	MCI
8	AA QSR Co Ltd Hotel services	Ngwe Saung	0	5,000	159	MCI
9	New Odin International Co Ltd Low-cost housing – construction, leasing and sales; Resort and hotel services	Chaung Tha	2.88	0	70	JV
10	Amazing Advanced Transforming and Manufacturing Co Ltd Rice husk briquette production	Nyaungdon Township	0	250	22	MCI
11	International Green Land Trading Co Ltd Hotel and amusement park services	Nyaungdon Township	0	5,000	79	MCI
12	Paddy Star Co Ltd Rice-based value-added production	Myaungmya Township	0	5,514.425	73	MCI
13	Delta Industrial Group Co Ltd Advanced shopping mall – construction, leasing and sales	Patheingyi Township	0	5,120.14	238	MCI
14	Delta Industrial Group Co Ltd Cinemas and shops – construction and leasing	Patheingyi Township	0	5,570.41	21	MCI
15	Ayeyarwady Inspiration Co Ltd Housing – construction, leasing and sales	Maubin Township	0	2,201.969	14	MCI
16	Ngwe Lwin Pyin Co Ltd Hotels and resorts – construction and services	Chaung Tha	0	1,149.89	57	MCI
17	Hua Meng Myanmar Co Ltd Garment manufacturing – CMP	Kangyidaunt	1.8114	0	920	FDI
18	i Green Development and Engineering Group Co Ltd Housing – construction and sales	Ngwe Saung	0	2,076	10	MCI
19	Jeong Ho International Co Ltd Garment manufacturing – CMP	Dedaye	2.554	0	720	FDI
20	Boffo Myanmar Co Ltd Housing – construction and sales	Patheingyi	0	2490.422	18	MCI
Total ►				12,2504	49,767.516	3,127

TABLE 10:

JV: Joint Venture
 FDI: Foreign Direct Investment
 MCI: Myanmar Citizen Investment

Investments permitted by MIC in Ayeyarwady Region

Type of investment	No of businesses	Investment amount		Jobs created
		Million USD	Million MMK	
Foreign investment	6	59.738	0	3,476
Local investment	6	0	198,841.215	
Total ▶	12	59.738	198,841.215	3,476

TABLE 11:

Investments permitted by Myanmar Investment Commission in Ayeyarwady Region (Detailed)

Sr	Company/business	Location	Investment amount		Jobs created	Type
			Mil. USD	Million MMK		
1	Timberland Plantation Investment Co Ltd Acacia and yamanay wood cultivation and sales	Thabaung Township	3.809	0	287	FDI
2	Paradiso Cinemas Co Ltd Cinemas – construction and screening	Bogale Township	0.37	0	14	MCI
3	Paradiso Cinemas Co Ltd Cinemas – construction and screening	Maubin Township	0.27	0	14	MCI
4	J Mol Co Ltd Offshore Supply Base	Myaungmya Township	0	54,000	134	—
5	Medi Union Co Ltd Sakura Private Hospital (Myanmar citizen)	Hinthada Township	0	1,954	133	MCI
6	Paradiso Cinemas Co Ltd Cinemas – construction and screening	Pyapon Township	0.28	0	14	MCI
7	Maubin United Development Co Ltd Construction, Operation and Leasing of Maubin Industrial Park	Maubin Township	28.706	0	80	FDI
8	Myint & Associates Offshore Supply Base Ltd Offshore supply base (Myanmar citizen)	Ngapudaw Township	0	45,955.25	91	MCI
9	SIM Co Ltd Ports and warehouses construction – services provided for offshore oil wells (Myanmar citizen)	Nga Yoke Kaung, Ngapudaw Township	0	24,426.305	93	MCI
10	Irrawaddy Fisheries Development Co Ltd Prawn breeding and sales	Ngwe Saung	0	66,435.66	773	MCI
11	Myanmar Knitting Factory Ltd (Factory 2) Garment manufacturing – CMP	Pathein	26.203	0	1,771	FDI
12	Nay Brothers Company Ltd Hotel Service	Ngwe Saung	0	6,070	72	MCI
	Total ▶		59.738	198,841.215	3,476	

TABLE 12:

FDI: Foreign Direct Investment; **MCI:** Myanmar Citizen Investment

❖ GDP and services values – 2017 and 2018 (Targeted) of Ayeyarwady Region¹⁰

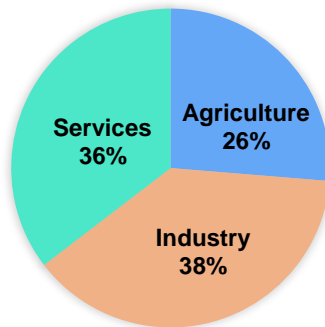


CHART 8: Share of main sectors in GDP (AR) – 2017

Comparison of GDP in Ayeyarwady Region between 2017 (Actual) & 2018 (Targeted)

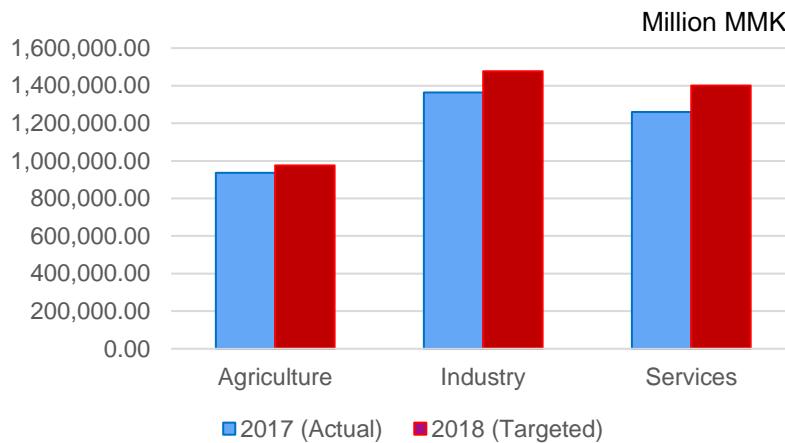


CHART 9:

GDP and services values – 2017 (Actual) and 2018 (Targeted) of Ayeyarwady Region

Sr	Main sector/subsector	April – September 2017		April – September 2018 (Targeted)	
		Value Million MMK	Share	Value Million MMK	Share
Agriculture sector		936,711.9	26.3%	975,645.7	25.2%
1	Agriculture	346,176.8	9.7%	367,616.8	9.5%
2	Fisheries	589,034.5	16.6%	606,581.9	15.7%
3	Forestry	1,500.6	0.0%	1,447.0	0.0%
Industry sector		1,363,607.0	38.3%	1,476,851.8	38.4%
4	Energy	914,217.2	25.7%	974,436.2	25.3%
5	Metal and minerals	6,653.4	0.2%	6,488.6	0.2%
6	Industrial	228,352.1	6.4%	263,667.1	6.8%
7	Electricity	102,585.8	2.9%	106,876.5	2.8%
8	Construction	111,798.5	3.1%	125,383.4	3.3%
Services sector		1,259,490.5	35.4%	1,400,514.5	36.4%
9	Transportation	499,520.8	14.0%	537,509.4	14.0%
10	Telecommunication	60,539.9	1.7%	70,426.8	1.8%
11	Financial	7,170.5	0.2%	7,476.5	0.2%
12	Social and management	124,984.2	3.5%	129,417.8	3.4%
13	Other services	145,468.8	4.1%	170,301.4	4.4%
14	Trading	421,806.3	11.9%	485,382.6	12.6%
Total gross domestic production & service values (GDP) ▶		3,559,809.4	100.0%	3,853,012.0	100.0%

TABLE 13:

¹⁰ Union of Myanmar Gazette, July 20, 2018

❖ BASIC INFORMATION ABOUT AYEYARWADY REGION

❖ Basic facts – Alluring Ayeyarwady Region

Location: In southwestern Myanmar

Government: **Ayeyarwaddy Region Government**

U Hla Moe Aung -----Chief Minister
 Colonel Kyaw Swar Hlaing -----Minister for Security and Border Affairs
 U Htay Win -----Minister for Planning and Finance
 U Tin Aung Win -----Minister for Agriculture, Livestock, Natural Resources and Environment
 U Win Htay -----Minister for Electricity, Energy, Industry and Transportation
 U Kyaw Myint -----Minister for Municipal Affairs
 Dr Hla Myat Thway -----Minister for Social Affairs
 Ga Moe Myat Myat Thu -----Minister for Kayin Ethnic Affairs
 U Tin Saw -----Minister for Rakhine Ethnic Affairs
 Daw Yin Yin Han -----Regional Advocate
 Daw San San Khaing -----Regional Auditor

Neighbours: Bago Region – to the north and northeast
 Yangon Region – to the east
 Bay of Bengal – to the south and west
 Rakhine State – to the northwest

Population: 6.2 million

Sub-regions: 26 townships and 7 sub-townships under 6 districts

Area: 13,567 sq-miles (35,136 km²)

Topography: Ayeyarwady River Delta – dubbed as “Rice granary” of Myanmar

Economy: ● **Agriculture:** rice, maize, sesame, groundnut, sunflower, beans and pulses, and jute ● **Fisheries:** fish, prawns ● **Processed food:** fish paste, dried fish, dried prawn, and fish sauce

Tourist resorts: Ngwe Saung Beach and Chaung Tha Beach

Potentials: Plans to establish industrial zones in the areas close to Yangon Region
 Plans to establish ports and special economic zones at coastal areas and along the rivers

Organizational structure: Ayeyarwady Region is one of the 14 States and Regions—chief territorial divisions of Myanmar. It is divided into 6 districts. Under the districts, there are 26 townships and 7 sub-townships. Some villages that have become prosperous and grown economically are upgraded into sub-townships. Each township is organized with village-tracts and wards. A village-

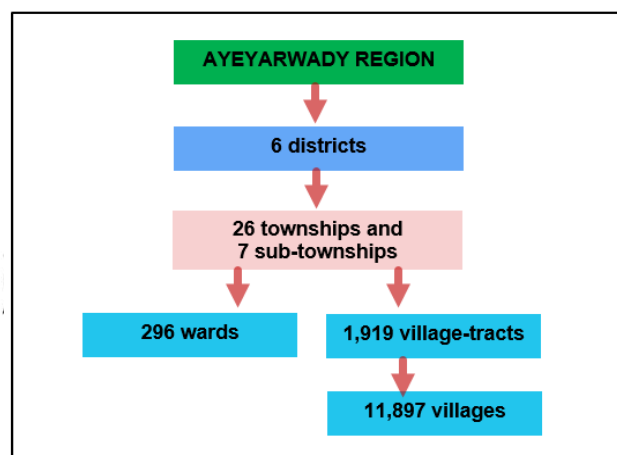
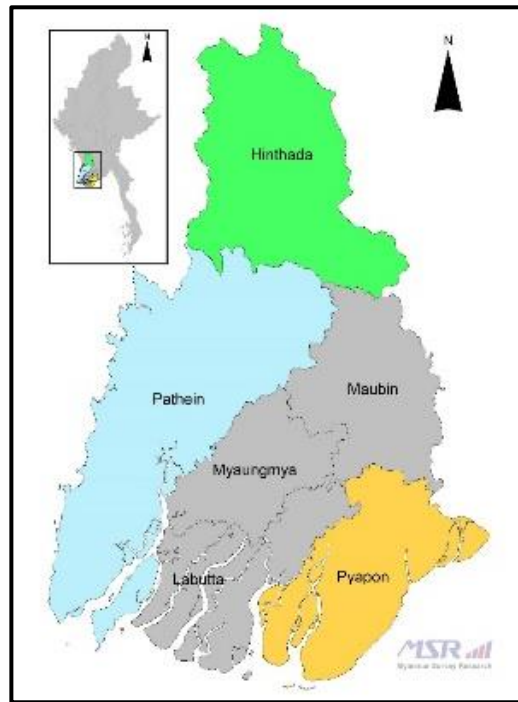


CHART 10: Organizational structure of Ayeyarwady Region

tract is composed of a number of villages. The above chart shows divisions of administrative areas at different levels.



MAP 3: Six districts in Ayeyarwady Region

Urban-rural populations of Ayeyarwady Region

	Male	Female	Both sexes
Urban population	412,693	459,907	872,600
Rural population	2,597,115	2,715,114	5,312,229
Total ▶	3,009,808	3,175,021	6,184,829

TABLE 14:

Populations of the six districts in Ayeyarwady Region

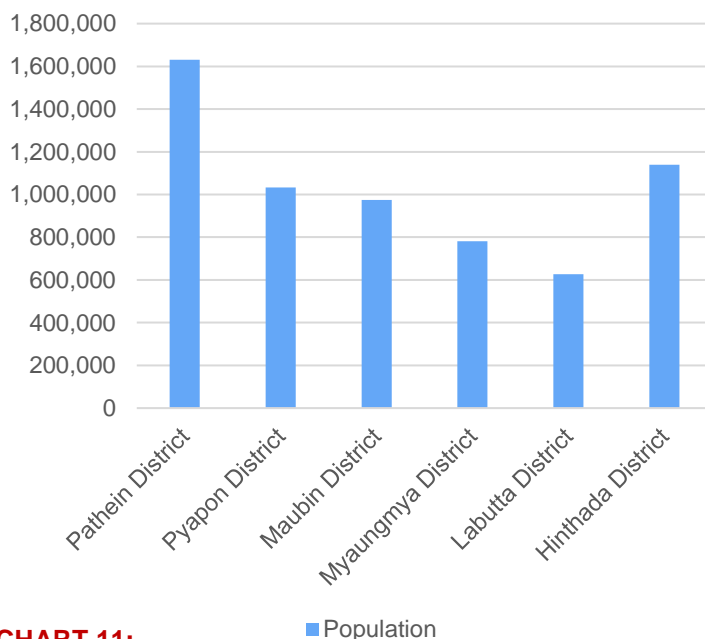


CHART 11:

■ Population

(See the detailed list of township-wise populations in Ayeyarwady Region in **Appendix: 17.2.**)

**EXISTING AND POTENTIAL
INVESTMENT OPPORTUNITIES**

1 AGRICULTURE SECTOR

1.1 OVERVIEW OF AGRICULTURE SECTOR

The Ayeyarwady River, flowing from north to south of the country, branches off, at its lower reaches just before merging into the sea, into rivulets and creeks in the Ayeyarwady Region, which takes the shape of a delta (Δ). Hence, the region has come to be known as the “Delta Region”, abounding in creeks and rivers and rich soil. Consequently, agriculture has become the mainstay of local residents. The majority of people are engaged in either agriculture or fisheries for their livelihood. Townships close to the sea has salt water and brackish water, and those in the upper sector of the region has fresh water.

Key stakeholders: The key stakeholders in agriculture sector are:

- 1 Ayeyarwady Region Government (ARG)
- 2 Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation
- 3 Agricultural Mechanization Department, under the same ministry
- 4 Myanma Agricultural Development Bank (MADB)
- 5 ARCCI
- 6 Paddy farmers

The following table shows the acreages of major crops sown in Ayeyarwady Region as of fiscal 2016-17:¹¹

Acreages of major crops sown in Ayeyarwady Region – 2016-2017

Crop name		Acre	Share	Cultivation season
English	Myanmar			
Paddy		5,037,199	75%	
Black gram	Mat-pe	1,150,552	17%	
Green gram	Pe-di-sein	205,883	3%	
Cow pea	Bo-kate-pe	164,507	2%	
Groundnut		105,936	2%	Rainy season and cool season
Tapioca	Pilaw pinan	31,427	1%	
Sesame	Hnan	24,355	0%	Early maturing and late maturing
Corn		21,109	0%	
Lablab bean	Pe-gyi	10,495	0%	
Sultani	Sun-tar-ni	4,539	0%	
Rice bean	Pe-yin	2,035	0%	

TABLE 15:

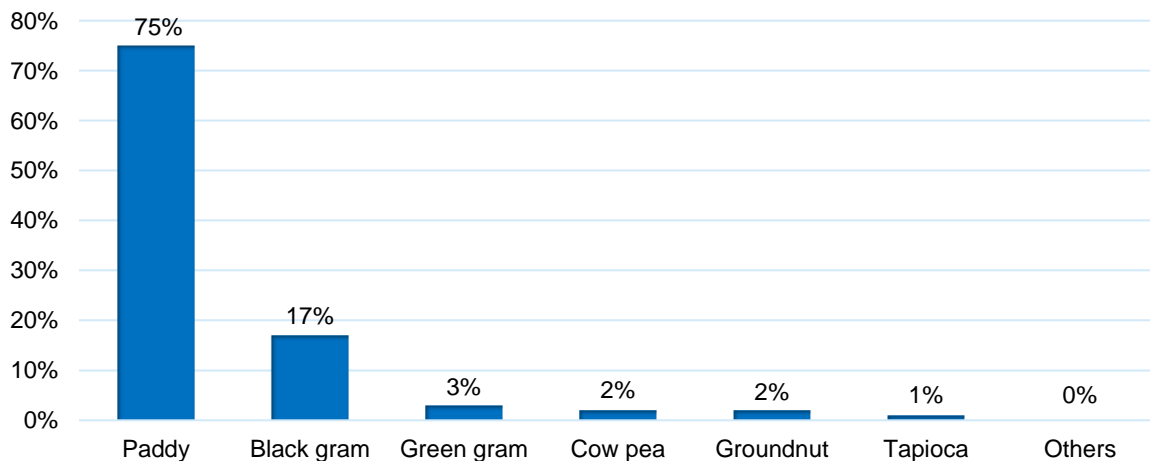


CHART 12: Ratios of sown acreage of selected crops in Ayeyarwady Region (as of 2016-17)

¹¹ Myanmar Statistical Yearbook 2017, CSO, Ministry of Planning and Finance

Performance of Ayeyarwady Region Government (ARG)¹²

The following activities were carried out during the one-year period in 2017 under the guidance and arrangement of the Ayeyarwady Region government:

- 2017
 - **Soil upgrading:** Research activities have been heightened, and soil nutrient tests were carried out for 54,427 units (2,721,350 acres), one unit being 50 acres.
 - **Prevention of erosion:** Dykes and retaining walls were built in townships such as Myanaung, Hinthada, Zalun, Ingapu, Danubyu, Nyaungdon, Maubin, etc, as erosion takes place every year in these townships. As a result, more than 300,000 acres of paddy fields can be prevented against erosion by river water.
 - **Model Village Project:** Department of Agriculture, in collaboration with Korea International Cooperation Agency (KOICA), implemented Model Village Project in 10 villages of Pathein and Kanyidaunt Townships.
 - **Loans disbursed:** In 2017, Myanma Agricultural Development Bank (MADB) disbursed MMK 480,000 million to the farmers in the region, MMK 160,000 million more than the previous year.
 - **Dredging:** In 2017, altogether 262 shallow creeks were dredged, and 24 embankments reinforced. In Wakema Township, at Shwelaung island, 18 drainage canals were dug.
 - **Water irrigation system revamped:** For summer paddy plantations in Kyangin and Myanaung Township, the water supply system, fed by Kyungyaung Dam, has been revamped.
 - **Agricultural machines:** The following table shows the sales in instalments and leasing of agricultural machines to paddy farmers.

Organization	No of beneficiaries	Kind	No of units sold
Sales in installments			
Cooperatives Department	1,554	Agri machines	1,707
Agricultural Mechanization Department	—	Agri machines	1,294
Leasing			
Organization	Type of work		Acres completed
Agricultural Mechanization Department (also provides maintenance service)	Ploughing		395,202
	Combine harvesters		24,703
	Planting seedlings		710

TABLE 16: Sales in instalments and leasing of agricultural machines

¹² Ayeyarwaddy Region Government's One-Year Performance (2017),

1.2 RICE (PADDY)



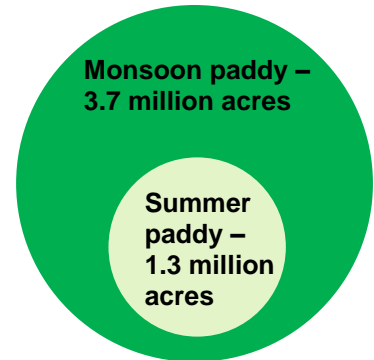
Paddy



Rice

❖ Basic information

In Ayeyarwady Region, rainy season (monsoon) paddy is cultivated on more than 3.7 million acres, and summer paddy on more than 1.3 million acres, totaling more than 5 million acres under paddy, accounting for 28.2% of the national rice production.¹³ After reaping the monsoon paddy, summer paddy or winter crops such as groundnut, water melon and beans and pulses are grown on the same land with the moisture left from the rainy season or with irrigated water.



ARG: The Ayeyarwady Region government, in June 2018, obtained registered seeds (RS) and produced good-quality certified seeds (CS), with the cooperation of farmers and techniques of the Department of Agriculture, under the Ministry of Agriculture and Irrigation. Under the arrangement of Department of Agriculture, 1,610,000 baskets of certified seeds were distributed to townships in the region.¹⁴

TABLE 17: Total land and agricultural land areas in Ayeyarwady Region¹⁵

Total land area in AR:	8,656,564	acres	100%	13,526	square-miles
Total agricultural land:	4,450,000	acres	51%		

Share of agricultural land in Ayeyarwady Region

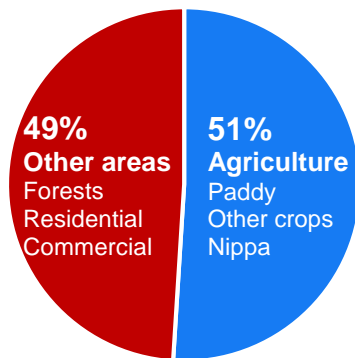


TABLE 18: Kinds of agricultural land

Paddy land	3,700,000	acres	83%
Other vegetables (yar-myay)	60,000	acres	1%
Island land (kaing/kyun)	250,000	acres	6%
Garden land	400,000	acres	9%
Dhani (nippa) plantations	40,000	acres	1%
Total agricultural land ▶	4,450,000	acres	100%

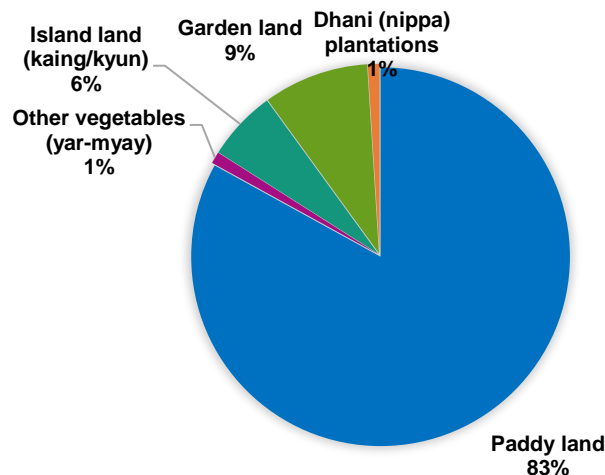


CHART 13: Share of agricultural land in Ayeyarwady Region

¹³ In this report, “paddy” refers to the grain in the husk, and “rice” to the grain whose husk has been removed.

¹⁴ Ayeyarwaddy Region Government’s One-Year Performance (2017), The Myanmar Alin Daily, March 23, 2017

¹⁵ U Khin Maung Hlaing, Director, Head of Department of Consumer Affairs (Ayeyarwady Region)

Total population in the region:	6.1 million					
Per-capita consumption:	15 baskets per year (paddy); about 4.5 to 5 baskets (rice)					
No of farmers:	556,963					
Acreage under cultivation:	Cultivation	Acre				
	Monsoon paddy	3,700,000				
	Summer paddy	1,300,000				
	Total ▶	5,000,000				
Paddy production per year: (Ayeyarwady Region)	Fiscal year	Per-acre yield (Baskets)		Total yield (Baskets)		
	2011-12	63.76		214 million		
	2012-13	66.71		322 million		
	2013-14	68.26		334 million		
	2014-15	68.13		339 million		
	2015-16	69.37		337 million		
Consumption and surplus (2016-17):	Consumption	132,126,341	baskets	339 million		
	Surplus (paddy)	207,328,420	baskets			
	Surplus (rice)	2,073,284	tons			
Profit per acre:	Fiscal year	Per-acre cost (MMK)	Yield per acre (Basket)	Cost per basket	Profit per acre (MMK)	
	Eh-ma-hta (monsoon)	2017-18	230,000	76	3,026	89,224
	Eh-ma-hta (summer)	2017-18	235,000	85	2,765	171,300
	Paw-hsan (monsoon)	2017-18	222,500	57	3,903	216,970
No of paddy species in AR:	42					

❖ Primary information¹⁶

Use of fertilizer:	-- Depend on the soil and the species
	-- Rain-scarce region (Upper Ayeyarwady) use more fertilizer than rain-rich region (Lower Ayeyarwady).
	Paddy 1 acre: Urea ----- 50 kg Paddy 1 acre: Potash ----- 25 kg Paddy 1 acre: T-Super ----- 25 kg
Use of pesticide:	Paddy plants are destroyed by pests—caterpillars, locust, moths and small and big crabs. Herbicide: 500 cc per acre within 20 days after transplanting Others depending on disease: 500 – 800 cc per acre
	Export destinations: 53 countries (GSP = 39 countries)
Local market:	Flow of rice from AR to other States Regions (Yangon, Mandalay, Tanintharyi and Magwe Regions and Rakhine State): 50,000 to 100,000 bags

❖ Analysis

- Strengths:**
- Availability of land for agriculture
- Weaknesses:**
- Road conditions are not good.
 - Difficulty to obtain good-quality species
 - Lack of agricultural techniques – quality seed development to post-harvest technologies
 - Difficulty in obtaining loans
 - Lack of skilled labour
- Threats:**
- Manipulation by large merchants
 - Bad weather
- Opportunities:**
- Opportunity to grow rice and beans and pulses for export
 - Opportunity to use byproducts (broken rice, bran) in feedstuff production

¹⁶ U Khin Maung Hlaing, Director, Head of Department of Consumer Affairs (Ayeyarwady Region)

1.3 BEANS AND PULSES



❖ Basic information

Annual production and export of pulses¹⁷

Kind of crop	Acres under cultivation	Yield per acre	Total yield	Total yield	Consumption	Export
			(Basket)	(Ton)		
Matpe	1,029,194	10.11	10,347,468	338,041	45,921	292,120
Pedisein	238,352	11.88	2,862,734	92,540	22,459	70,081

TABLE 19:

❖ Primary information¹⁸

Matpe (Black gram) and Pedisein (Green gram) and maize

	Produce	Annual production (Ton)	Sales price (MMK) per ton	
Production in Hinthada Township:	Black gram	50,000	450,000	
	Green gram	10,000	900,000	
	Maize	35,000	345,000	
Sales:	Sold only to Bayint Naung Purchase Depot, Yangon			
The best sold kinds:	Black gram			
	Maize	For feedstuff factories (domestic, foreign)		
Market information:	Bayint Naing Purchase Depot, Internet, companies and merchants			
Availability of loans:	Government and private banks			
Payment transfer:	COD: 10%; Hundi: 30%; and Bank: 60%			
Transportation:	By road (80%) and By water (20%)			
Storage:	Sr	No of warehouses	Capacity (No of bags)	Remark
	1	3	70,000 – 80,000	
	2	5	40,000 – 50,000	
	3	50	8,000 – 10,000	
	Total ▶	58		1 bag = 30 viss (100 kg)
Transportation:	Roads cannot stand heavy weight of cargo.			

❖ Analysis

Strengths:

Weaknesses:

Threats:

Opportunities:

- Ayeyarwady Region has rich soil and abundant water
- Lack of agricultural techniques
- Lack of good strains
- Lack of stable market – just relying on limited export market
- Only one crop per year can be cultivated (cool season crop)
- Penetration of foreign bean/pulse products into Myanmar market
- Opportunity to produce canned pea
- Opportunity to export pulses

¹⁷ U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce

¹⁸ U Myint Thein Oo, Chairman, Pulses and Sesamum Merchants Association (Hinthada Township) 09 858 0214, 09 516 8405

1.4 EDIBLE OIL CROPS



❖ Basic information

The edible oil crops commonly grown in Myanmar are groundnut, sesame, sunflower and soybean, especially in upper Myanmar. In the past, farmers in Ayeyarwady Region grew groundnut on a commercial scale, but nowadays, farmers grow only on a manageable scale.

They grew sunflower in the past, under the instruction of the government. However, with low yield, it was also not successful. At that time, China no longer bought sunflower seeds. In place of sunflower, farmers are now growing black gram, green gram, corn and tobacco. Local production of edible oil has declined owing to the import of palm oil. Only health-conscious and families of high socio-economic consume groundnut oil.

Edible oil market in Myanmar

In Myanmar edible oil industry, there are two main suppliers of edible oil to consumers—edible oil importers and edible oil millers. The local consumption of both consumers and industrial uses needs 1 million ton of edible oil of which 600,000 tons of palm oil and 50,000 tons of vegetable oil, sunflower oil and soya bean oil are imported and 350,000 tons of peanut oil and sesame oil are locally produced. Among these, 600,000 tons of edible oils are used by consumers and 400,000 tons are used by industries such as hotels, restaurants and SME.

Supply	Tons	Share
Local production	350,000	35%
Import (Palm oil)	600,000	60%
Import (vegetable, sunflower and soybean oil)	50,000	5%
Total ▶	1,000,000	100%

TABLE 20: Estimated edible oil market size in 2017

Edible oil market size – 2017¹⁹

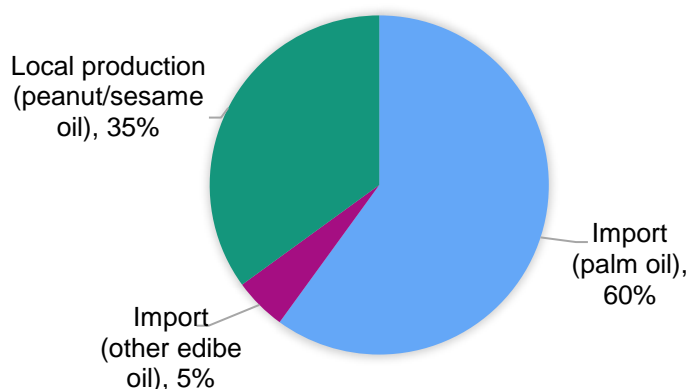


CHART 14:

Oil crop acreage in the country in 2017 was about 7.5 million acres, constituting about 16.5% of the total land available for agriculture.²²

¹⁹ MSR Report, 2017

²⁰ Customs Department

²¹ Ibid

²² Myanmar Times, November 22, 2017

Edible oil imports (2013-2017)²⁰

Year	Import volume (Ton)
2013	457,690
2014	595,235
2015	678,271
2016	678,741
2017	825,880

TABLE 21:

Edible oil imports (2017)²¹

Kind of edible oil	Volume (Ton)
Palm oil	642,680
Vegetable oil	166,064
Soya bean oil	3,101
Sunflower oil	11,114
Butter oil	1,949
Olive oil	196
Canola oil	684
Sesame oil	30
Corn oil	49
Peanut oil	8
Castor oil	5
Total ▶	825,880

TABLE 22:

Edible oil imported from 2013 to 2017 included the kinds of edible oil imported in 2017 shown in the table shown on the right.

Trend of edible oil imports (2013-2017)

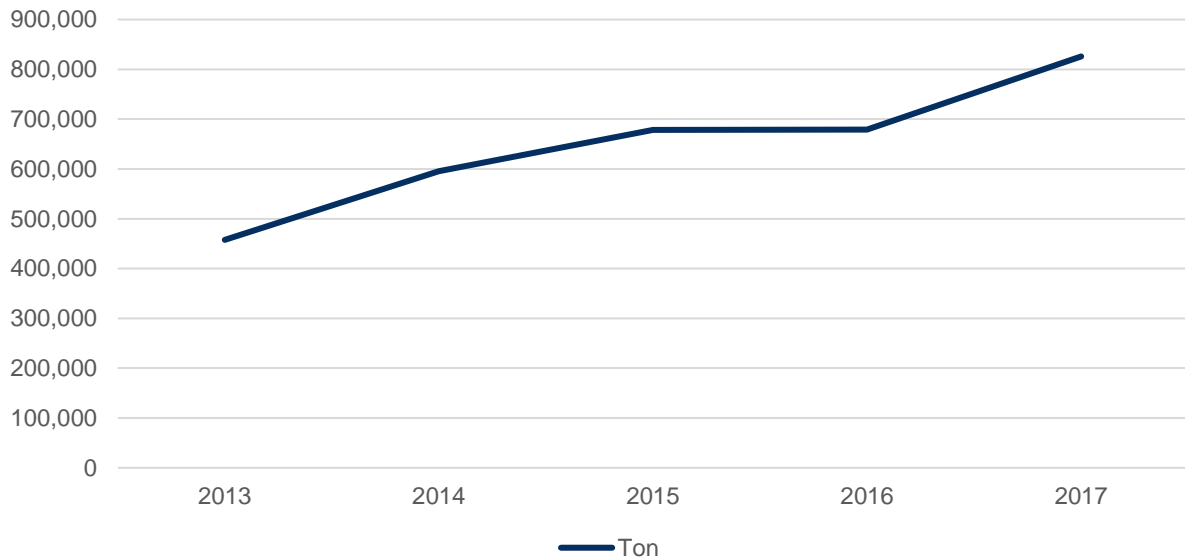


CHART 15:

Share of kinds of edible oil imports (2017)

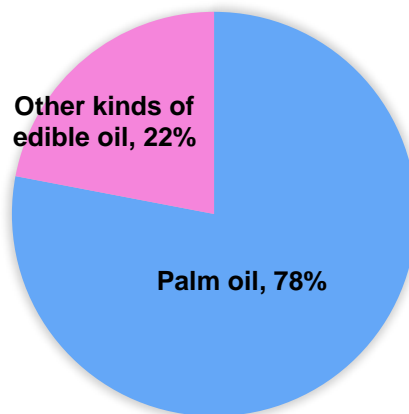


CHART 16:

❖ Analysis

- Strengths:**
 - Groundnut can be grown on a commercial scale
 - Groundnut is not only used for edible oil but also as an ingredient in snacks.
- Weaknesses:**
 - Lack of cultivation techniques
 - Lack of processing techniques
 - Lack of market
- Threats:**
 - Import of palm oil
- Opportunities:**
 - Opportunity to produce edible oil from groundnut and vegetables

1.5 CHILLY



❖ Primary information

Chilli purchase depot (trading) – Hinthada²³

Purchase areas:	Hinthada and Ingapu Townships (in large quantities), Myanaung and Letpadan Townships (in small quantities)			
Species storied:	1	Kaing Thee Nga Yoke		
	2	Moe Htaung Nga Yoke		
	3	India Nga Yoke	The best sold	
	4	Vietnam Nga Yoke	Nga Yoke = chilly	
Market:	Domestic only			
Quantities resold:	Species	Per-viss price (MMK)		Share
		Summer	Monsoon	
	Kaing Thee	2,200	3,300	10%
	Moe Htaung	2,500	3,700	35%
	India	2,600	4,200	50%
Vietnam	2,600	4,000	5%	
Places where chilly is resold:	Nayint Naung Purchase Depot (Yangon)		50%	
	Wholesalers and retailers (Pathein)		50%	
Storage:	Warehouse: Width: 80 feet x length 140 feet. Period: 2 to 3 months			
Payment:	Cash on delivery; deferred payment: 1 week			
Packaging:	Thin jute sack; Sizes: 5-basket and 1-basket			
Business situation:	Demand is good.			
No of workers:	30			
Wages:	MMK 5,000 – MMK 15,000			

❖ Analysis

- Strengths:** ■ Chilly demand is good
- Weaknesses:** ■ Need of preservation technique
- Only one crop can be cultivated in a year.
- Threats:** ■ Chilly cannot be stored for a long time
- Opportunities:** ■ Opportunity to produce chilly sauce
- Opportunity to produce red pepper (chilly powder)

1.6 BANANA



❖ Basic information

Species of banana being grown in Ayeyarwady Region are:

1	Thee-hmwe (yellow shell)	7	Phee-gyan
2	Thee-hmwe (green shell)	8	Lin-ban-pyae (a) Byat-pyae
3	Shwe Ni	9	Rakhine
4	Nant-thar-pu	10	Israel
5	Pyay-yay-san	11	Korean tissue
6	Wet-ma-lut		

Ayeyarwady Region Chamber of Commerce and Industry (ARCCI), jointly with a Korean company, is growing banana, using Korean seeds—like Shwe Wah (golden yellow) species of Myanmar—in Kyonpyaw Township, through contract-farming system. The bananas produced will be exported to Korea. The two parties will also do likewise for tapioca.²⁴

²³ U Ngwe Tun, Owner, Shwepyisoe Purchase Depot, Nyaungdon Ward, Hinthada Township. 09 4300 0222

²⁴ The Eleven Daily, June 10, 2017

❖ Primary information

Yield: Cultivation to harvest: 10 months	Sr	District	Acreage	Output (Bunch)	Yield (Bunch)	Percentage
	1	Pathein	19,327	800	15,461,600	32%
	2	Hinthada	8,647	800	6,917,600	15%
	3	Myaungmya	4,091	800	3,272,800	7%
	4	Labutta	6,076	800	4,860,800	10%
	5	Maubin	10,272	900	9,244,800	19%
	6	Pyapon	10,068	800	8,054,400	17%
	Total ▶		58,481	818	47,812,000	100%

Cost and profit:	Task	Quantity	Unit	Rate (MMK)	Cost (MMK)	Sales	Proceeds (MMK)
	Land preparation				500,000		
	Seed (small plant)	900	plants	100	90,000	900 bunches x 5,000	4,500,000
	Urea	40	bags	21,000	840,000		
	T-super	7	bags	30,000	210,000		
	Wage	12	times	5,000	60,000	Resell seeds 700 x 100	70,000
	Wage (pumping)	20	times	5,000	100,000		
	Diesel	7	boxes	11,000	77,000		
	Pesticides				133,000		
	Total ▶					2,010,000	
Profit (per acre)					2,560,000		
					4,570,000		4,570,000

မြေအသုံးပြုမှု 9% (of the entire Ayeyarwady Region)

❖ Analysis

Strengths:

- Profit made in 10 months is large
- Banana is a nutritious food item
- It can be used in various snacks and traditional medicine.
- The soil is suitable for banana growing.
- Banana has a good demand.

Weaknesses:

- Need sufficient fertilizer (Deficiency of vitamins—lime, iron, magnesium, nitrogen, phosphorous—leads to diseases.)
- Lack of good-quality species
- Lack of good cultivation techniques

Threats:

- Destruction by pests

Opportunities:

- Investment should be made in banana plantations
- Opportunity to export
- Opportunity to produce banana juice.



1.7 MANGO

❖ Primary information

Mango cultivation²⁵

Area of plantation:	114 acres
Species:	Sein-ta-lone (Diamond solitaire)
Per-acre yield:	7,200
Fertilizer used:	Nitrogen, potash, phosphorous, cow dung, chicken droppings, manure
Pesticides:	Sevin, copper, hydroxide, paclobutrazol, potassium nitrate (KNO ₃)
Method of growing:	Grafting
Machinery owned:	2 tractors

²⁵ U Aung Ngwe, Supervisor, Shwe Yathaw Nyo Agriculture Farm, Kywe Hsin Village, Pathein-Monywa road, In-gapu Township. 09 79 070 8500, 09 44 480 9080

	1 power tiller 4 grass mower
Market information sources:	Myanmar Fruits and Vegetables Growers, Producers and Exporters Association, Myanmar mango market, Research and Development Association, and fruits and vegetables purchase depot at Thiri Mingalar Market
Packaging:	35-mango cardboard boxes
The place mangoes are sold:	Thiri Mingalar Market, Yangon
Transport fee:	MMK 700 per cardboard box by truck
Markets:	Thiri Mingalar Market: 75%
	Neighbouring townships: 10%
	Buyers at the farm: 15%
Wages:	MMK 120,000 to MMK 350,000 per month
Payment transfer:	Bank: 60%
	COD: 35%
	Wave money: 5%
Requirement:	Agricultural techniques
Business situation:	25% improvement

❖ Analysis

- Strengths:**
- Myanmar mangoes have significant flavor.
 - Demand is good.
- Weaknesses:**
- Lack of good agricultural techniques
 - Lack of good-quality species
 - Lack of processing technology
- Threats:**
- Bad weather
- Opportunities:**
- Opportunity to export good-quality mangoes
 - Opportunity to produce mango juice



1.8 CASHEW

❖ Basic information

According to Ayeyarwaddy Region Chamber of Commerce and Industry (ARCCI), there is great demand for cashew nut, and there are vacant plots of land in the region as the perennial tree can be grown at any place.

Cashew is grown in 16 of the total 26 townships in Ayeyarwady Region. The seed from Pathein and Thabaung Townships is larger than those from Yekyi and Myaungmya Townships. The seed from Myaungmya is small, but the per-acre yield is good.

The cashew plant grows into a fruit-bearing tree in five years and has a life-span of 60 years. Cashew fruit is harvested for four months annually from February to May. If it is caught in the rain, the seed colour has changed and cannot be sold in the market.²⁶



Fiscal year-wise cashew nut production²⁷

	2016-17	2017-18
	(Acre)	
Acres under cultivation	65,933	49,928
	(Ton)	
	Yield per acre	0.26
Total yield	3,774	3,997
Quantity consumed	996	996

Cashew purchase depots

Township	No of depots
Pathein	10
Thabung	5
Myaungmya	2
Yekyi	2
Total	19

²⁶ The Commerce Journal, June 26, 2017

²⁷ U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce

Surplus	2,778	3,001	The purchased cashew seeds are transported to Yangon.
Quantity exported	600	800	

TABLE 23:
TABLE 24:

Cashew nuts from Patheingyi and Yekyi Townships are exported via Yangon to China, Korea, Singapore and Malaysia. The nut is included as an ingredient in making chocolate, ice cream, Myanmar traditional snacks, biryani and foods made at hotels—totaling around 200 foodstuffs. As cashew nut comprises Vitamin E, it is also used in cosmetics—hair, skin care, hair cream, etc.²⁸

❖ Primary information²⁹

	Districts	No of townships	Acreage under cultivation	Percentage
Cashew-growing districts	Patheingyi	7	57,379	74%
	Hinthada	5	10,758	14%
	Myaungmya	2	8,766	11%
	Labutta	1	464	1%
	Pyawbwe	1	24	0%
	Total ▶	16	77,391	100%
Largest-growing townships:	Townships with the largest acres are Ngapudaw (18,870 acres), Thabaw (16,632 acres) and Patheingyi (11,948).			
Uses of cashew nut:	Chocolate, ice-cream, cakes, htoe-mont, ³⁰ biryani and many other snacks, totaling around 220.			
Medicinal values:	Cashew oil extracted from the seed is an ingredient in making medicines for skin diseases, callus, skin cracks, elephantiasis, leprosy, etc Juice from the fruit is used in curing rheumatic pains Cosmetics: Vitamin E			
Harvest time:	February to May			
Fee for removing seed from fruit	MMK 300 per viss			
Yield:	700,000 viss (1,141,000 kg) (at 100 viss per acre) – from entire region			
Cost and profit: (1 acre)	Tasks	Cost (MMK)	Yield	Sales (MMK)
	Land purchase/preparation:	419,000	25 viss per acre x MMK 3,200 = 80,000 x 5 years	400,000
	Buying seeds and laying seeds:	250,000		
	Seed culture:	0		
	Planting trees:	20,000		
	Weeding, feeding fertilizer:	160,000		
	Harvesting:	30,000		
	Total (Seeds purchased) ▶	879,000		
Total (Seeds culture) ▶	645,000			
Total cost (Without land price) ▶	345,000	5-year proceeds ▶	400,000	
For a person starting business for the first time, breakeven point will be reached in 4 years, and profits will be enjoyed in 5 years. As cashew has an age of 60 years. This is calculated with the least per-acre yield.				
Sales of seeds and nuts:	Condition	MMK per viss	Remark	
	Seeds	3,200		
	Nuts	24,000		

²⁸ The Commerce Journal, June 26, 2017

²⁹ U Khin Maung Hlaing, Director, Head of Department of Consumer Affairs (Ayeyarwady Region)

³⁰ Pudding made of glutinous rice, sugar, coconut juice, edible oil

	Description	Cost in MMK		Sales in MMK
Buying seeds and selling the nuts:	Purchase seeds (5 viss x MMK 3,200)	16,000	Price per viss (Nuts)	24,000
	Transport and storage fee:	500		
	Fee for cracking machine:	300		
	Fuel	200		
	Total cost ▶	17,000	Total proceeds▶	24,000
	Profit in one week ▶	7,000		
		24,000		24,000
Process of producing nut:	1	Sun-dry the harvested seeds for 5 days		
	2	Steam the sun-dried seeds with wood-fuel for 30 minutes in a dry place		
	3	Cool them and send them to treadle cracking machine		
	4	Steam the nuts (obtained from the machine) for 20 hours		
	5	The readily eatable nuts graded into 3 levels.		
	❖	5 viss of seeds = 1 viss of nuts (5:1)		
Purchase depot	Thabaung	5	Sold to ▶	Bayint Naung Wholesales Market in Yangon
	Pathein	10		
	Myaungmya	2		
	Yekyi	1		
Cashew nut from Pathein and Yekyi:	Packed and exported to China, Korea, Singapore and Malaysia			
Hard shell:	Hard shell, left after removing the nut, is purchased by Indian agents at MMK 3,500 per viss.			
Packaging for export:	6.15 viss (10 kg) per package			

❖ Analysis

- Strengths:**
- Possibility of hard shell being a good fuel (Research needed)
 - Demand is good
- Weaknesses:**
- Financial constraints
 - Land needed
 - Lack of processing technology
 - Lack of agricultural techniques
 - Low yield if soil condition has changed
- Threats:**
- Extreme weather conditions affect soil quality.
- Opportunities:**
- Juice can be extracted from cashew fruit after its seed being removed.
 - High yield can be achieved by using good species.

1.9 DRIED TARO STALK

❖ Basic information

Taro is a plant of *arum* family, common in rural areas. Its tuber and stalk are consumed by Myanmar families, being main ingredients of a thin, spicy soup, which serves as a good appetizer on the Myanmar dining table. Both items can be consumed at one's discretion, for example by stir-frying.

Taro naturally grows in rural areas. In the domestic market, fresh taro stalks and tubers are on sale, and can be found at traditional markets. Dried taro stalks are a newly preserved product, intended for export.



Annual production of dried taro stalk³¹

Quantity produced:	80 metric tons per year
Quantity exported:	80 metric tons per year
Price:	USD 1,600 per ton
Destination country:	South Korea
Domestic market:	Currently, Myanmar people consume fresh taro tuber and fresh taro stalk only.

❖ Analysis

Strengths:	<ul style="list-style-type: none"> Both the stalk and tuber can be consumed.
Weaknesses:	<ul style="list-style-type: none"> Lack of commercial cultivation in Ayeyarwady Region. (So far people consume naturally growing taro.) Only one crop per year can be cultivated. Processing technology needed.
Threats:	<ul style="list-style-type: none"> Bad weather
Opportunities:	<ul style="list-style-type: none"> Opportunity to export both dried stalk and tuber

1.10 TAPIOCA/CASSAVA

❖ Basic information

Of the total 26 townships in Ayeyarwady Region, tapioca, locally known as pilaw pinan, is cultivated in 16 townships.

Ayeyarwady Region Chamber of Commerce and Industry (ARCCI), jointly with a Korean company and in collaboration with the farmers of Thailand and Vietnam, is growing tapioca, and produce tapioca powder in Kyonpyaw Township. The ARCCI is drafting plans to establish a factory for manufacturing tapioca powder. The tapioca powder produced will be exported to Korea.³²

Fiscal year-wise tapioca production³³

Fiscal year	Acres under cultivation	Yield per acre	Total yield	Quantity consumed	Quantity exported
2016-17	31,613	3,681.59	115,701,287	140,741	48,193
2017-18	31,427	3,681.59	115,701,287	140,741	48,193

TABLE 25:

1 viss = 3.6 lb 3.63 kg

❖ Primary information

Species:	Myanmar species
	Foreign species
Cultivation start:	May – Jun
Harvest:	Dec
	7 – 8 months
Process (tapioca powder):	Tapioca tubers are ground with machine.
	Ground tubers are mixed with water and squeezed for glue-like starch liquid.
	The glue-like liquid is let to silt form 4 – 5 hours.
	Remove the upper clear liquid, and get the sediments.
	The sediments are spread on a mat and sun-dried.
	The sun-dried pieces are ground again.
	The ground tapioca powder is sold

³¹ U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce

³² The Daily Eleven, June 10, 2017

³³ U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce

Tapioca-growing townships	Township	Acreage	Per-acre (Viss)	Total yield	%	
	1	Pathein	139	Average: 3,681.59	405,185	0.4%
	2	Kangyidaunt	57		173,565	0.2%
	3	Thabaung	635		2,202,180	1.9%
	4	Ngapudaw	919		3,301,219	2.9%
	5	Kyonpyaw	16,364		63,983,240	55.3%
	6	Yekyi	193		802,894	0.7%
	7	Kyaunggon	360		1,177,200	1.0%
	8	Hinthada	3,756		12,755,786	11.0%
	9	Zalun	6		20,160	0.0%
	10	Lemyethna	5,980		20,666,880	17.8%
	11	Myanaung	35		124,250	0.1%
	12	Kyangin	28		94,836	0.1%
	13	Ingapu	525		1,868,475	1.6%
	14	Myaungmya	1,270		4,654,550	4.0%
	15	Labutta	1,145		3,425,867	3.0%
	16	Pantanaw	15		45,000	0.0%
	Total ►	31,427		115,701,287	100.0%	
Output:	100 viss of tubers ► grind ► 28 – 30 viss of powder					
Production into tapioca discs:	Tapioca is sliced into 1-inch discs, which are sun-dried and sold.					
Animal feed production:	The tapioca pieces—left after squeezing out—are made into balls, and the balls are sun-dried. The dried tapioca balls are ground again and mixed with bran to become animal feed—for fish and pigs.					
Uses of tapioca powder:	Tapioca balls eaten with sugared coconut juice (sagu), flour-substitute in making snacks, distillery					
Sales price:	Tuber 1 viss: ----- MMK 150 Powder 1 viss: ----- MMK 750 Balls 1 basket (9 viss) ----- MMK 750					
Cost and profit: (Local species)	Description	Cost (MMK)	Sales	Pro-ceeds (MMK)		
	Land preparation:	75,000	4,000 viss per acre x MMK 150	600,000		
	Planting (weeding, etc)	159,000				
	Fertilizers, pesticides	81,500				
	Harvesting (Wage)	45,000				
	Total cost ►	360,500	Total proceeds ►	600,000		
	Profit ►	239,500				
	600,000		600,000			
Cost and profit: (Foreign species)	Description	Cost (MMK)	Sales	Pro-ceeds (MMK)		
	Land preparation:	170,000	7,000 viss per acre x MMK 150	1,050,000		
	Planting (weeding, etc)	165,000				
	Fertilizers, pesticides	104,500				
	Harvesting (Wage)	45,000				
	Total cost ►	484,500	Total proceeds ►	1,050,000		
	Profit ►	565,500				
	1,050,000		1,050,000			

❖ Analysis

Strengths:

- It is a food item, which can be boiled and eaten.
- Various products can be produced from tapioca.

Weaknesses:

- Lack of cultivation techniques (cannot be exported for lack of quality)
- Good-quality species is needed.

- Threats:**
- Lack of processing technology/machines
 - Market can be weakened by foreign market
- Opportunities:**
- Tapioca can be exported in large quantities if the quality is good.

1.11 COCONUT

❖ Basic information

The coconut tree grows in tropical zone, and it thrives well under 27°C temperature and 60-inch to 100-inch rainfall. Although coconut exists in over 90 countries of the world, Indonesia, the Philippines and India are the countries where it is grown extensively. In Myanmar, coconut is grown on the largest scale in Ayeyarwady Region and Mon State. Other areas such as Tanintharyi, Bago, Yangon, Sagaing and NPT Regions and Mon and Kayin States also grow coconut.



Basic facts about coconut³⁴

Coconut is placed under a total of 61,894 acres in Ayeyarwady Region:

						2017
Sr	District	Acreage	Harvested acreage	Output per acre	Total yield (Numbers)	Percentage
1	Pathein	12,521	9,738	4,331	42,177,038	28%
2	Hinthada	1,317	845	3,875	3,274,710	2%
3	Myaungmya	3,979	3,962	2,071	8,206,342	6%
4	Labutta	10,070	10,070	1,202	12,100,889	8%
5	Maubin	4,352	2,483	4,395	10,912,974	7%
6	Pyapon	29,655	18,693	3,931	73,490,960	49%
Total ▶		61,894	45,791	3,279	150,162,913	100%

TABLE 26: District-wise coconut planting and yield (2017)

❖ Primary information

Coconut plantation³⁵

Acreage:	More than 20 acres														
Harvest:	Once in every 3 months (for kernel)														
Yield:	35,000 coconuts per year														
Other coconut-growing areas:	Haingyi Island up to the border with Rakhine State; Pyapon, Bogale, Dedaye, Kyaiklat and Myaungmya Townships														
Sales:	The planter goes to Pathein and Yangon to sell the produce.														
Farm gate prices:	<table border="1"> <thead> <tr> <th rowspan="2">Sr</th> <th rowspan="2">Produce</th> <th colspan="2">MMK per viss</th> </tr> <tr> <th>Pathein</th> <th>Yangon</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Dried kernel</td> <td>1,500</td> <td>1,700 – 1,800</td> </tr> <tr> <td>2</td> <td>Hard-shell coal</td> <td>550</td> <td>650 – 700</td> </tr> </tbody> </table>	Sr	Produce	MMK per viss		Pathein	Yangon	1	Dried kernel	1,500	1,700 – 1,800	2	Hard-shell coal	550	650 – 700
	Sr			Produce	MMK per viss										
		Pathein	Yangon												
1	Dried kernel	1,500	1,700 – 1,800												
2	Hard-shell coal	550	650 – 700												
Farm gate sales of fibre-removed coconut:	There are buyers of fibre-removed coconuts in Pathein, but as the transportation cost is high, no planters sell them. If people from purchase depots come to the plantations and buy them, it will be convenient.														
Period from growing to harvest:	It takes at least 7 to 8 years for a coconut plant to grow into a tree from which coconuts can be harvested.														
Current situation:	Cultivation cost is higher than the profit, and so no one is interested in coconut plantations. He are intrigued only to sell to hoteliers who buy land for hotel business on beaches.														

³⁴ U Khin Maung Hlaing, Director, Head of Department of Consumer Affairs (Ayeyarwady Region)

³⁵ U Aung Kyaw Kyaw, coconut plantation owner, Shwe Thauung Yan Sub-Township, Pathein Township.
09 79 450 6416 09 2530 56860

Coconut trading 1 (Purchase depot)³⁶

Output (Pathein District)	1 million – 1.1 million fibre-removed coconuts per month
Sales types:	Fibre-removed (hard-shell) coconuts: 500,000 to 550,000
	Dried kernel coconuts: 450,000
Sales destinations:	No of coconuts used by snack-makers in Pathein: Over 200,000
	The rest of the output: sold to Pyay, Mandalay and Taunggyi
Transportation cost:	MMK 30 per coconut to Yangon and MMK 60 per coconut to Mandalay
Coconut-growing areas:	Nga Yoke Kaung and Shwe Thaug Yan Sub-Townships
Demand-supply:	Demand and supply are balanced (sold only in local market)
Purchase price from depot:	Minimum: MMK per coconut: 200
	Maximum: MMK per coconut: 400
Resale price from depot:	Minimum: MMK per coconut: 300
	Maximum: MMK per coconut: 480
Notes:	Coconuts from Pyapon and Bogale are cheaper because of the convenient transportation. Coconuts from Pathein District coast are better in quality—kernel is thick and more coconut oil can be extracted.

Coconut trading 2 (Purchase depot)³⁷

Quantity traded:	3 million coconuts per month		
No of employees:	8 to 20		
Wages:	MMK 5,000 – MMK 8,000 per day		
Fee for removing fibrous shell:	MMK 10 per coconut. 500, 800 to 1,000 coconut per person		
Sales condition:	Sales are stagnant in the rainy season and best in January to April.		
Coconut-growing areas:	Nga Yoke Kaung, Ngwe Saung and Shwe Thaug Yan sub-townships. A little yield from Kyaiklat and Myaungmya Townships.		
Supply-demand:	Supply is more than demand.		
Depot store:	The owner ever keeps 300,000 coconuts.		
Sales destinations:	Yangon, Mandalay, Shwebo and Kale in addition to Pathein snack makers		
Purchase price from depot:	Range	Price in MMK	Unit
	Minimum:	100	per coconut
	Maximum:	250	per coconut
Resale price from depot:	Range	Price in MMK	Unit
	Minimum:	200	per coconut
	Maximum:	500	per coconut
Produce:	Kernel:	sold to snack-makers	
	Hard-shell charcoal:	transported to Mandalay	
	Fibre:	sold to coconut fibre rope makers	

❖ Analysis

Strengths:

- Coconut milk (obtained by squeezing the ground kernel) is used in making snacks
- Value-added products can be manufactured from kernel, shell, and fibre.
- Coconut trees are a natural windshield.
- Coconut, once cultivated, can be harvested for about 50 years.
- An average family (about 4 – 5 persons) is needed for about 10 acres to take care of the palm trees and picking coconut.
- Dry coconut fronds can be used as fuel in rural areas.
- Coconut stems (cut into 18 feet) are used in setting up tiger nets.
- All parts of the coconut tree are useful

Weaknesses:

- Transportation costs are high.

³⁶ U Aung Kyaw Kyaw, purchase depot owner, Pathein Township. 09 79 450 6416 09 2530 56860

³⁷ U Thant Zin, Bo Ohn Thee Coconut Trading, No 47, Thamada 2nd Street, Pathein Township. 09 2540 93675

Threats:

Opportunities:

- Cultivation cost and profit are not balanced.
- There is no new coconut plantations in Ayeyarwady Region.
- Because coconut roots are long and goes deep into the ground, other plants cannot be grown between the coconut trees.
- If coconut palm trees are depleted, wind breakers will be lost.
- Coconut fruit, when it is tender, can be destroyed by squirrels.
- Investment can be made in coconut plantations.
- Coconut parts are industrial raw materials.
- Foot rugs and handicrafts can be manufactured from coconut fibre and coconut shell.
- Market can be extended to foreign countries
- Coconut-flavoured snacks can be made and sold to local and foreign markets.



1.12 WA-U (Konjac)

❖ **Basic information**³⁸

Wa-U or phyan-U is an item for extension of cultivation, intended for export. In South-East Asia region, it is known as konjac.

Export name:	Wa-U
Local name:	Phyan-U
SEA name:	konjac
Botanical name:	Amorphophallus Companuatus
English name:	Elephant foot yam or white yam or telingo
Habitat:	Original: South-East Asia It grows naturally in tropical SEA, and African regions
Species:	Of the 130 species, only 12 are consumed by people.
Habitats in Myanmar:	Chin State, Mon State, Yekyi in Ayeyarwady Region
Shape:	Round. Diameter: 3 inches to 12 inches
Cultivation season:	Although it is a naturally growing plant, it is cultivated in the second week of May, at the onset of monsoon. Natural plants can be harvested in all weathers while cultivated plants are harvest at the end of monsoon and at the start of cold season.
Drying:	Shell of the fresh wa-u is removed, and it is made into thin sheets by using a plane (carpenter's). After spraying a little of sulphur on the sheets, they are dried by heating at 30°C for 24 hours. Then, dried wa-u sheets are obtained.
Uses:	Dried wa-u sheets are pulverized and used in making:
	1 Synthetic meat
	2 Various foods (kaw-pyant [fried pan-rolls], noodle, bread)
	3 Medicines (for reducing fat, cholesterol)
	4 Paper
	5 Glue of all kinds
	6 Textile
	7 Cosmetics (hair oil, body lotion)
8 Beverages (alcohol, wine)	
Properties:	Wa-U is fibrous—it can absorb toxic matters from the intestines and hence prevents development of cancer in the stomach and intestines. It is said to contain 15 nutrients.

❖ **Primary information**³⁹

Townships:	Yekyi, Kyonpyaw, Kyauggon, Lemyethna, and Ingapu Townships produce Wa-U.
Output:	2,000 - 5,000 viss per acre

³⁸ U Khin Maung Hlaing, Director, Head of Department of Consumer Affairs (Ayeyarwady Region).

³⁹ Ibid

Sales:	Fresh wa-u tubers are sold to purchase depots.			
No of purchase depots:	2 (Yekyi Township)			
Prices:	Wa-U (fresh tuber)	1 viss	MMK 300 - 350	
	Wa-U (dried sheets)	1 viss	MMK 4,500 – 5,000	
Cost and profit: (1 acre)	Description	Costs (MMK)	Yield	Sales (MMK)
	Land preparation:	60,000	2,000 viss per acre x MMK 300 =	600,000
	Planting:	33,000		
	Inputs:	15,000		
	Digging tuber:	24,000		
		132,000		
	Profit per acre: 468,000			
		600,000		600,000
Foreign market:	1	China		
	2	Japan		
	3	Thailand		
Sales condition:	Wa-U is sold in fresh tuber condition to purchase depots where they are dried and put in Penang (PPP) bags.			
Sales place:	Hlaing Tharyar Industrial Zone – 2 (Purchase depot ► grinding mills)			
Export to China:	Ground Wa-U is packed and transported to China via Muse border trade post.			
Packaging:	30 viss in one PPP bag			

❖ Analysis

Strengths:

- It is suitable to grow Wa-U in Ayeyarwady Region.
- Wa-U is used in various kinds of products.

Weaknesses:

- Farmers dig tubers of naturally growing plants.
- No commercial-scale cultivation
- Technology is needed.

Threats:

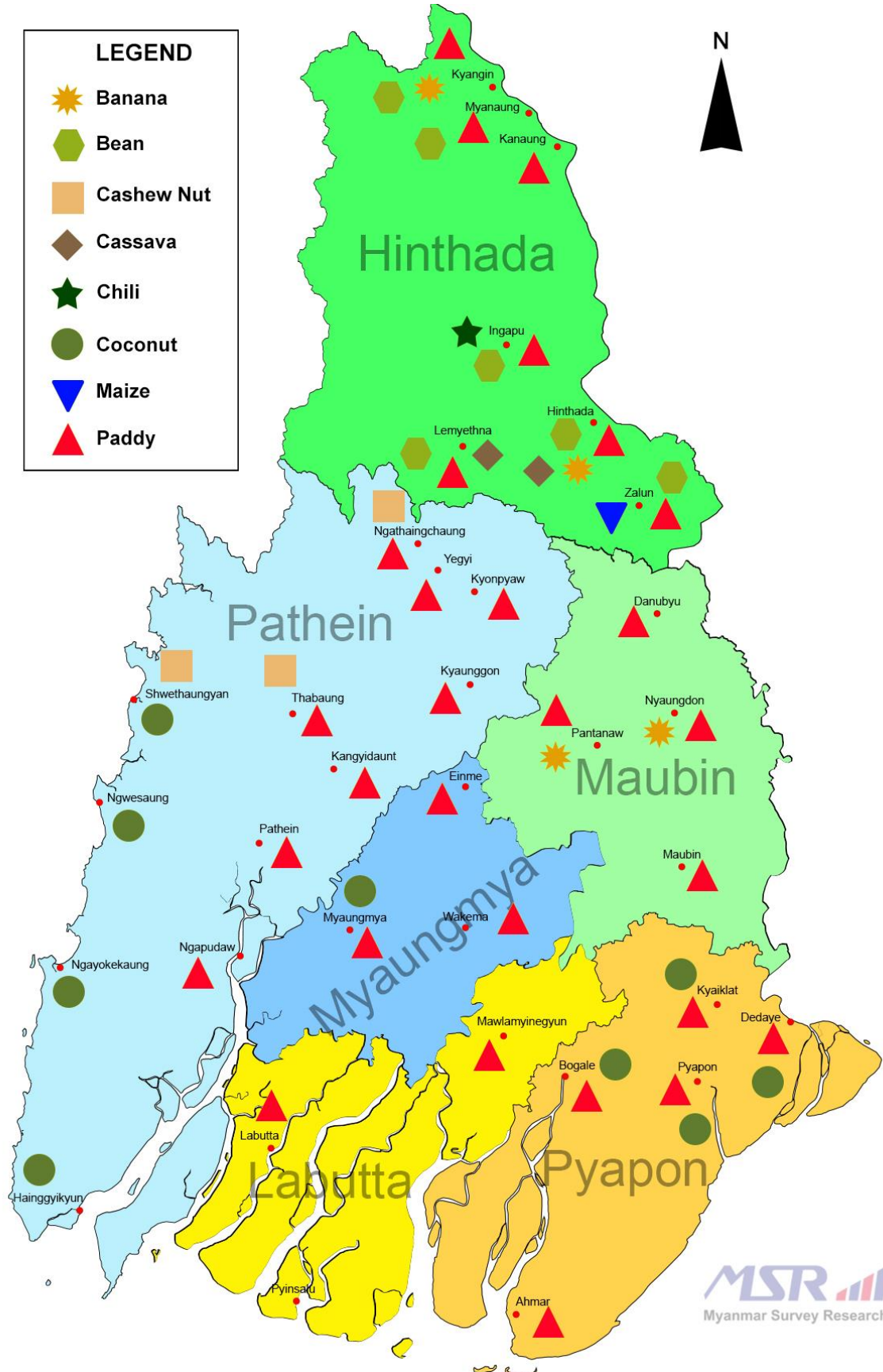
- Without systematic cultivation, Wa-U plants can be depleted.

Opportunities:

- Good profits can be made by exporting Wa-U tubers.
- With proper technology, various products can be made from Wa-U
- China is a large market for export.

AGRICULTURE SECTOR:

MAP 4: Existing businesses and potential places



2

FORESTRY SECTOR

2.1 OVERVIEW OF FORESTRY SECTOR

Forest coverage in Ayeyarwady Region⁴⁰

The total land area of Ayeyarwady Region is 8,656,564 acres of which total forest area accounts for nearly 26% (2,279,041 acres).

Kind of land	Number	Area in acre	Area in acre
Total land area of Ayeyarwady Region			8,656,564
Reserved forest area	35	1,459,896	
Protected area outside reserved area	2	47,372	
Natural forest area	2	33,997	
■ Total forest area ▶		1,541,265	
■ Forest covered area ▶			2,279,041

Private forest plantations

Sr	Township	Area in acre	Kinds of hardwood cultivated
1	Pathein Township	700	Teak, hardwood, yamanay, mangium, pyinkadoe, padauk, eucalyptus, mahogany, myaukngo
2	Ngapudaw Township	565	
3	Lemyethna Township	130	
4	Myaungmya Township	10	
5	Labutta Township	15	
	Total area of private plantations ▶	1,420	

TABLE 27: Total forest area and private forest plantations in Ayeyarwady Region

2.2 BAMBOO-BASED PRODUCTS: FISHING RODS

❖ Primary information⁴¹

Fishing rod producer:	Only 1 in Ayeyarwady Region
Kind of bamboo used:	Htee-yoe bamboo (straight bamboo)
Raw material:	Own htee-yoe bamboo plantation (35 acres), purchase only when necessary Use of raw materials has increased 400% over the last 6 years.
Raw material supply in Ayeyarwady Region:	200,000 poles per year (export quality)
Htee-yoe bamboo price:	MMK 280 per pole
Production cost:	MMK 560 per piece (including MMK 280 per piece labour charge)
Profit:	MMK 700 – 1,500 (200% – 250%) USD 1.1 – 2.4 (200%)
Local market:	Yangon, Meiktila
Foreign market:	Singapore, USA (via Singapore)
Quantity sold:	Local: Finished product from 15,000 – 20,000 poles Foreign: Finished product from 40,000 poles
Location of workshop:	Butet village, Kangyidaunt Township (Workshop with warehouse and yard for sun-drying)
Money in operation:	MMK 15 – 18 million
Prospect:	Has sent a sample to a company in Germany
Wage:	MMK 4,000 – MMK 10,000 per day

⁴⁰ U Htay Hlaing, Assistant Director, Ayeyarwady Region Forest Department. 09 2557 709118

⁴¹ U Tin Htay, Director, Hlaw Tek Co Ltd (Fishing rod production), 44 Bogyoke Street, Ward 3, Mayangon Township, Yangon. 09 2532 23697

Need: Bamboo drying technology

❖ Analysis

- Strengths:**
- Raw material—available sufficiently from bamboo plantations in Ayeyarwady Region
 - Bamboo-based products can be used for home decoration.
- Weaknesses:**
- Lack of drying/processing technology
 - Lack of storage technique
 - Lack of market access
 - Good species is needed
- Threats:**
- Bamboo can be easily destroyed by pests.
- Opportunities:**
- Bamboo fishing rods can be exported to countries contiguous to rivers and seas.

2.3 BAMBOO AND CANE PRODUCTS

❖ Basic information

Cane, which grows naturally and can be grown in plantations in mangrove forests, is a forest raw material which can be made into more than 100 finished products:

- 1 Cane furniture (table, chair, etc)
- 2 Cane basket
- 3 Cane ball (for traditional sports), and
- 4 even cane slippers.

Cane slippers production and export⁴²

Quantity produced	Quantity Exported	Destination country	Price	Domestic market
40,000 pairs per month	2,000 pairs per month	Thailand	MMK 2,100 – 2,200	Patheingyi, Yangon and Mandalay

TABLE 28:

❖ Primary information⁴³

Bamboo and cane product-makers:	3 bamboo products makers (Ngathaingchaung Township) 30 cane products makers (Yekyi Township) Villagers of Ngathaingchaung come to sell their semi-finished products to finished products makers in Ngathaingchaung	
Finished products makers:	30 in Ngathaingchaung downtown	
Raw material:	Bamboo from Rakhine Yoma and Bago Yoma	
Kinds of bamboo:	(1) Tin, (2) Khayin and (3) Thalagu	
Prices of raw materials:	Kind	MMK per pole
	Tin bamboo	1,000 – 1,500
	Khayin bamboo	300
	Thalagu bamboo	300
	Hyacinth	MMK 3 per plant (from Darka)
	No of hyacinth plants purchased:	100,000
No of bamboo poles sold per day in Ngathaingchaung:	5,000	
Business condition:	Sales have dropped because of the entries of foreign products	
Cane:	(1) Water cane and (2) Red cane	
Origins of cane:	Sagaing Region and Kachin State	
Transport:	Canes are carried by car from Yangon to Yekyi and Ngathaingchaung.	

⁴² U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce

⁴³ U Aung Lwin (Bamboo and Hyacinth Handicrafts), Vice-Chairman, Cane and Bamboo Entrepreneurs Association. 09 4225 42328 09 6994 12920

Raw cane purchase:	MMK 17,000 per viss (in long strips)		
Raw cane purchased per year:	200 viss		
Production costs:	Product		MMK per piece
	1	Bamboo hat – medium quality	1,000 – 1,500
	2	Bamboo hat – good quality	1,500 – 2,000
	3	Bamboo broad-brim hat (khamauk)	600 – 1,000
	4	Bamboo purse	1,000 – 3,500
	5	Bamboo slippers	1,500 – 2,000
	6	Cane slippers	1,500 – 2,500
	7	Cane purse	1,500 – 2,000
	8	Bamboo basket	1,500 – 3,000
	9	Hyacinth purse	2,500 – 3,000
	10	Hyacinth slippers	1,500 – 2,500
Profit margin for producer:	MMK 200 – 300 per piece		
	MMK 1,000 (Bamboo basket – exported to Japan)		
Production capacity:	Product	Current	5 years ago
		No of pieces per year	
	Bamboo hat	10,000	20,000 – 30,000
	Broad-brimmed hat	10,000	50,000 – 100,000
	Bamboo purse	15,000	15,000
	Bamboo slippers	10,000	10,000
Labour:	10 persons (Workers have become rare.)		
Wages:	Male: 3,000 – 5,000 per day		
	Female: 2,000 – 3,000 per day		
Foreign order:	A Japanese company has placed an order for bamboo baskets.		
Local market:	Bagan, Yangon, Chaung Tha, Ngwe Saung, Bago and Pantanaw		
Remark:	Khamauks (broad-brimmed hats) are used mostly by women-transplanters. Now the number of women-transplanters has decreased because of the overwhelming use of machines.		

❖ Analysis

Strengths:

- Bamboo raw material is in plentiful supply
- There is good market demand for both bamboo and cane products in foreign market

Weaknesses:

- Domestic market is small.
- There are no cane raw materials in Ayeyarwaddy Region
- Cane cultivation in Myanmar is still not successful

Threats:

- Depletion of bamboo and cane groves

Opportunities:

- Although Myanmar people do not use bamboo products, foreigners love to use works of handicrafts.

2.4 RUBBER

❖ Basic information⁴⁴

In Myanmar, there are a total of more than 1.6 million acres placed under rubber and of them, 663,441 acres is productive, accounting for 41%. Myanmar government has also been allotting vacant and fallow land for rubber plantation.

Rubber is mainly grown in Mon and Kayin States and Tanintharyi Regions. The latex tapped is made into sheets which are sold mainly to China. Thailand does not buy Myanmar raw rubber sheets.

There are two methods of drying the latex: (1) sun-drying and (2) smoking. In Myanmar, there is no modern rubber processing technology, and hence, finished products cannot be produced. In Myanmar, there are only two kinds of manufacturer: tyre and slippers.

⁴⁴ Rubber Market Report, MSR, 2016

Rubber prices are manipulated by Chinese businessmen, who open purchasing depots in major cities and also at the Myanmar-China border. Now, the government is planning to revise the Rubber Law. A bill has been drawn up and is now laid down before the stakeholders in the rubber industry for discussions.



Fiscal year-wise rubber production⁴⁵

Fiscal year	Acres under cultivation	Yield per acre	Total yield	Quantity consumed	Surplus	Quantity exported
2015-16	22,600	0.31	166	—	166	100
2016-17	22,677	0.31	167	—	167	100
2017-18	35,274	0.31	260	—	260	100

TABLE 29:

Union Parliament approves Myanmar's joining of ANRPC⁴⁶

The August 7, 2018 session (Session No 10/2018) of the Union Parliament approved Myanmar's joining of the **Association of Natural Rubber Producing Countries (ANRPC)** without any "No" vote. The proposal had been put forward by the Union President.

If Myanmar joins ANRPC in 2018, it has to pay in a total fee of USD 9,745—USD 5,000 as principal membership fee and USD 4,754 as the remaining fee to be paid in, in proportion to the rubber production.

ANRPC has been formed with 12 member-countries, with its headquarters in Kuala Lumpur, Malaysia, since 1977. Its aims include contributing cooperation in rubber production and trading and technology, stabilization of prices, and prevention against damage to natural rubber.

❖ Primary information⁴⁷

Location:	Mile Post 40, Pathein-Mawtinsun Road, Pathein
Acreage under cultivation:	750 acres (Rubber) and 300 acres (Hardwood)
No of trees:	150,000 trees (200 trees per acre)
No of trees from which latex is extracted:	3,000

⁴⁵ U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce

⁴⁶ The Myanmar Times (MMR), August 10, 2018

⁴⁷ U Soe Than Oo, farm manager, Good Brother Rubber Plantation, Mile Post 40, Pathein-Mawtinzun Road. 09 4571 86058

Harvest:	7 years after cultivation		
Output:	Cannot yet be determined		
Use of fertilizer:	Use 15:15: 6: 4 fertilizer for less than 4-year-old trees		
	Use 15: 7:18: 2 fertilizer for harvestable trees		
	At 375 lb per acre		
Pesticide:	Diethane M45		
Seeds:	-- 2000 series	Purchase from Taikkyi Township	
	-- Malaysia		
	-- Thailand		
	-- Indonesia		
Machines used:	Type	Unit	
	Backhoe (20-ton)	1	
	Backhoe (3-ton)	1	
	Truck (Faw)	2	
	Crane	1	
	Bawser	1	
	Trailer jeep	1	
Rental:	Type	Rental in MMK	Hours
	Backhoe (20-ton)	600,000	8 hours
	Backhoe (3-ton)	250,000	8 hours
	Machines are not adequate. In this region, people rarely use machines.		
Requirements:	Have to select good-quality seeds.		
	Have to select land with good soil quality.		
	Prevent against bad weather and pests.		
	Be correct in the ratio of fertilizer.		
	Conduct training for systematic extraction of latex.		
	Use clean water and clean the equipment.		
Market:	External market: China and Internal market: Mawlamyaing and Tanintharyi Region		
Packing:	Latex is smoked; 110-lb raw rubber sheets are packed. Mildew appear on the rubber sheets after one month. Hence, they have to be cleaned before selling.		
Transport:	By car		
Labour:	Training takes time to turn out skilled workers.		
No of workers:	100		
Wages:	MMK 150,000 – MMK 170,000 per month		
Payment:	Bank transfer		
Technology:	Thailand has better technology to produce even the raw rubber sheets.		
Grade:	Of the five grades, Myanmar can produce only Grade 3 rubber.		
Market situation:	Rubber prices are plunging. Chinese merchants are manipulating the prices.		
Rubber price:	Rubber price is going down to MMK 700 per lb.		
Loss and profit:	Cost is more than the profit.		

❖ Analysis

- Strengths:**
- There are large rubber plantations in Ayeyarwady Region
 - A rubber tree yields latex for 30 years.
- Weaknesses:**
- Rubber prices are manipulated by Chinese merchants.
 - Financial constraint
- Threats:**
- Bad weather
 - Pests
- Opportunities:**
- With advanced technology, rubber products can be manufactured—especially tyre
 - Employment opportunities

2.5 ACACIA MANGIUM AND EUCALYPTUS

❖ Primary Information

Industrial raw materials (Acacia mangium and eucalyptus)⁴⁸

Area:	2,773 acres Eucalyptus: > 1,700 acres Mangium: > 1,000 acres
Planned extension:	12,000 acres
Year of cultivation:	2015
Harvest time:	8 to 10 years after cultivation
Current stage:	Cultivation stage
Quantity per acre:	700 trees per acre
Estimated output:	35,350 tons per year
Fertilizer:	NPK brand and GTSP brand
Herbicide:	Glymephate
Seeds:	China, Vietnam, India and Thailand
Reproduction:	3 methods: from cells, seeding and grafting Seedlings are sold: MMK 175 per plant
Machines owned:	Tractor, cars, grass mower, chain-saw in combination with man-power
Market:	Targetted at foreign markets
Means of transportation:	By road

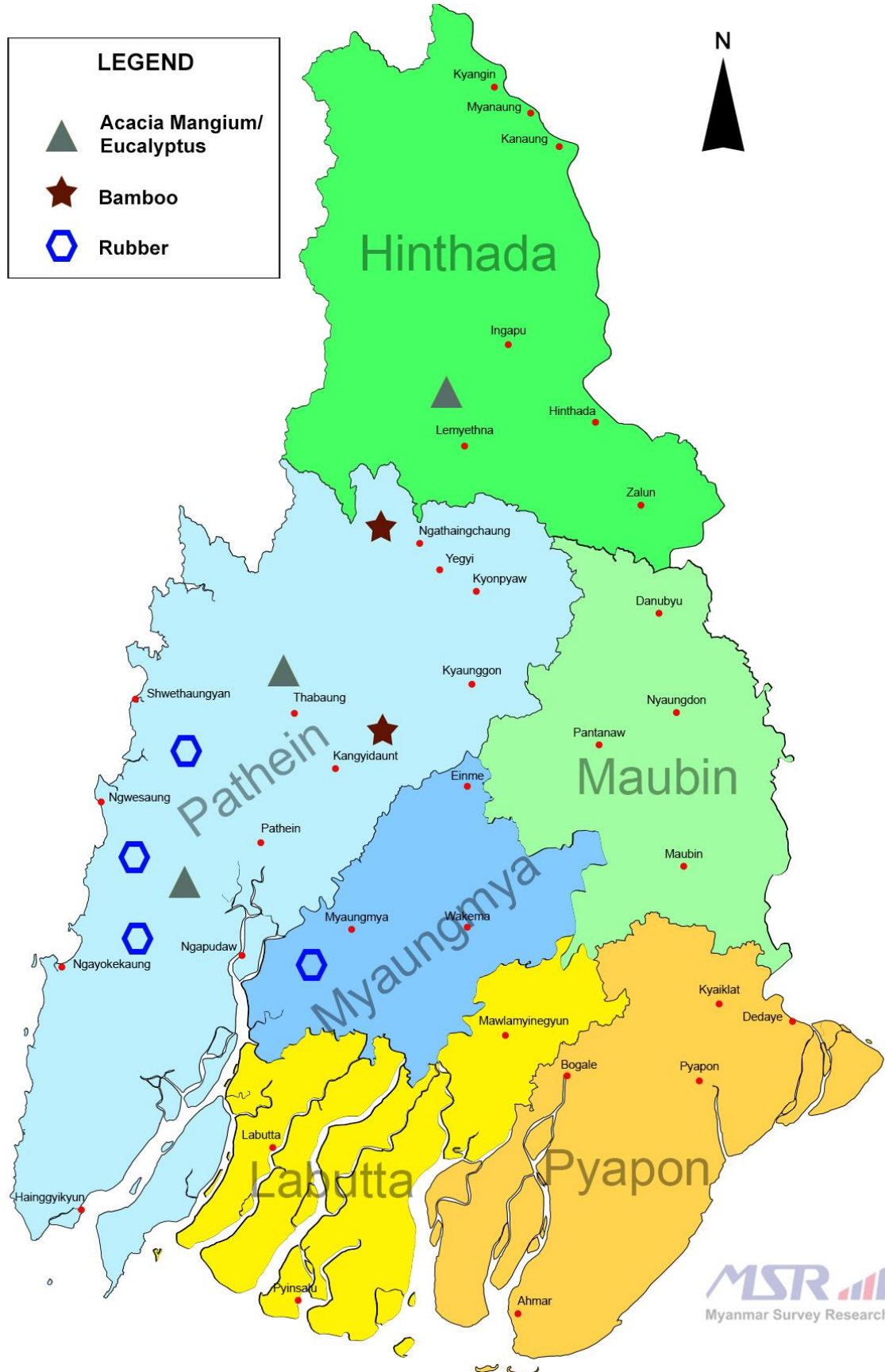
❖ Analysis

- Strengths:**
- Both woods have good demand
 - Timber can be extracted in four years
- Weaknesses:**
- Plantation is still small
 - Good cultivation technique is needed.
 - Lack of market access
- Threats:**
- Strong winds – because the trees are usually high.
- Opportunities:**
- Opportunity to produce pulp and paper
 - Opportunity to produce furniture

⁴⁸ U Aung Zaw Zaw Oo, Assistant Manager), Myo Zar Khin Co, Pathein-Mawtinsun Road, Pathein Township. 09 4236 82256

FORESTRY SECTOR:

MAP 5: Existing businesses and potential places



3

MANUFACTURING/PROCESSING SECTOR

3.1 OVERVIEW OF MANUFACTURING SECTOR

Manufacturing by product

Manufacturing or processing starts with raw materials from the natural resources—which originate from above-ground and underground. Hence, there are three kinds of products:

- 1 Produce from agriculture, fisheries and livestock breeding (natural, unprocessed)
- 2 Products from processing and
- 3 Fossil fuels and minerals (to be processed)

Manufacturing by size

- 1 Small enterprises
- 2 Medium enterprises
- 3 Large enterprises

In Ayeyarwaddy Region there are a total of 6,118 enterprises—623 large, 611 medium and 4,884 small. Foodstuff industry constitutes the largest quantity, followed by general workshops and housing.

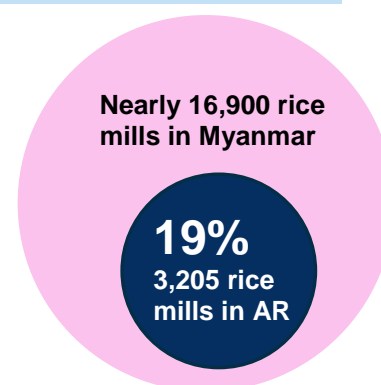
In this report, we have highlighted 15 manufacturing sub-sectors:

- | | |
|----------------------------------|---------------------------------------|
| 1 Rice mills | 9 Bio-organic fertilizer |
| 2 Wood-based industries: plywood | 10 Pathein parasol |
| 3 Edible oil mills | 11 Pathein Halawa – traditional snack |
| 4 Ice factory | 12 Myanmar sausages (Chick and pork) |
| 5 Purified drinking water | 13 Canned food production |
| 6 Slippers | 14 Rice syrup production |
| 7 Salt mills | 15 Coir rope production |
| 8 Fertilizer | |

3.2 RICE MILLS

❖ Basic information

According to Myanmar Rice Federation statistics, the best-quality, international standard rice mills account for only 10%, and about 90% are of low quality with obsolete processing units that causes about 15% to 20% losses. Upgrading the country's rice mills would be a key step towards boosting exports. Rice millers and exporters have started exploring Myanmar to establish mills and parboiled rice processing plants after realizing the country's potential to produce large quantities of the commodity for export.



Numbers of rice mills in Myanmar⁴⁹

Kind	Capacity	Number	Operating hours	
Huller rice mill	Under 15 tons	15,472	8 hours per day	Total tonnage milled: 87,615
Big rice mill	15 tons and above	1,362	8 hours per day	
Modern new rice mill		22		
Parboiled rice mill		6		
Total ▶		16,862		

TABLE 30:

⁴⁹ Myanmar Rice Federation

Of the total 16,862 mills, Ayeyarwady Region accounts for 19% (3,205 mills) with a total milling capacity of 26,486 tons.⁵⁰

Rice mills in Ayeyarwady Region⁵¹

Milling capacity⁵²

Sr	District	Over 15-ton	Under 15-ton	Total	Grades of rice	No of mills	24-hour milling (Ton)
1	Pathein	166	399	565	Super 5%. 10%, 100% 15-mark rice 25-mark rice 25-mark (Huller)	91 322 237 2,555	3,426 9,201 4,740 12,775
2	Hinthada	80	393	473			
3	Myaungmya	195	556	751			
4	Maubin	49	515	564			
5	Pyapon	160	692	852			
Total ▶		650	2,555	3205	Total ▶	3,205	30,142

TABLE 31:

No of parboiled rice mills in Ayeyarwady Region⁵³

Sr	District	Township	No of mills
1	Pathein	Pathein	4
2	Pathein	Kyonpyaw	1
3	Myaungmya	Myaungmya	4
4	Myaungmya	Einme	2
5	Myaungmya	Wakema	3
6	Pyapon	Pyapon	2
7	Pyapon	Bogale	2
8	Pyapon	Kyaiklat	1
9	Pyapon	Dedaye	1
10	Labutta	Mawlamyainggyun	1
Total ▶			21

TABLE 32:

❖ Primary information

Ayeyarwady Region⁵⁴

Raw material:	Paddy (available from Pathein, Thabaung, Kangyidaunt and Ngapudaw Townships)	
Availability:	Paddy (rice in the husk) is sufficiently available.	
No of rice mills:	Over 15 tons	657
	Under 15 tons	2,500
	Total ▶	3,157
Quality of rice mills:	Pathein rice mills are better in quality than those from other regions. The number of under-15-ton rice mill has become smaller. Rice from these mills are mixed with refuse and full of broken rice.	
Machines:	Chinese. Persons who can afford use Japanese machines—Sa-take, Bula, and Shola brands—imported via Thailand.	
Energy:	Rice-husk-powered: Low cost, impact on the environment Electric-powered: High cost	
Labour charges:	Rice bag carrier: MMK 4,000 – MMK 10,000 (depending on number of bags carried) Salaried staff: MMK 180,000 – MMK 200,000	
Production cost:	MMK 200 per bag (50 kg) (With electricity for operation)	

⁵⁰ The Myanmar Times (MMR), May 11, 2017 (quoted the Myanmar Rice Federation)

⁵¹ U Khin Maung Hlaing, Director, Head of Department of Consumer Affairs (Ayeyarwady Region)

⁵² Ibid

⁵³ Ibid

⁵⁴ U Soe Win, Chairman, Ayeyarwady Region Rice Millers Association. 09 520 1373

Output	Kind of paddy	Input (Paddy)		Output (Rice)		Byproduct (Broken rice)	
		lb per basket	Basket	lb per bag	Bag	lb per bag	Bag
	Paw Hsan	52.5	100	108	25	108	8
NOTE: Ehmahta 1 basket = 50 lb							
Yield:	80 – 100 baskets per acre (Ehmahta species) 40 – 50 baskets per acre (Paw Hsan Gyi)						
Rice prices:	Species		MMK per basket		Place		
	Shwebo Paw Hsan		37,000		Yangon		
	Ayeyarwady Paw Hsan		20,000		Yangon		
Markets:	Species		Destination market				
	Paw Hsan		Yangon				
	Paw Hsan, Thee Htat Yin		Mandalay		Local/export		
	Manaw Thukha, Hteik Sa, Thee Htat Yin — (12-pyi bags)		Pakokku Myeik, Kawthoung		For export		
Market information:	Wadan and Bayintnaung purchase depots – in Yangon						
	Mandalay, Pakokku and Muse purchase depots						
	Facebook and personal links						
Packaging:	PPP (polypropylene) bags						
	25-kg (12-pyi) bags and 50-kg (24-pyi) bags						

Hinthada Township⁵⁵

Raw material:	Hinthada, Lemyethna and Ingapu Townships. Purchase 5.5 – 5.7 million baskets of paddy per year			
No of rice mills in Hinthada:	45-ton	39 mills	Electricity-powered	
	60-ton	3 mills	Gas-powered	
	Total ▶	42 mills		
Machinery:	Chinese			
Milling capacity:	Average: 1,200 baskets per day per mill			
Paddy species used:	Ehmahta (25-mark)	90%		
	Hsinthukha (5-/10-mark)	10%		
Paddy purchase price: (The best sold species)	Species		Price - MMK	Unit
	Ehmahta (25-mark)		19,500	per 108-lb bag
			500,000 – 600,000	per 100 baskets
Most demanded period:	3 months (November to January the following year)			
Market:	Local only			
Market information:	From Bayintnaung purchase depots, Internet and merchants from Mandalay			
Loans:	Only from banks			
Payment transfer:	Cash: 50% and bank: 50%			
Transport:	By car to Yangon and by boat to Mandalay			
Packaging:	50-kg PPP bags (Penang bags)			

❖ Analysis

- Strengths:**
- Raw material (rice) is sufficient.
 - Rice business is an essential business.
 - There is huge export market.
- Weaknesses:**
- Financial constraint
 - Low-quality machines (China)
 - Transportation (Waterway is cheap but there are risks)
 - No silos. Storage quality still not good.
- Threats:**
- Perverse weather conditions (floods, strong winds, etc)
 - Pests, rodents

⁵⁵ U Aung Myo Thant, Chairman, Hinthada Rice Millers Association. 09 79 664 4473

- Opportunities:**
- If good-quality machines can be used, export can be extended.
 - Opportunity to produce rice-husk briquettes
 - Opportunity to produce animal feed
 - Byproducts can be used for power generation
 - Opportunity to produce snacks

3.3 WOOD-BASED INDUSTRIES: PLYWOOD

❖ Basic information

In Ayeyarwady Region, there is only one plywood factory, owned by the State. However, this factory no longer produces plywood, and now turns out thin timber sheets only.

❖ Primary information

Name of the factory:	No 4 Plywood Factory
Location:	Shwe Myin Tin village, off Patheingyi-Wayar Chaung road, Ngawun River bank, Patheingyi Township
Raw material:	Mountain mango wood is available from Ayeyarwady Timber Production under Myanmar Timber Enterprise
Availability of raw material:	The quantity of raw material available has decreased over the last 5 years. It is transported by waterway.
Sales:	The products are sold by the Myanmar Timber Enterprise by auctioning.
Sizes:	Thickness: 0.1 mm, 0.5 mm, 0.6 mm, 2.2 mm and 2.5 mm
	Length and width: 8-ft x 4-ft size, 4-ft x 3-ft size and 6-ft x 3-ft size
	Regular size: 53-in x 102-in
Workers:	Full-time workers: 238 Daily-wage workers: 51
Price:	Decided by head office (Myanmar Timber Enterprise)

❖ Analysis

- Strengths:**
- Demand is good
- Weaknesses:**
- Scarcity of raw materials
 - Lack of market access
- Threats:**
- Depend on government policy
- Opportunities:**
- Opportunity to export if the quality is good
 - Opportunity to produce decoration materials

3.4 EDIBLE OIL MILLS

❖ Primary information⁵⁶

Availability of raw material:	Raw materials have become scarce. Groundnut can be purchased in small quantities from Pyaw and Lemyethna Townships—about 30% of the quantity needed. The quality is also not good. Reason: Because of the import of palm oil from abroad, demand for groundnut oil has decreased, and farmers switched cultivation of groundnut to other crops such as pulses (matpe). 2017: 20,000 viss available for purchase
Raw material purchase prices:	MMK 1,600 – 1,800 per viss
Output:	35 viss (groundnut oil) and 55 viss (byproduct – groundnut cake) per 100 viss of groundnut (raw material)
Land availability:	Easy to buy and rent. Land prices are reasonable.
No of edible oil mills:	Hinthada: only 4 mills (family-owned)
Capacity:	3 barrels (110 viss) per day

⁵⁶ U Min Naing, Chairman, Edible Oil Millers Association, Ayeyarwady Region. 09 520 8321, 044 21529

Process:	1	Sundry the raw material for one day.
	2	Mill the sundried groundnut and get raw oil (with dregs)
	3	The raw oil is filtered by using filtering boards (his-sit-pyar) and coarse sack-cloth (phyin) into finished product
	▪	Motor is used in filtering.
Fuel used:	Electricity	
Availability of labour:	It is difficult to recruit skilled labour.	
Wages:	MMK 4,000 – 5,000 per day	
Annual output:	Around 300 barrels of edible oil from four mills in Hinthada Township.	
Market:	Only in Hinthada. People who are health-conscious buy the groundnut oil.	
Sales price:	MMK 5,200 per viss (Groundnut oil)	
	MMK 1,000 – 1,100 per viss (Groundnut cake – used for fish feed)	
Payment:	Cash on delivery	
Storage:	110-viss barrels	
Packaging:	Plastic boxes for 1 viss and 50 ticals (half viss)	

❖ Analysis

- Strengths:**
- Land available
 - Demand is good
- Weaknesses:**
- Lack of technology
 - Lack of raw materials
 - Lack of machinery
 - Rarity of skilled labour
- Threats:**
- Palm oil imported from other countries (alternative product)
- Opportunities:**
- Opportunity to manufacture edible oil

3.5 ICE FACTORY

❖ Basic information

Ice factories are crucial in fishery sector. In Patheingyi there are 5 ice factories that can turn out 300-lb ice blocks and 1 ice factory that can produce 100-lb ice blocks. Good water resources are needed for producing ice.

❖ Primary information⁵⁷

Location:	By the beach, Patheingyi Township
Raw material quantity:	7,000 – 10,000 gallons
	Well water for producing small ice cubes and river water (freshwater) for producing large ice blocks
Production cost:	One 300-lb ice block = MMK 1,400
Factory sales price:	MMK 1,500 – 1,600 (300-lb ice block)
Factory output:	About 10,000 blocks per month
Consumption in Patheingyi:	50 blocks
Estimated price of ice factory:	20-ton-per-day factory = MMK 200 million (Output: 140 (300-lb) ice blocks per day)
Machines:	Chinese origin
Business situation:	Sales have declined. As ice factories have appeared in other regions, it has become difficult for ice factories in Patheingyi to survive. In the past, people came to buy ice for fishing vessels. Now they no more do it.
No of workers:	11
Wages:	MMK 4,500 per day; MMK 80,000 – 100,000 per month
Storage:	Ice blocks are kept in the factory. If they melt, they have to be frozen again.

⁵⁷ U Kyaw Tun, Ngwe Yi Win Ice Factory, Patheingyi Township. 09 520 1849

Market:	Haingyi Island, Chaung Tha, Ngwe saung
Use:	In fishery sector
Financial:	Loans have to be obtained from the government.
Payment system:	(1) Cash on delivery, (2) Deferred payment (3) Bank transfer Cash on delivery: 70%

❖ Analysis

- Strengths:**
- Ice is widely used in food preservation
 - Ice is used in fisheries sector.
 - No specific raw material is needed
- Weaknesses:**
- Financially not strong.
 - Lack of adequate electricity
- Threats:**
- If modern cold storages appear, ice factories may disappear. (With sufficient electricity supply)
- Opportunities:**
- Opportunity to provide ice for trawlers

NOTE: Ice factories are successful in townships having ports where fishing vessels are moored.

3.6 PURIFIED DRINKING WATER

❖ Basic information

People, especially urbanites, have become health-conscious. Especially in Yangon and Mandalay, almost every person consumes purified water. Even in some rural areas, people have come to consume purified water. In far-flung places, local residents still drink tube-well, well and pond water by silting, sifting and putting alum in the water.

❖ Primary information⁵⁸

PDW factories:	81 factories in Ayeyarwady			
Sales:	Direct distribution			
Raw material:	Tube-well water			
Packaging:	Has own plastic bottle factory (glue is ordered from Yangon)			
Product:	0.3 litre, 0.6-litre, 1-litre, 20-litre			
		Production cost (MMK)	Sales in MMK	
			Wholesale	Retail
Production cost:	20-litre	80 - 100	300	400
	1-litre (6 bottles)	600	750	—
	0.6-litre (7 bottles)	42	1,200	—
	0.3-litre	1.5	—	—
Environmental impact:	No (Byproduct: Detergent liquid No waster treatment system)			
Operating cost:	MMK 200 million			
Use of machines:	Raw water processing; washing bottles; filling bottles with purified water; packaging the bottles Fixing cap; Sticking label round the bottle			
Foreign proposal:	From England (Once) – still pending			
Standard:	GMP and ISO under application			
Technology:	China			
Study:	Studied in China with businessmen from NPT, Mandalay, Taunggyi, Myingyan			
Labour:	Available			
Wages:	MMK 4,800 per day and above			
Technology:	RO (Reverse Osmosis)			
Business:	Demand is larger than supply in hot season (summer); sales are not good during the rainy season.			

⁵⁸ U Kyaw Khin Shwe, Kaung Thant PDW, Myetto Ward, Patheingyi Township. 09 7852 01918

Market:	Pathein and Labutta
Transport:	By car to Pathein
Payment system:	Cash on delivery, bank transfer
Fuel need:	If electricity goes out at the time of heating tube, MMK 5,000 is lost per item. If it blackout takes place six times, the loss will be MMK 30,000.
Business situation:	Normal – Benefits cannot be enjoyed immediately once after establishing the business. Success can be achieved later.

❖ Analysis

- Strengths:**
- There are places where hygienic water can be found.
- Weaknesses:**
- Electricity shortage
 - Good manufacturing technology is needed (purification)
- Threats:**
- Depletion of water resources
- Opportunities:**
- Opportunity to produce drinking water as the rural areas are gradually modernized.
 - Opportunity produce small ice tubes – used in soft drink shops and restaurants.



3.7 SLIPPERS

❖ Primary information⁵⁹

Slippers manufacturers:	10 (in Pathein)		
Raw materials:	Rubber, fibre, raw leather Sole and fibre are ordered from Yangon. Raw leather: purchased in Pathein		
Raw material prices:	Raw material	Price in MMK	Unit
	Raw leather	2,200 – 2,400	per yard
	Sole	2,500 – 3,000	per sheet
	Fibre:	1,700 – 2,000	per sheet
Production costs:	Product	Cost in MMK	Unit
	Slippers (women) – thin	250 – 300	per pair
	Slippers (women) – thick	300 – 350	per pair
	Slippers (men) – thin	250 – 300	per pair
Sales price:	Product	Price in MMK	Unit
	Slippers (women) – thin	1,000	per pair
	Slippers (women) – thick	1,000	per pair
	Slippers (men) – thin	1,000	per pair
Business type:	Cottage industry		
Process:	Nine stages		
Environmental impact:	Nil		
Operating cost:	MMK 100 million		
Machines:	Sewing machines (small and large); cutting machines		
Origin of machines:	China		
Maintenance:	Small-scale maintenance – Pathein; Large-scale maintenance and spare parts – Yangon		
Intention:	Acquisition of technology		
Sales condition:	Good in open season		
Market:	Supply only in the region (No export)		
	Pyay, Dawei, Loikaw (transport by car)		
Quality:	The current quality is not up to international standard.		
Design:	Studied in Yangon		
Availability of labour:	Available in rainy season; it is not sufficient in summer because of larger demand		
Wage:	MMK 4,000 – 6,000 per day		
Payment system:	Bank transfer		

⁵⁹ U Ko Ko Naing, Myanmar Koe Slippers Manufacturing, No 45 Shwe Zedi Road, Pathein. 09 855 0922

Loans:	Available from banks (interest rate: 13%)
Potential business:	Garment industry

❖ Analysis

- Strengths:**
- Labour easily available
 - Myanmar slippers are popular among foreign visitors.
 - Local demand only is good.
- Weaknesses:**
- There are difficulties in obtaining business license
 - Scarcity of leather raw materials
- Threats:**
- Domination of foreign products
- Opportunities:**
- There is country-wide local market
 - Opportunity to create new designs and seek export market

3.8 SALT MILL

❖ Basic information

Pyapon and Labutta are salt-producing districts where salt farmers are busy during the monsoon-free seven-month period—from October to April. Lacking in desiccation and bleaching technologies, salt farmers have to process by sun-drying.

Cyclone Nargis struck Ayeyarwady Region and parts of Yangon Region in May 2008. The number of registered salt farmers decreased from around 800 before the cyclone to only 400 – 500 in the post-cyclone period.



Because of decreasing supply, salt prices soared, 10 times to reach MMK 300 per viss (1.63 kg) and then, again declined to MMK 25 per viss in 2010. To fulfil the domestic need, salt has to be imported from Thailand. People also prefer Thai salt because of its better quality. Local salt costs MMK 80–90 per packet while Thai salt costs MMK 250 – 280.⁶⁰

As of the 2016-17, production on one acre of salt farm cost MMK 200,000 to 300,000. Investment has to be made for five months. Ayeyarwady Region produces 200,000 tons per year on average, accounting for 66% of the national salt production, other major salt-producing regions being Rakhine and Mon States.

National salt production (region-wise)

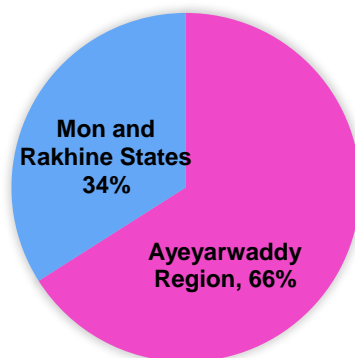


CHART 17:

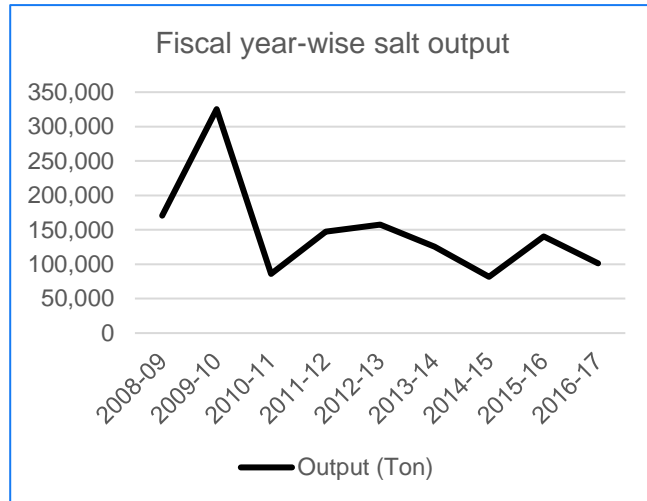
Fiscal year-wise production of salt (2008-09 – 2016-17)

Fiscal year	No of farmers	Acreage	Output (Ton)
2008-09	803	30,377	170,848
2009-10	802	30,982	325,364
2010-11	590	23,887	85,751
2011-12	504	20,715	147,533
2012-13	485	18,966	157,727
2013-14	352	14,364	125,334
2014-15	367	15,172	81,738
2015-16	432	17,118	140,286
2016-17	391	15,587	101,442

TABLE 33:

⁶⁰ The Myanmar Times (MMR Edition), August 15, 2018

Fiscal year-wise production of salt (2008-09 – 2016-17)



Prices of salt		
Fiscal year	MMK per 100 viss (6,300 kg)	Remark
2016-17	9,000	Rough salt
2017-18	15,000	
2016-17	15,000	Fine salt
2017-18	21,000	

CHART 18:

Number of salt mills in Ayeyarwaddy Region	32
Number of salt mills in Pathein	16

TABLE 34:

According to salt farmers, cost of producing salt is higher than the income, and hence, many salt farmers have quit their business.⁶¹

With UNICEF assistance

In Labutta Township, Model Salt Farms were set up on plastic sheets, in collaboration with UNICEF, in 2013. The salt produced there fetches MMK 20 per packet more than the usual price. A roll of plastic sheet (120 feet x 12 feet) costs MMK 75,000 at the Pathein Market. Once purchased, the plastic sheets can be used for 3 seasons.⁶²

❖ Primary information⁶³

Two kinds of salt:	(1) Sun-dried salt (Cleanliness: 60% only)	
	(2) Plastic salt	
No of salt mills in AR:	(1) Industrial salt (for use in industries) – rough, large grains	
	(2) Iodine salt (for consumption)	
	In Pathein	16
	In Myaungmya	8
	In other townships	8
	Total ▶	32
Process:	Salt mills are not regularly operating.	
Automatic shaking machine:	6 stages (All manual)	
Energy:	Cost: MMK 40 million (Used in Mawlamyaing) – spare parts are expensive. Need technician for servicing.	
Wages:	Electricity (Formerly engine was used)	
Output:	MMK 5,000 to MMK 8,000 per day	
Industrial salt:	10,000 – 15,000 viss per mill per day	
Sales condition:	Used in fisheries, leather, fish paste, dried fish, pickled bamboo shoot	
	Industrial salt sells better than iodine salt.	

⁶¹ The Modern News Journal, May 4, 2018 & The Voice Daily, Jan 4 and May 6, 2018

⁶² The Voice Daily, November 29, 2015

⁶³ U Tin Htut, Chairman, Salt Manufacturers Association. 09 520 1003

Packaging:	Industrial salt in PPP bags and refined salt in 50-tical plastic bags
Market information:	Obtain information from salt mills in Yangon
Money transfer:	Bank (90%)
Transportation:	Water way (Cost of road way is 4 times expensive.)
	Water way (70%) and road way (30%)

❖ Analysis

- Strengths:**
- Raw material (salt water) can be available.
 - Salt is an essential item in foods – especially in preserving fish.
 - Salt is widely used as an industrial raw material.
- Weaknesses:**
- Financial constraint
 - Manual process
 - Lack of technology for refining
 - Transportation is not good.
 - Lack of packaging technology
- Threats:**
- Perverse weather condition
- Opportunities:**
- Raw salt can be refined with modern technology and exported.
 - Opportunity to produce both consumer salt and industrial salt.

3.9 FERTILIZER

❖ Basic information

Local production of fertilizer can fulfil 6% of the country's overall fertilizer need, and Myanmar businessmen have to import the rest 94% from abroad.

Current fertilizer production and consumption⁶⁴

	Tons	
Total production of State-owned factories:	166,017	6%
Imports:	2,533,983	94%
National need of fertilizer ▶	2,700,000	100%

TABLE 35:

In fiscal 2014-15, the Ministry of Agriculture, Livestock and Irrigation calculated the quantity of fertilizer needed for the nation, based on the total acreage of all crops.

Under the Myanma Petrochemicals Enterprise, Ministry of Electricity and Energy, there are 5 fertilizer factories, and of them 2 factories have stopped operation due to the shortage of natural gas. Currently, No 1 Fertilizer Factory (Sale) produces 80 tons per day, and No 4 Fertilizer Factory (Myaungdaga) and No 5 Fertilizer Factory (Kangyidaunt), 300 tons and 340 tons respectively.

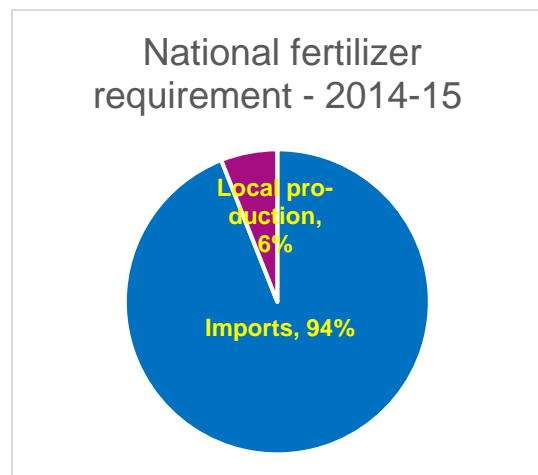


CHART 19:

⁶⁴ The Daily Eleven, June 11, 2017 (quoted from speech by Deputy Minister for Electricity and Energy Dr Tun Naing)

State-owned fertilizer factories

Factory No	Factory Name (Location Name)	State/Region	Production (Tons per day)	Remark
No 1	Sale	Magwe	80	
No 2	Kyunchaung	Magwe	—	Closed down for shortage of natural gas
No 3	Kyaw Swa	Magwe	—	
No 4	Myaungdaga	Yangon	300	
No 5	Kangyidaunt	Ayeyarwady	340	

TABLE 36:

❖ Primary information

Fertilizer requirements for agriculture sector⁶⁵

Agricultural produce accounts for 21% of the total export value. Hence, it is essential for the sufficient supply of fertilizers.

		Primary needs	Secondary needs	Tertiary needs
Nutrients:		Nitrogen	Calcium	Boron
		Phosphorous	Sulpha	Copper
		Potassium	Magnesium	Ferrous
				Manganese
				Zinc
				Molissium
Insecticides:	1	Herbicide	H	ပေါင်းသတ်ဆေး
	2	Plant growth regulator	PGR	အပင်ဟိုမှန်းဆေး
	3	Fungicide	F	မိုရောဂါသတ်ဆေး
	4	Insecticide	I	အင်းဆက်သတ်ဆေး
	5	Insecticide (household)	I (HH)	အိမ်တွင်းသုံးပိုးသတ်ဆေး
	6	Acaricide	A	ရေညှိသတ်ဆေး
	7	Molluscicide	M	အင်းဆက် (မြေ ဓ ချောင်း) သတ်ဆေး
	8	Nematicide	N	နီမတုတ်သတ်ဆေး
	9	Insect growth regulator	IGR	အင်းဆက်ကြီးထွားသေဆေး
	10	Rodenticide	R	ကြွက်သတ်ဆေး
Use of fertilizers and insecticides:		Pale fertilizer	50 kg per acre	Monsoon & summer paddy
		Pale fertilizer	50 kg per acre	Pulses
		Potash	25 kg per acre	Monsoon paddy
		T-super	25 kg per acre	Monsoon paddy
		Herbicide	500 cc per acre	Monsoon paddy
Other compounds are purchased only when the respective disease affects.				
Cost per acre for the use of fertilizer:		Fertilizer per acre – for monsoon paddy		
		Fertilizer	Quantity	Cost (MMK)
		Shwedaung	1 bag	24,000
		Potash	1 or 2 bags	12,500
		T-super	1 or 2 bags	12,000
		Total ▶		48,500
Cost per acre for the use of insecticide:		Insecticide per acre for monsoon paddy		
		Insecticide	Quantity	Cost (MMK)
		Herbicide	500 cc	10,000
		Others needed	200 cc	7,000

⁶⁵ U Khin Maung Hlaing, Director, Head of Department of Consumer Affairs (Ayeyarwady Region)

	Total ▶	17,000
Payment:	(1) Cash on delivery (2) Deferred payment (pay at harvest time)	

❖ Analysis

- Strengths:**
- Local fertilizer production is still small.
 - Myanmar has wide stretches of paddy lands.
 - Demand is good.
- Weaknesses:**
- Despite the instructions told by the seller, farmers use the quantity of insecticides as appropriate.
 - Scarcity of natural gas
 - Lack of market access
- Threats:**
- Appearance of alternative technology
 - Import of foreign brands
- Opportunities:**
- Opportunity to invest in fertilizer factories
 - Opportunity to produce compound fertilizer

3.10 BIO-ORGANIC FERTILIZER

❖ Primary information

Bio-Organic Fertilizer Factory (Pantanaw)⁶⁶

Factory location:	Pathwe, Yangon-Pathwe road, Pantanaw Township
Area:	30 acres
Raw material:	1 Natural drifting islands (80% used)
	2 Bran
	3 Straw
	4 Groundnut stalk
	5 Burnt rice husk
	Natural drifting islands in the environs of Pathwe Creek and Bo Myat Tun Bridge 15,000 tons of raw materials is stored.
Difficulty in acquiring raw materials:	It has become difficult to carry drifting islands. Straw has become rare because of combine harvesters. Raw materials have become smaller, compared to the condition five years ago.
	Another kind of raw material—bacteria produced by NPK—is ordered from abroad and is cultured in Myanmar.
Processing time:	90 days from raw materials to finished product
Process:	From the mass of raw materials, carbon, nitrogen and microbiological bacteria are cultured. After two months, the raw materials decay. Test is conducted with trees. Then, the fertilizer is packaged and sent to the market.
Price of raw materials:	MMK 20,000 – 30,000 per ton
Ratio of input and output:	Finished product = 60% of 1 ton of raw materials
Sales price:	MMK 12,500 per 50 kg
	MMK 11,900 (less MMK 600) if the buyer visits the factory.
Production cost:	MMK 4,000 per 50 kg
Overhead cost:	MMK 12,000,000 per month (salaries and electricity)
Machines:	Purchased from Malaysia (Australian technology)
	Instructors from Malay conducted training courses.
Production capacity:	1,000 tons per month (Operation: 8 am to 5 pm)
Demand:	Demand has become larger, but the quantity is still small.
Markets:	Yangon, Shwebo, Magwe, Bago, Shan, Kayin, Tanintharyi and Ayeyarwady Regions.
Future plan:	There is a plan to manufacture new products

⁶⁶ U Than Wai, Factory Manager, Bio-Fertilizer Factory, Pathwe, Pantanaw Township. 09 7958 03891

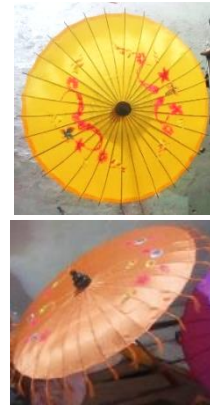
❖ Analysis

- Strengths:**
- No chemical products are used.
 - Easy to produce
 - It can be used for cultivation of all crops.
 - It does not damage the soil quality.
- Weaknesses:**
- Sales volume is small because the product is sold only to low class people
 - The number of organic fertilizer users is still small.
 - Scarcity of raw materials
 - Demand is still poor because people do not know the benefits of bio-fertilizer.
- Threats:**
- Domination of the use of chemical fertilizer
- Opportunities:**
- Opportunity to sell bio-fertilizer to plantations which have been granted GAP certificate.
 - Opportunity to export
 - Opportunity to set up bio-fertilizer factories (the number of factories is still small in Myanmar)
 - Opportunity to produce bio-pesticide

3.11 TRADITIONAL BAMBOO PARASOL (PATHEIN HTEE)

❖ Basic information

The traditional bamboo parasol, better known in Myanmar language as “Pathein Htee” (“htee” meaning umbrella), is a traditional product made entirely from bamboo, its leaf made beautiful with painted designs. It is mostly used by young ladies during the sunny weather for a style. There is another kind specifically produced for Buddhist monks and nuns, and that can be used for all weathers because of a different type of paint (thicker) used on the brown-coloured leaf.



“Shwe Sar Pathein Parasol” has won an award for organic materials use. It uses *kinmon* liquid in which bamboo is soaked for durability.

Annual production and export of Pathein parasol⁶⁷

Quantity produced	10,000 parasols per year (of various sizes)
Quantity exported	1,000 parasols for beach use
Price	USD 55-85
Destination country	Germany
Countries for pilot export	England, France

Pathein parasol sales channels⁶⁸

1	Sales to	visitors to Chaung Tha Beach and Ngwe Saung Beach
2		Myanmar nationals who will leave for abroad
3		specific orders—Yangon, Mandalay, Taunggyi, Bagan/Nyaung-U
4		foreign countries (export)
5		Embassies

Pathein parasols are made manually with bamboo, timber and cloth. Europeans, rather than Asians, like floral curlicues painted on the parasol leaf.

⁶⁷ U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce

⁶⁸ The Commerce Journal, June 18, 2018

Retail prices of Pathein parasol

Length of the parasol	MMK per parasol	Length of the parasol	MMK per parasol
SMALL SIZES		LARGE SIZES	
4-inch	2,000	3-foot	—
8-inch	3,000	4-foot	—
10.5-inch	3,500	5-foot	—
14-inch	4,500		

TABLE 37:

❖ Primary information⁶⁹

Shwe Sar once received a proposal from Thai businessman for establishing a factory in Chiangmai in partnership, but it denied the proposal because the owner wishes to maintain a Myanmar traditional art, which is unique in Myanmar although it also exists in China and Thailand.

No of manufacturers:	10 (in Pathein)		
Availability of raw material:	Bamboo: About 5 years ago, bamboo was available as need. Now 60% only is available. In the next 5 years, bamboo groves will be depleted. Wood: Compared to the past 5 years, about 40% only is available. Cloth: It is available from Pakokku (locally weaven) Glue: Glue is made by boiling <i>te</i> fruit.		
Prices of raw materials:	Raw material	Purchase price in MMK	Unit
	Bamboo:	3,000	per stalk
	Wood:	250,000 – 300,000	per ton
	Cloth:	700 – 750	per yard
Cost of production:	MMK 2,000 – MMK 3,000 – MMK 3,500		
Prices of finished products:	Size	Price (MMK)	
	4 in	1,000	
	20 in	8,000	
Labour:	Skilled labourers are rare. Unskilled labourers is available as needed.		
Wage:	MMK 1,000 per parasol (small or big)		
Technology:	There is no technological need because it is a handicraft.		
Supply and demand:	Demand from Upper Myanmar is large, and so the production from Pathein is not enough. Export is still small.		
Scale:	Operate as a cottage industry.		
Design:	Designs are created by computer, and are drawn on the cloth manually.		
Environmental impact:	There is no environmental impact from this industry.		
Bamboo plantation:	The Parasol Manufacturing Association has asked the Region Government for growing a bamboo plantation.		
Operating cost:	MMK 100 million		
Initial investment needed:	MMK 20 million		
Potential market:	Both in the country and abroad. In local market, there can be 300 to 400 parasols in an order during October (Thadingyut Lighting Festival) and November (Tazaungdine Festival). Foreign buyers order above 10,000 parasols, but the manufacturers collectively cannot fulfil the ordered quantity. Asia market is competitive. Myanmar producers target at European market.		

⁶⁹ U Min Naing, Shwe Sar Pathein Parasol Production, No 653, Tawya Kyaung Street, Pathein. 09 9615 65166

	Shwe Sar plans to export Pathein Parasols to Bangkok and Kunming.
Current foreign buyers:	Germany, France, Italy and England Selling price: USD 60 Re-selling price (in Europe): Euro 300 (USD 345.5)
Packaging:	Myanmar packaging style is still not modernized.

❖ Analysis

- Strengths:**
- There is a large potential demand.
 - Labour wages are low.
- Weaknesses:**
- Transportation is difficult.
 - Air transport fee is high.
 - Lack of enhancing production technology
 - Scarcity of raw material (bamboo)
 - Lack of market access
- Threats:**
- Bad weather conditions (Parasols can be damaged by rains)
 - If bamboo is not cultivated, the existing bamboo groves can be depleted.
- Opportunities:**
- Large-scale manufacturing is feasible.
 - Cultivation of bamboo and trees for wood on a commercial scale

3.12 PATHEIN HALAWA – TRADITIONAL SNACK



❖ Basic information

Halawa is a traditional snack, which is famous in Myanmar by its place of production “Pathein.” It is sticky but it has a sweet taste. Currently, it is distributed only locally while it has a great potential for exporting to a large number of countries if its appearance is improved with better packaging material.

❖ Primary information⁷⁰

Ingredients:	Sugar		
	Coconut milk		
	Rice and glutinous rice dough		
	Peanut oil		
	Butter oil		
	Sesame (from Shan State)		
Halawa makers:	More than 10		
Availability of raw materials:	Coconut:	Coconut has to be purchased from wholesaler. Coconut comes from Chaung Tha and Ngwe Saung.	
	Glutinous rice:	Available as needed (from Pathein)	
	Rice (Pawsan):	Easily available	
	Sugar:	Ordered from Yangon (Thai sugar, refined)	
	Black sesame:	Rare (has to be purchased from merchants and stored)	
	Peanut oil:	Available as needed (Ngwe Thazin Min brand)	
	Butter oil:	Available in Yangon (Moe Cherry brand)	
Prices of raw materials:	Raw material	Purchase price In MMK	Remark
	Coconut:	450 – 600	per fibre-removed coconut
	Glutinous rice:	35,000 – 40,000	per bag (summer)
		50,000 – 60,000	per bag (rainy season)
	Black sesame:	4,500 – 8,000	per <i>pyi</i> ⁷¹
Peanut oil:	5,600 – 7,000	per viss	
Production method:	Half manual, half machine		

⁷⁰ U Ye Lin Aung, Shwe Myinbyan Halawa Production, No 49 (B), Merchant Street, Pathein. 09 9620 1077

⁷¹ *Pyi* is a volume measuring unit. 8 tin-fuls = 1 *pyi*; 16 *pyi*'s = 1 basket.

Market:	Internal: Sales are best during the open season Foreign: Not yet exported
Preservation (durability of product)	Preservation technology is needed. Duration: Halawa (fresh): 7 days Halawa (dried): 20 days
Packaging:	Halawa (fresh): Put in plastic boxes Halawa (dried): Put in plastic bag

❖ Analysis

- Strengths:**
- Chemicals are not used.
 - Ingredients are easily available
- Weaknesses:**
- Lack of preservation technology
 - Lack of modernized packaging
- Threats:**
- Under natural disasters (such as floods), prices of raw materials can go up.
 - Coconut can be in short supply because coconut plantations have been sold to large businessmen who do housing project, hotel project.
- Opportunities:**
- The sticky, sweet snack is delicious and there is potential export market if packaging method can be improved.

3.13 MYANMAR SAUSAGE (CHICKEN AND PORK)

❖ Primary information ⁷²

Sausage businessmen:	3 – 4 persons (Pathein)		
Small-scale businessmen:	10 (Pathein)		
Ingredients:	Meat, goat intestine, salt, seasoning powder		
Availability of raw materials:	Easily available (purchased from meat depots from Pathein) Goat intestine and pig intestine ordered from Yangon		
Prices of raw materials:	Raw material	MMK per viss	Remark
	Pork:	10,000	
	Chicken:	7,000	
	Goat/pig intestine:	9,000 – 12,000	per coil
Sales prices:	Product	MMK per viss	Remark
	Pork sausage:	25,000	Summer
	Chicken sausage:	20,000	Summer
	Pork sausage:	22,000	Rainy season
Chicken sausage:	17,000	Rainy season	
Use of machines:	Cutting, grinding, stuffing, roasting meat (The Chinese machines were purchased from Yangon. Repair service is provided by AMI Co ⁷³)		
Technology need:	Currently, the sausages stuffed with meat are tied manually. Machine is needed.		
Labour wages:	MMK 100,000 – MMK 150,000 per month		
Environmental consciousness:	Use electricity only		
Operating cost:	MMK 2 million per year		
Packaging:	It is needed to improve to reach the export level.		
	Current packaging: Sausages are put in plastic bags, and then, the bags are put in thin plastic boxes.		
Supply and demand:	Balanced		

⁷² U Nyi Nyi Min, New Zee Bein Sausage Production, Taungbaw Street, Pathein. 09 4224 67689

⁷³ AMI Co U Nyein Lwin, Mechanical Services

❖ Analysis

- Strengths:**
- Raw materials can be purchased easily.
 - No complicated machinery is needed.
 - Sales is best during the open season (Feb - Mar)
- Weaknesses:**
- The machine for tying up the stuffed intestine is needed.
 - Lack of modern packaging technology
 - Preservation technology is needed.
 - Taste of Myanmar sausage cannot be made known to the world
- Threats:**
- As sausages are manufactured also in other countries, it will be competitive to export the product. (Myanmar sausages are unique in its taste and flavor.)
- Opportunities:**
- Myanmar—with a population of 51 million—is a huge market.
 - Sausages are an ingredient in foodstuffs—such as fried noodle.
 - Opportunity to produce hem, CP sausage, etc in addition to traditional sausage.

3.14 CANNED FOOD PRODUCTION

Packaging technology

Modern packaging has gradually entered the Myanmar foodstuff manufacturing sector. However, some products are still packed in paper and plastic. Whether good packaging is utilized or not depends also on the market. In the traditional markets, easy packaging materials such as plastic bags are used.



Packaging conditions of fishery products

Product	Form	Traditional packaging	Label	Modern packaging
Dried fish	Whole	Plastic bag	Paper	Not yet
Dried fish	Cut into pieces	Paper box	Paper	Not yet
Fish paste	Paste	Plastic box	Paper	Not yet
Fish sauce	Liquid	Plastic bottle	Simple	Not yet
Dried prawn	—	Plastic bag	Simple	Not yet

Canned foodstuffs

Although some large companies in Myanmar use cans for the processed fish and meat such as beef, there is still no canned food production in Ayeyarwady Region.

❖ Analysis

- Strengths:**
- Raw materials can be available from agriculture, livestock and fishery sectors.
 - Fishery produce can be plentiful if extensive breeding is undertaken.
- Weaknesses:**
- Good-quality raw material is needed.
 - Need of internally-recognized certificates
- Threats:**
- Marine resources are gradually dwindling (Fish/prawn breeding has become necessary.)
 - Domination of foreign products (canned foods) in Myanmar
- Opportunities:**
- Export markets
 - Opportunity to supply to modern retail markets

3.15 RICE SYRUP PRODUCTION

❖ Primary information

Rice syrup production

The rice syrup is a sweet sticky liquid, a kind of raw material, used for flavouring snacks and fruit jams.

Rice syrup producers:	6 in Myaungmya Township and there are also producers in Nga-thaingchaung, Danubyu, and Yekyi Townships.
Raw material:	Good-quality broken rice is purchased and stored.
Production cost:	(Not answered)
Requirement:	Modern production technology. Packaging technology
Export:	One-container load exported to China (only once)
Production process:	Similar to distillery (alcohol production)
Wages:	MMK 5,000 – 7,000 per day
Production:	4,800 viss (7,824 kg) per day
Quantity transported to Yangon:	1-time transport to Yangon = 6,400 viss (10,430 kg) 5 times per week to Yangon = 32,000 viss (52,160 kg)
Packaging:	Use 16-viss and 32-viss plastic re-used boxes
Business situation:	Demand is decreasing because business of traditional snacks and fruit jams are declining.
Markets:	Bayint Naung Purchase Depot (Yangon) and Mandalay
Means of transport:	By road
Future plan:	Nil. About USD 1 million will be needed to set up a factory.

❖ Analysis

- Im;**
- Raw material easily available (broken rice)
 - Complicated process is not necessary
 - Lack of refining the product
- Weaknesses:**
- Market is small (only snack market)
- Threats:**
- Alternative product (from China)
- Opportunities:**
- Opportunity to produce this snack raw material in large quantities if its use can be extended to juice production
 - Opportunity to export (it is used in pancake making)

3.16 COIR ROPE PRODUCTION



❖ Primary information

Coir rope production⁷⁴

In Pathein area, there are two coir rope producers (who use 10 to 15 machines) and 50 producers (who use 5 to 8 medium-size machines)

Raw material:	Both buying from other places by car and from people who visit the production place Places where coir (coconut fibre) is purchased: Myin-ka-seik, Myaungmya and Pathein Townships Places from which people come to sell coconut fibre: Chaung Tha, Ngwe Saung and Thazin and Mawlamyainggyun and Bogale Townships by boat
Availability of raw material:	Raw material is available more in summer than in rainy season. Summer: 1,200 shells per light truck

⁷⁴ U Hla Aye, coir rope producer, Tegygone Ward, Pathein Township. 09 856 9040

	Rainy season: 700 – 800 shells per light truck
	Quality: Sea coconut fibre is rougher than fresh-water coconut fibre
Supply and demand:	Demand is better than supply
Industries where coir ropes are used:	Gold panning, bamboo screen (for sun shade), construction
Raw material purchase price:	MMK 12 per one-coconut-fibre mass (if purchased by car) MMK 28 per one-coconut-fibre bass (if purchased at the coir rope production place)
Quantity of raw materials used:	2,000 to 2,500 coconuts (fibre mass)
Machines:	10 machines
Output:	20 viss per machine per day 180 viss per 10 machines per day
Sales prices:	MMK 4,000 per 3 viss (5 kg)
Markets:	Yangon, Mandalay, Lashio, and Bago (especially to construction materials shops)
Other products:	Foot-rugs and mosquito-repellent
No of workers:	20
Wages:	MMK 4,000 – 6,000 per day
Capital needed:	MMK 500,000

❖ Analysis

Strengths:

- Various products can be produced from coir.
- There are large coconut farms in Ayeyarwady Region.
- Demand is high in rural areas where bamboo scaffolding is used in construction

Weaknesses:

- Lack of machines and technology.
- There is only local market.

Threats:

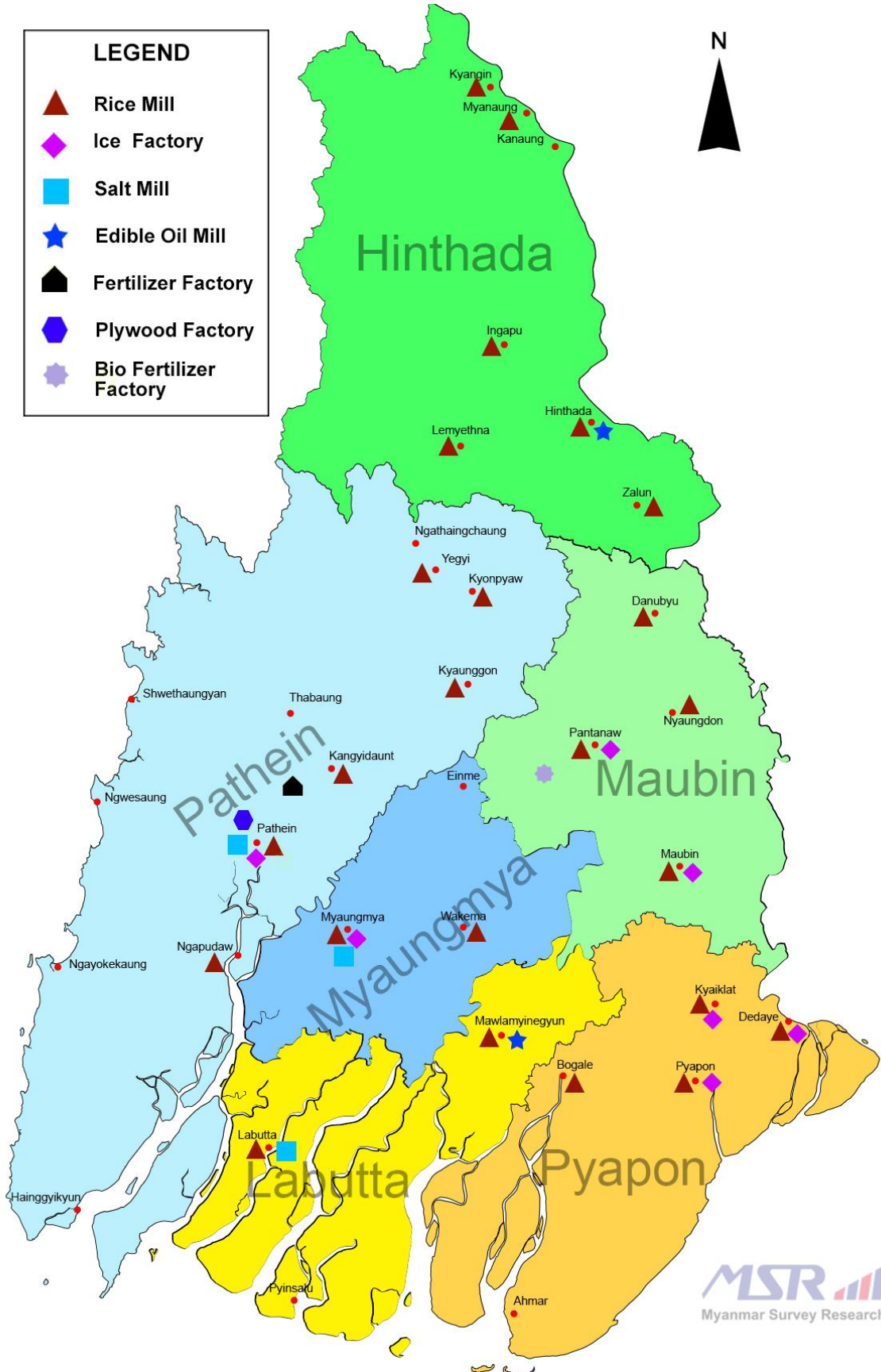
- Alternative products

Opportunities:

- Opportunity to produce coir ropes by upgrading its quality

MANUFACTURING SECTOR:

MAP 6: Existing businesses and potential places



4

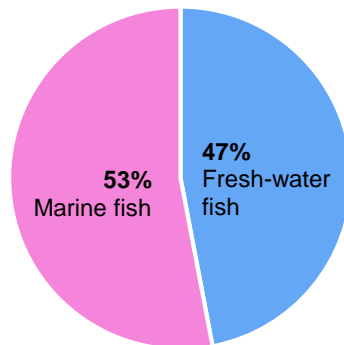
FISHERIES SECTOR

4.1 OVERVIEW OF FISHERIES SECTOR

Production and export⁷⁵

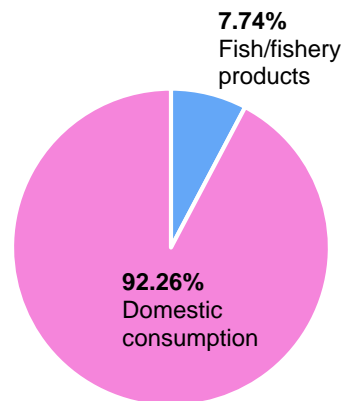
In 2016-2017 fiscal year, the total production of fish was 5.67 million metric tons in Myanmar. In this period, the production of freshwater fish was 2.64 million metric tons (47% of the total fish production) and the production of marine fish was 3.03 million metric tons (53% of the total production of fish in Myanmar).

Fish produced in 2016-17



Total production: 5.67 million metric tons

Fish exported in 2016-17



Total production: 5.67 million metric tons

CHART 20: Production and export situations in fishery sector

The exported amount of fish and fishery product was 0.439 million metric tons and the value of which was 605.820 million in USD in 2016-2017. It was exported to 40 different countries. The exported amount was 8% of the total production of fish in Myanmar in this period, 2016-2017.

Types of fisheries in Myanmar⁷⁶

The type of fisheries in Myanmar is determined by nature of catch. It can be classified into freshwater fisheries and marine fisheries. Freshwater fisheries consist of (a) aquaculture, (b) leasable, (c) open fisheries. Marine fisheries include (a) inshore fisheries and (b) off-shore fisheries.

In the inshore fisheries, the fishing boats operate within from shoreline to 10 nautical miles. In this area, the fishing boat which is built by traditional type with not more than 30 feet long or using less than a 25 HP engine power, operates for fishing. The fishing gears for using are driftnet, gillnet and long line.

In offshore fisheries, the offshore fishing vessels operate beyond from outer limit of the inshore fishing zone to the Exclusive Economic Zone (EEZ). The fishing vessels are more than 30 feet long or using more than 25 HP engine operating in offshore area. In this area, the commercial fishing gears are trawl net, purse seine, and long line.

⁷⁵ Department of Fisheries, Ministry of Agriculture, Livestock and Irrigation, Office Building No. 36 Nay Pyi Taw, Myanmar. Tel : (95 -67)408059 Fax : (95 -67)408048 E-mail : planstatisticsdof@gmail.com

⁷⁶ Ibid

Relevant laws

The following laws have been enacted to manage the fishery industry and to protect the fishery resources efficient:

- 1 Law Relating to the Fishing Rights of Foreign Fishing Vessels - 1989
- 2 Aquaculture Law – 1989
- 3 Myanmar Marine Fisheries Law – 1990
- 4 Freshwater Fisheries Law - 1991

Key stakeholders: The key stakeholders in fisheries sector are the Ayeyarwady Region Government (ARG), Department of Fisheries, Ministry of Agriculture, Livestock and Irrigation, Myanmar Livestock and Fisheries Development Bank, ARCCI and fisheries-related associations, and fishery workers.

Performance of Ayeyarwady Region Government (ARG)⁷⁷

In 2017 and 2018, Ayeyarwady Region Government, in coordination with the Department of Fisheries, carried out the following:

■ 2017

- **Allotment of inns (fish lakes):** Out of 1,777 inns (fish breeding lakes) in the region, 209 were awarded to 204 groups of fishery workers at floor prices.
- **Harvests from fisheries sector:**
Freshwater fish caught: 630 million viss (1.5% more than the previous year)
Saltwater fish caught: 328 million viss (1.7% more than the previous year)

■ 2018

- **Fish and prawn breeding ponds:** Fish breeding ponds, stretching a total of 123,550 acres, prawn breeding ponds, covering a total area of 63,735 acres, were dug.
- **Fingerlings:** With the aim of preventing against depletion of fish stock, a total of more than 37,000,000 fingerlings were delivered to the breeders.
- **Fish breeding project:** All-round assistance was provided to Mya Sein Yaung Fishing Breeding Project in which 74 villages were involved.
- **Conservation of rare species:** ARG was engaged in the conservation of rare species: it opened Thamee Hla turtle species conservation camp in Hainggyikyun Town and Kadonkani turtle conservation camp in Bogale Township.

Areas of fish, prawn and crab breeding ponds in Ayeyarwady Region (By acre) (2018-19)⁷⁸

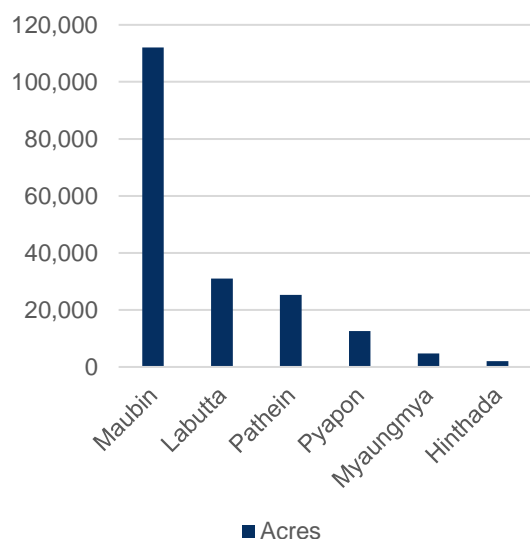
District	Fish ponds		Prawn ponds		Crab ponds		Total	
	No of breeders	Acre	No of breeders	Acre	No of breeders	Acre	No of breeders	Acre
Maubin	3,276	107,452	49	4,590	0	0	3,325	112,041
Labutta	109	841	320	29,760	6	382	435	30,983
Pathein	278	4,842	1,555	20,441	1	9	1,834	25,291
Pyapon	168	3,697	169	8,894	1	15	338	12,607
Myaungmya	315	4,670	8	42	0	0	323	4,712
Hinthada	604	2,049	2	9	0	0	606	2,058
Total ▶	4,750	123,551	2,103	63,736	8	406	6,861	187,692

TABLE 38:

⁷⁷ Ayeyarwaddy Region Government's One-Year Performance (2018),

⁷⁸ ----- Department of Fisheries, Ayeyarwady Region

Fish, prawn and crab ponds in acres (2018-19)



Production from fish/prawn ponds (2017-18)

District	Fish ponds	Prawn ponds
	Yield (Viss)	
Patheingyi	12,775	2,119
Hinthada	6,874	0
Myaungmya	5,943	0
Maubin	293,693	1,167
Pyapon	2,718	822
Labutta	1,176	2,293
Viss ▶	323,179	6,401
Kilogram ▶	527,729	10,452
Ton ▶	528	> 10

TABLE 39:

CHART 21:

4.2 OFFSHORE FISHERIES

❖ Basic information⁷⁹

Off-shore fishing vessels in Ayeyarwady Region⁸⁰

Sr	Township	Units of fishing gear	Motorized vessel	Non-motorized vessel	Total
1	Shwethaungyan/Ngwethaungyan	365	385	0	385
2	Ngapudaw	254	138	116	254
3	Hainggyi	774	131	112	243
4	Pyinsalu	812	78	207	285
5	Pyapon	2,726	343	0	343
6	Bogale	72	18	0	18
7	Dedaye	1,520	320	0	320
	Total ▶	6,523	1,413	435	1,848

TABLE 40:

Fishing gear in Ayeyarwady Region⁸¹

Sr	Township	Fishing gear					Total
		Sein Paik	Hmaw Paik (Drift Net)	Kyar Paik (Tiger Net)	Kyauk Paik	Hmyone (Fish trap)	
1	Pyapon	55	31	164	70	–	320
2	Bogale	–	26	–	–	–	26
3	Hainggyi Is.	–	85	–	–	1	86
	Total ▶	55	142	164	70	1	432

TABLE 41:

⁷⁹ Department of Fisheries, Ayeyarwady Region

⁸⁰ Department of Fisheries, Ayeyarwady Region

⁸¹ Department of Fisheries, Ayeyarwady Region

❖ Primary information⁸²

Fishes:	1	Ngathalauk	(Hilsa)	
	2	Ngamont	(White pomfret – Pampus argenteus)	
	3	Ngakunshat	(Spanish mackerel)	
	4	Ngazinpyar	(Ilisha elongate)	
Catches:	Sr	Fish	Viss per month per vessel	MMK per viss
	1	Ngathalauk	1,000	10,000 – 15,000
	2	Ngamont	300 – 500	15,000 – 20,000
	3	Ngakunshat	1,000	3,000 – 5,000
	4	Ngazinpyar	1,000	1,000 – 5,000
Preservation:	1	Ngathalauk	Frozen	
	2	Ngamont	Frozen	
	3	Ngakunshat	Frozen or salted	
	4	Ngazinpyar	Salted	
Labour:	Labour is not enough with local supply. Recruit from other parts of Ayeyarwady Region			
	Rainy season: Labour is available			
	Summer: Labour is scarce. (They take up other jobs)			
Wages:	MMK 120,000 – 150,000 per month (meals provided)			
Sales condition/destination:	Frozen and salted: to Yangon			
Money transfer:	Bank (90%)			
Transport:	Road (80%) Waterway (20%)			
Cost of ice:	MMK 10,000 per ice box (Waterway)			
	MMK 20,000 per ice box (Road)			
Travelling time:	Road (Hainggyi-Yangon): 10 hours			
	Water (Hainggyi-Yangon): 48 hours			
Storage:	Fish are put in ice boxes and sent to Yangon within the day.			
	Fish caught are kept in the cold storage on the vessel.			
	There is no on-shore cold storage.			

❖ Analysis

- Strengths:**
- Ayeyarwady is a coastal region.
 - Labour available
- Weaknesses:**
- Lack of modern fishing gear
 - Lack of onshore cold storage (only ice is used)
 - Instable fish market
 - Timber for fishing vessel construction has become scarce.
- Threats:**
- Marine resources being depleted
 - Fuel prices are rising
- Opportunities:**
- Opportunity to export

4.3 SEA PRAWN

❖ Basic information

In Ayeyarwady Region, Yuzana Co is the only company engaged on a large scale in fisheries business.

❖ Primary information

Prawn breeding pond⁸³

Availability of raw material:	Prawn fingerlings are not easily available.
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⁸² U Ko Thein, fishery businessman, Ward 3, Hainggyikyun. 09 4285 52355

⁸³ U Hla Win, Yuzana Prawn Breeding (Ayeyarwady Fishery Development Co), Ngwe Saung, Pathein. 09 4224 83399

Prawn fingerling ponds:	The respondent has two fingerling ponds in which prawn fingerlings from Thailand are bred.
Total area:	2,174 acres – sea/freshwater prawn, freshwater fish
No of ponds:	224
	100 m x 100 m ponds: 20%
	85 m x 85 m ponds: 70%
	1.5 acres: 5%
	2.5 acres: 5%
Investment:	MMK 80 – 90 million per pond (85 m x 85 m)
Feed:	Feed for prawn fingerlings have to be purchased from Thailand.
Output (Technology)	The output in Myanmar is 1 kg from 1-meter-square pond while that in other countries (Thailand, Indonesia and Malaysia) is 10 kg from 1-meter-square pond.
Electricity:	In Myanmar, small engines only are used for power in Myanmar. There is a plan to use 7-MW engines.
Labour:	200 construction workers (for digging ponds) There are also part-time workers recruited from neighbouring vil-lages
Wage for part-time worker:	MMK 8,000 per day for man and MMK 7,000 per day for woman
No of manual and office work-ers:	More than 600
Provisions in addition to wage:	12 kinds of dry rations—including rice are provided to workers every month)
Best-selling product:	Sea fish, prawn, crab, eel (Exported mostly to Japan)
	Efforts are being made to export the products to Europe. Test cer-tificates are needed.
Market information:	Internet, and countries to which the products are exported
Packaging:	Japan is helping the packaging system.
Success rate:	Yuzana Co has four prawn breeding stations, and compared to 2012, the current (2018) success rate is 75%.

❖ Analysis

Strengths:

- Easy labour availability
- Myanmar sea water is cleaner than that of other countries—Indo-nesia, Thailand, Vietnam, Malaysia, etc.
- Labour: Degree-holders (zoology, botany, chemistry majors) are available.
- Ngwe Saung-Pathein road has improved.
- The time of investment to the time of harvest: one month

Weaknesses:

- Financial constraint
- No designation of fisheries zone
- Need of land
- Lack of technology
- Lack of feedstuffs
- Lack of electricity

Threats:

- If fish/prawn ponds are located, scattered in various places, natu-ral environment can be damaged.
- If electricity is out, oxygen supply will be cut and losses can occur.


Opportunities:

- Fisheries sector is one of the best sector for making investment.
- Opportunity to invest in fish and prawn feedstuff factory
- Opportunity to invest in equipment manufacturing (eg fans for providing oxygen)

4.4 FRESH-WATER FISH AND PRAWN

❖ Primary information⁸⁴

According to the 2016-17 statistics, there are 3,730 natural fish lakes in the entire country. The State collected taxes, amounting to MMK 8,205.706 million from 3,299 lakes sold. (lake = *inn* in Myanmar)

Sources of fish and prawn:	Sources		Fresh water	Sea water
	1	From rivers, creeks and lakes	■	
	2	From fish and prawn breeding farms	■	■
	3	From offshore and deep-sea fishing		■
Area of fish breeding (AR)	More than 100,000 acres			
Area of prawn breeding (AR)	More than 60,000 acres			
No of fishery workers:	727,641 in Ayeyarwady Region			
Mode of breeding:	Putting months-old fingerlings into the breeding ponds			
Kind of fish bred:	1	Nga Myitchin	 Tilapia fish	
	2	Nga Thainggaungpwa		
	3	Nga Gyin-phyu		
	4	Tilapia fish		
	5	Nga Khonma		
Feed:	Natural feed only or natural feed plus supplementary feed			
Reserved stock fish:	Fishery workers do not catch all the fish in the pond. Instead, they reserve large quantities of fish, and these reserved fish are put into the ponds at the onset of monsoon. This practice is very common in Ayeyarwaddy Region.			
Catching methods:	Fishery workers use fishing nets in different manners. They also use spears or traps.			

❖ Analysis

- Strengths:**
- Fish and prawn can be extracted in large quantities if natural lakes and rivers are systematically maintained and fish stocks are preserved.
- Weaknesses:**
- Lack of systematic maintenance of fish stocks
- Threats:**
- Depletion of rivers and lakes if they are not systematically preserved.
- Opportunities:**
- Opportunity to produce fresh, frozen and processed fish and prawn.

4.5 COLD STORAGE

❖ Basic information

In Patheingyi, Yuzana Co only has a modern cold storage which turns out value-added products with raw materials acquired from its own fish and prawn breeding business.



⁸⁴ U Khin Maung Hlaing, Director, Consumer Affairs Department (Ayeyarwady Region), Ministry of Commerce

❖ Primary information⁸⁵

Raw material:	Fish and prawn are carried to Pathein Cold Storage	
Breeding:	Fish fingerlings have been produced since 2002-03. Prawn fingerlings are produced with foreign technicians.	
Species:	Black tiger	
	Banami (Vannamei)	
	Banami is produced more because Black tiger is difficult to breed.	
Quality:	European standard (Won an award from Japan)	
Technology:	Large-quantity technology	
Value-added products:	20 kinds	
Other product:	Feedstuff (Currently for company use)	
Workers (Cold Storage):	More than 500	Total: Nearly 800
Workers (two fish ponds):	299	
Market:	Prawns are export to Japan, USA and European countries	
	Fish is sold in the country.	
Packaging:	International level	
Business situation:	Has improved.	

❖ Analysis

- Strengths:**
- Fish and prawn breeding can be extended.
 - Prawn is a successful export item.
 - In entire Ayeyarwady Region, many cold storages are needed.
- Weaknesses:**
- So far, the products are sold only locally.
 - Lack of sufficient electricity
- Threats:**
- Depletion of marine resources.
- Opportunities:**
- Opportunity to produce frozen food for modern retail markets
 - Opportunity to invest in cold storages

4.6 FISH AND PRAWN PRODUCTS

❖ Basic information

Dried fish

Ready-to-eat dried, roast fish (annual production)⁸⁶

Quantity produced	Quantity exported	Price	Domestic market	Note
10,000 packs per month	(Not yet)	MMK 1,400 per pack	Yangon, Mandalay, Nay Pyi Taw and Tanintharyi Regions and Shan State	1 pack = 80 gm

TABLE 42:

❖ Primary information

Shrimp paste⁸⁷

Availability of raw materials:	Hmyin (small shrimps) available from Chaungwa Village-tract and Deedoogone Village-tract, Ngapudaw Township.
--------------------------------	--

⁸⁵ Daw Su Su Kyi, General Manager, Cold Storage, Yuzana Co.

⁸⁶ U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce

⁸⁷ U Kyaw San Lin and Daw Yin Yin San (fish paste producer), Ahsin Chaing Village, Deedoogone Village-tract, Ngapudaw Township. 09 4439 03829

Available quantity:	Max: More than 10,000 viss per day		
	Min: 100 – 900 viss per day		
Season:	September to April (8 months)		
Purchase price of small shrimps:	MMK 100 – 150 per viss		
Kinds of produce:	Dried shrimps and shrimp paste		
Process:	Dried shrimp: Boil the shrimps and sun-dry them.		
	Shrimp paste: Separate small shrimps from fish of various kinds, knead the shrimps with salt, put the salted shrimps in a tub and keep them for one night, then sun-dry them and grind it with the machine. The sun-drying and grinding have to be made four times. The product is finally put in pots for sales.		
Technology:	Machine is used only in grinding. Thai technology cannot be used.		
Cleanliness:	There is lack of cleanliness.		
Wages:	Kind	MMK per month	Remark
	Boatman:	120,000	Meals provided
	Boatman (leader):	170,000	Meals provided
	Shore worker:	100,000	Meals provided
	Female worker:	50,000 – 70,000	Meals provided
Daily wage worker:	Working time	MMK per day/night	Remark
	Day time	3,000 – 5,000	Meals not provided
	Night	8,000	Meals not provided
Shrimp paste grades:	1 First grade:	Shrimps only is used	
	2 Second grade:	Shrimps mixed with a little fish	
	3 Third grade:	Shrimps 50% and fish 50%	
	4 Fourth grade:	A little of shrimps and fish	
Shrimp paste prices	Grade	MMK per viss	Remark
	First grade:	1,000 – 1,500	
	Second grade:	700 – 800	
	Third grade:	600 – 700	
	Fourth grade:	500 – 550	
Price determination:	Based on Yangon purchase depots		
Loan opportunity:	Micro-Finance Associations		
Money transfer:	Rely on bank 90%. In the past, use vessels.		
Means of transport:	Ahsin Chaing Village (Ngapudaw) to Pathein: By 100% waterway Rail cargo fee is 3 times less than car.		
Rail transport:	Time-consuming, trains are not punctual, cannot reach destination directly		
Storage:	1,500 – 2,500-viss storage tanks		
	150-180-viss glazed earthen pots		
	8,000-150,000-viss warehouses		
Packaging:	50-viss plastic bag which is put into polypropylene (PPP) bag		
Business situation:	Normal; sales are not so brisk.		

Dried prawn⁸⁸

Availability of raw materials:	Prawns are available regularly from January to May. Business is suspended from June to August. Large catches take place in September and October, and small catches are in November and December.											
	1	2	3	4	5	6	7	8	9	10	11	12
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Regular catches					Business suspended			Large catches		Small catches	
	In September and October, 2,000 to 3,000 viss of prawn is caught per day.											
Purchase prices	Species					MMK per viss			Remark			
	Yekyi (Clear-water) prawn					800 – 1,200			Raw prawn is also available from neighbouring villages.			
	Bengali prawn					1,800 – 2,400						
	White prawn					1,800 – 2,200						
Process:	1	Wash the prawns with water.										
	2	Mix with a little bit of salt and boil for one hour.										
	3	The boiled prawns are smoked with charcoal fuel.										
	4	OR: sun-dry for two days.										
	5	Shells of the dried prawns are taken off.										
	6	The dried prawns are graded into 3 different sizes.										
	7	Then, put them in the PPP bags. (packaging)										
Byproduct:	The prawn shells are sold to livestock breeders.											
Labour:	Workers usually migrate to Yangon.											
Wages:	Boat workers:	120,000					Meals provided					
	Boat leader:	170,000					Meals provided					
	On-shore worker:	100,000					Meals provided					
	Women:	50,000 – 70,000					Meals provided					
	Daily-wage worker:	3,000 – 5,000					Meals not provided					
	Night worker:	8,000					Meals not provided					
Output:	100 viss of fresh prawns ► 6.5 viss of dried prawns											
	10,000 – 15,000 viss per year											
	120 -160 viss per day (least: 50 viss per day)											
Market:	Yangon, Chaung Tha and Ngwe Saung											
Market information:	Prices are determined, based on the Bayint Naung Wholesale Market prices.											
Cold storage:	Nil											

Shrimp sauce⁸⁹

Raw materials:	<ul style="list-style-type: none"> -- Liquid that seeps out when the shrimps are mixed with salt -- Liquid that seeps out when the shrimps are ground with machine -- Liquid that seeps out at the final stage of making shrimps into paste 											
	The shrimp sauce is a byproduct in making shrimp paste											
Process:	The three kinds of liquid—150 gallons—is poured into an iron pan, and is heated with rice-husk/wood fuel for about 5 hours. Because of evaporation, 50 to 60 gallons is left.											
Wages:	MMK 150,000 to 200,000 per month											
Market:	Sold only in the country											
Money transfer:	Bank											
Transport:	Road (50%) and rail (50%)											

⁸⁸ Ibid

⁸⁹ Ibid

Storage:	Raw liquid is stored in tanks (FDA inspects them often.)
Packing:	Finished shrimp sauce: in 5-gallon plastic boxes
Business situation:	Sales of shrimp sauce have increased.

❖ Analysis

Strengths:

- Dried prawn is the best-sold product.
- Banking services have improved.

Weaknesses:

- Sold only in local market
- Storage system is conventional.
- Manual process

Threats:

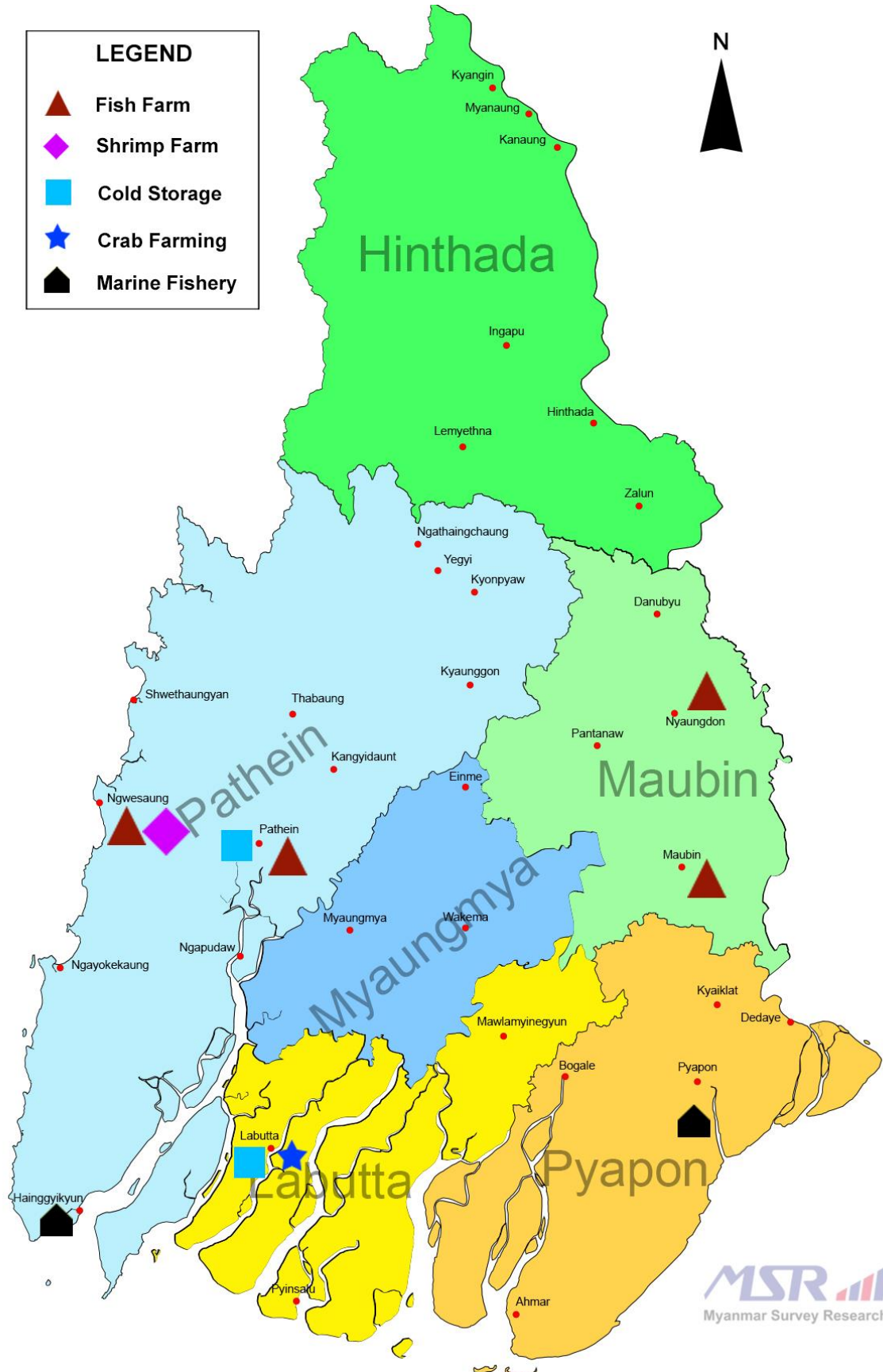
- Marine resources are gradually dwindling.

Opportunities:

- Opportunity to manufacture fishery products.
- Opportunity to extend market to other SEA countries.

FISHERIES SECTOR:

MAP 7: Existing businesses and potential places



5

LIVESTOCK SECTOR

5.1 OVERVIEW OF LIVESTOCK BREEDING SECTOR

Head of animals raised in Ayeyarwady Region – Jun & Jul 2018⁹⁰

Sr	Animal	Head (2018)		Increase within one month	Percentage (Increase)
		Jun	Jul		
1	Cow	423,826	426,655	2,829	0.7%
2	Buffalo	101,920	102,561	641	0.6%
3	Goat	58,641	59,762	1,121	1.9%
4	Pig	984,400	1,006,854	22,454	2.3%
5	Chicken	8,804,571	9,039,299	234,728	2.7%
6	Duck	2,922,174	2,963,768	41,594	1.4%
7	Turkey/goose	84,278	86,562	2,284	2.7%
8	Quail	51,449	51,999	550	1.0%

TABLE 43:

Head of animals raised on commercial scales in Ayeyarwady Region – May 2018⁹¹

Sr	Animal	No of breeders/owners	Head of animal
1	Domestic cow	14	615
2	Cow – meat	0	0
3	Cow – milk	53	1,114
4	Domestic buffalo	77	2,649
5	Chicken – egg	222	1,297,924
6	Chicken – meat	404	1,170,280
7	Chicken – male	122	276,350
8	Domestic chicken	3	696
9	Duck – egg	236	189,461
10	Goat	24	1,050
11	Pig	148	3,469
12	Quail	26	83,750

TABLE 44:

According to the Livestock and Veterinary Department, there is no cow raised for meat. The largest number (404) of people breed chicken, followed by breeders (236) of ducks for egg and breeders (222) of chicken for egg.



5.2 CHICKEN (MEAT)

❖ Primary information⁹²

Chicken pen:	Must be in accordance with GAHP (Good Animal Husbandry Practices.)	
Materials for pen:	Bamboo, thatch.	
Trough (feed/water container):	Purchased from Yangon	
Feed and chick selling companies:	Foreign:	CP Myanmar Livestock
		May Kha (Jefer) Myanmar
		Sunjin (Korea)

⁹⁰ -----, Livestock and Veterinary Department, Ayeyarwady Region.

⁹¹ -----, Livestock and Veterinary Department, Ayeyarwady Region.

⁹² U Khin Maung Win, Meat Chicken Production, Taunggalay Village-tract, Myaungmya Township. 09 7784 37071

		De Heus (Netherlands)
		MRC (China)
		New Hope
	Local:	Kaung Htet
		Popa
Preventive medicine:	Available from companies	
Incubation:	Traditional method	
Output:	1,400 head (2,300 viss) per day	
Wage:	MMK 160,000 – 230,000 per month	
Market:	Myaungmya	
Market information:	By calling Yangon, Pathein and Hinthada chicken/duck markets	
Supply and demand:	Balanced	
Packaging:	Plastic baskets (live chickens)	

❖ Analysis

- Strengths:**
- Being a popular food item
 - The bred chicken can be sold when it is 45 days old.
 - Demand is good.
- Weaknesses:**
- Specific land space is needed.
 - Lack of modern chicken farm (lack of bio-security system)
 - Lack of processing into modern packaged product
- Threats:**
- Import of frozen chicken from abroad
 - Spread of diseases (like bird flu)
- Opportunities:**
- With proper packaging, frozen meat can be put on sale at modern retail market
 - Opportunity to establish feedstuff factory.
 - Opportunity to establish animal medicine factory
 - Opportunity to operate incubation business
 - Opportunity to operate modern chicken farm

5.3 BEEF AND DRIED BEEF

❖ Basic information

Beef is one of the four common meats—chicken, pork, mutton (goat meat) and beef. In Myanmar cows are mostly used in farming. Following the Nargis Cyclone, the use of cows has declined, and in their place, machines appeared.

❖ Primary information⁹³

Beef producer/seller:	There is only one beef producer and seller.	
License:	Can be applied to Township Development Committee License fee: MMK 230 – 240 million (plus: taxes)	
Availability of land:	Township Development Committee cannot designate a place for abattoir. Current site: Tegyigone Village.	
Availability of raw material:	Cows are not available all the time. Have to contact dealers for purchase cows.	
Production amount:	5 – 6 cows per day	
Dried beef:	Currently, there is no production dried beef.	
Purchase price:	Price in MMK	Unit
	300,000 – 400,000	per head
	500,000 – 700,000	per head (on Eid Al-Adha Festive occasion)
Labour:	There are no cow slaughterers currently.	
Wage:	MMK 10,000 per cow (for slaughtering)	
No of workers:	5 – 6	

⁹³ U Thet Naing, licensed producer, Shwe Mitharsu Biryani Shop, Strand Road, Ward 1, Pathein

❖ Analysis

- Strengths:**
- Beef is a meat that has good demand
- Weaknesses:**
- License fee is extremely high.
 - Raw material (live cow) has become rare.
 - Because it is a slaughtering business, permission for appropriate place can only be on the fringes of the town
 - There is no commercial-scale breeding of meat cows.
 - There is no strain of meat cow suited to Ayeyarwady Region
- Threats:**
- Live cows have become rare because live cattle can be exported to China.
- Opportunities:**
- Opportunity to invest in cattle breeding
 - Opportunity to do canned beef manufacturing
 - Opportunity to produce cow leather



5.4 PORK

❖ Primary information⁹⁴

Business:	Pig breeding
Materials for pig pen:	Brick, timber and zinc sheets
Strain:	DYL (strain from Thailand)
Reproduction:	In the own pen
Feed:	Feedstuffs from De Heus, CP and Sunjin, mixed with locally available broken rice and bran.
Sales:	50 – 100 head (3,000 to 7,000 viss) transported to Yangon
Labour:	Available
Wage:	MMK 1,500 per day
Market:	Yangon
Market information:	By telephoning pig purchase depots
Supply-demand:	Demand is larger.
Transport:	By road
Sales form:	Only live pigs

❖ Analysis

- Strengths:**
- Pork is a popular food item.
 - Pork is an ingredient in other foods/snacks.
- Weaknesses:**
- Currently, it depends only on Yangon market
 - Specific land space is needed.
 - No production of modern packaged pork
 - There is no specific breeding zone.
 - Good-strain pigs are rare.
- Threats:**
- Odor from pig farms is bad.
- Opportunities:**
- Opportunity to produce ham
 - Opportunity to produce sausage
 - Opportunity to produce frozen pork
 - Opportunity to export pig ribs in addition to other parts
 - Opportunity to produce canned pork

⁹⁴ U Aung Myay, pig breeder, Myaungmya Township. 09 857 5215

5.5 DUCK EGG



Duck breeding⁹⁵

❖ Primary information

Land price:	MMK 2.5 – 3 million per acre				
Materials used in duck pen:	Bamboo (wa-boe and wa-net) (poles); thatch and zinc sheets (roofing) and iron mesh (walls) For beams and rafters, bamboo (hti-yoe-wa) is used				
Price of duck pen:	MMK 2 – 2.5 million per pen (45 ft x 105 ft)				
Price of duckling:	MMK 700 – 800 per duckling				
Medicine:	Tonic: Biosol and TR. No preventive medicine is used.				
Feed:	Feed for newborn to one-month-old: purchased from CP				
	Feed for one-month-old to 4.5-month-old: CP feedstuff and own mixture in 50:50 ratio				
	Feed for upwards of 4.5-month-old: own mixture				
	Green feed: Water cress and hyacinth minced fed once a day				
	Own mixture:				
		Viss	Ticals	Kg	Remark
	Broken rice:	30	3,000	49	7 ticals per duck
	Fine bran:	19.50	1,950	32	
Rough bran:	12	1,200	20		
Maize seeds:	15	1,500	24		
Prawn powder:	40	4,000	65		
Total ▶	116.5	11,650	190		
	The quantity of above mixture can be fed to about 1,500 ducks				
Laying time:	At 4 months, the ducks lay eggs.				
Incubation:	Ducks do not need heating for incubation. For lighting at night, two bulbs per pen are lit. Solar power is used.				
Yield:	60% (520,000 eggs from 2,400 ducks per year)				
Wages:	MMK 5,000 per day and MMK 180,000 per month (for salaried workers, lodging is provided.)				
Market:	Hinthada and Ngathaingchaung Townships				
Market information:	From duck egg purchase depots				
Business situation:	Demand is greater.				

❖ Analysis

Strengths:

- Demand is good because it is a popular food item.
- Incubation can be undertaken locally
- There are proper land spaces – eg deep-water fields

Weaknesses:

- Rarity of raw materials for duck feed.
- There is no ready-made duck feed.
- Lack of good-strain ducks (with good laying rate)
- Lack of systematic incubation methods
- There are no specific medicines for ducks
- There is no specific duck meat market.

Threats:

- Possibility of outbreaks of diseases

Opportunities:

- Opportunity to produce roast duck
- Opportunity to establish duck feed factory

⁹⁵ U Aung Thura Shwe Phone, owner, duck farm, Khamauksu Village, Lemyethna Township. 09 4010 23616, 09 8993 66077

5.6 CHICKEN (EGG)



Chicken breeding for egg⁹⁶

❖ Primary information

Land price:	MMK 2.5 million per acre	
Materials used for chicken pen:	Palmyra palm stem (poles); wood (in, kanyin) (beams and rafters); nippa (roof); iron mesh (walls); bamboo (floor). On bamboo flooring, 1.5-inch-thick net is laid.	
Cost for chicken pen:	MMK 3.5 million per pen (1,000 chickens)	
Chicks:	Chicks are sent directly from CP Incubators in Mingaladon and Pyinmabin.	
Price of chick:	MMK 1,065 – 1,100 per chick (for egg)	
Feed:	Green feed: Water cress and hyacinth minced and fed	
Tonic:	HiC	
Preventive medicine:	IBD, anti-pox, ID-IB, Mybaflox	
Feedstuffs:	Feeds from Hlaingthayar Feedstuff Factory are coded according to the age:	
	Age	CP feedstuff code
	Within 5 weeks from birth	921 S
	5-week to 2-month	921
	2-month to 4-month	922
Upwards of 4-month	924	
Incubation:	Warming is needed up to the age of 28 days. Heat is generated by putting charcoal in the drinking water pots which have holes on its body.	
No of chickens raised:	8,000	
Yield:	Average 6,400 eggs per day.	
Laying rate:	80%	
Wages:	MMK 100,000 – 150,000 per month	
Hinthada market:	Local production (60%) and imported from Yangon (40%)	
Business situation:	Demand is good.	

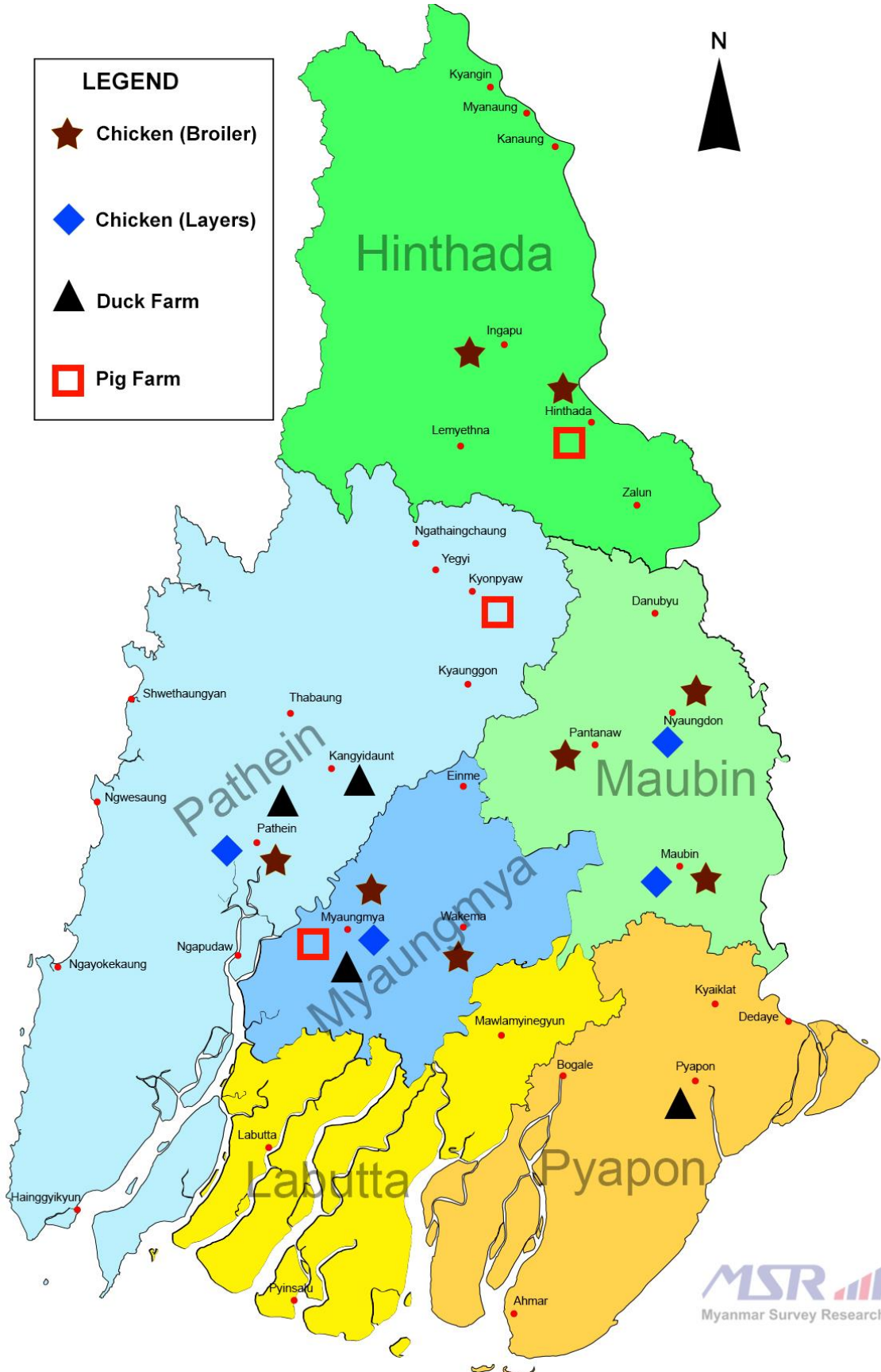
❖ Analysis

- Strengths:**
- Demand is good.
 - Chicken can be raised anywhere.
- Weaknesses:**
- Lack of bio-security chicken farms
 - Market is competitive.
 - It is difficult to get a large land space.
- Threats:**
- Spread of diseases (eg bird flu)
- Opportunities:**
- Opportunity to produce chicken egg-based snacks
 - Opportunity to put on sale in modern retail markets.

⁹⁶ U Win Htay, owner (CP agent), chicken breeding, 36 Shwezedi Road, Tar Ngaze Ward, Hinthada Township. 09 858 1235

LIVESTOCK SECTOR:

MAP 8: Existing businesses and potential places



6

HOTELS AND TOURISM SECTOR

6.1 OVERVIEW OF HOTELS AND TOURISM SECTOR

❖ Hotels⁹⁷

Under the AR Government, reforms in the hotels and tourism sector were carried out:

- 1 Relaxation of procedures for business license; and
- 2 Ridding the industry of corruption and delays.

As a result, the numbers of licensed hotels and lodging houses have increased. The Ministry of Hotels and Tourism has been carrying out measures in the hotel zones and resort areas—systematic disposal and collection of refuse, and adoption of collective refuse picking by hotel staff members and local residents, smooth flow of water in the drains.

No of hotels and rooms in Ayeyarwady Region

No of licensed hotels and lodging houses:	85
Total number of rooms:	3,433

Hotels and lodging houses – 2016, 2017 and 2018

Region	2016		2017		2018 (Jul)	
	No of Ho-tels/lodges	No of rooms	No of Ho-tels/lodges	No of rooms	No of Ho-tels/lodges	No of rooms
Patheingyi	14	349	18	523	20	583
Chaung Tha	23	959	27	1,261	29	1,300
Ngwe Saung	24	1,249	30	1,350	31	1,420
Myat Mawtin	1	20	1	20	1	20
Pyapon	1	40	1	40	1	40
Maubin	0	0	1	31	1	31
Hinthada	0	0	1	25	1	25
Mawlamyaing-gyun	0	0	1	14	1	14
Total ▶	63	2,617	80	3,264	85	3,433

TABLE 45:

Plan for electricity supply in hotel zones (Fiscal 2018-19)

Place	Distance	Power to be supplied	Installation
Ngwe Saung-Thalekkwha	15 miles	66 KV line	66 KV sub-station
Ngwe Saung-Chaung Tha	13 miles	66 KV line	
		66/11 KV line 10 MVA line	
Within Ngwe Saung	—	11 KV (13 lines)	12 (11.4 KV) trans-formers
		400 V line	

TABLE 46:

⁹⁷ Presentation on hotels and tourism situations, August 4, 2018, Directorate of Hotels and Tourism (Patheingyi Office)

❖ Tourism⁹⁸

The ministry has taken up measures for creating beauty and cleanliness on the beach resorts—preventing the undisciplined throwing away of coal dust from coal makers in Chaung Tha area and preventing waste water flowing into the sea. It also educated the local residents on the nature of tourism and convinced them of the value of natural beauty.

The following is a table showing arrivals of visitors—local and foreign—at three places—Pathein, Chaung Tha and Ngwe Saung:

Numbers of arrivals of domestic and foreign visitors (2016 – 2018)

Place	2016	2017	2018 Jun
Pathein	48,589	53,725	38,995
Chaung Tha	152,914	163,778	115,534
Ngwe Saung	145,451	201,321	144,221

TABLE 47:

6.2 HOTEL & TOURISM INDUSTRY

❖ Primary information

Ministry of Hotels and Tourism (Pathein District Office)⁹⁹

Number of tourism companies:	One each in Pathein, Pyapon, Ngwe Saung and Wakema	
Training:	Conducted by: Myanmar Hotel Professionals Association	
	6 moths	3 months: Theoretical 3 months: Practical (at hotels)
	Trainees:	Local residents
Employment:	Position	Education
	House-keeping	Middle/High School pass
	Front office	Under-graduate/graduate
	Waiter	Middle school
Future plans:	-- To supply electricity to Chaung Tha and Ngwe Saung Sub-townships	
	-- More hotels are under construction	
	-- FLOATING HOTEL	
	Company:	New World Shwe Pyi Tan Co
	Location:	Near Aung Mingalar Island
	Progress:	Under construction at Theinbyu Dockyards
Recommended resort:	Size:	length: 205 ft, width: 36 ft, and draught: 6.5 ft
	-- Training to be given on handicrafts made from coconut shell	
	Gaw Yingyi Island	
	There are many places to visit on the island. It will take 3 to 4 days to visit all the places. Water is clean. There are more than 300 bungalows (36 owners).	

Town development plans

Regional authorities and government departments concerned are now planning to work for the development of beach towns—Chaung Tha, Ngwe Saung and Shwethaungyan Subtownships in Ayeyarwady Region by drawing up systematic town plans. Among the plans, tourism-related plans are also included.

⁹⁸ Ibid

⁹⁹ U Zaw Lin Tun, Deputy Director, Ministry of Hotels and Tourism (District Office) 09 4594 39513

❖ Analysis

Strengths:

- Not far from Yangon (can make day trip)
- In addition to beaches, other resort centres can be opened.
- Possible increase in sales of handicrafts

Weaknesses:

- Road conditions are not good.
- There is no electricity from the national grid.
- There is no airway between Yangon and Patheingyi (Patheingyi Airport is currently defunct.)

Threats:

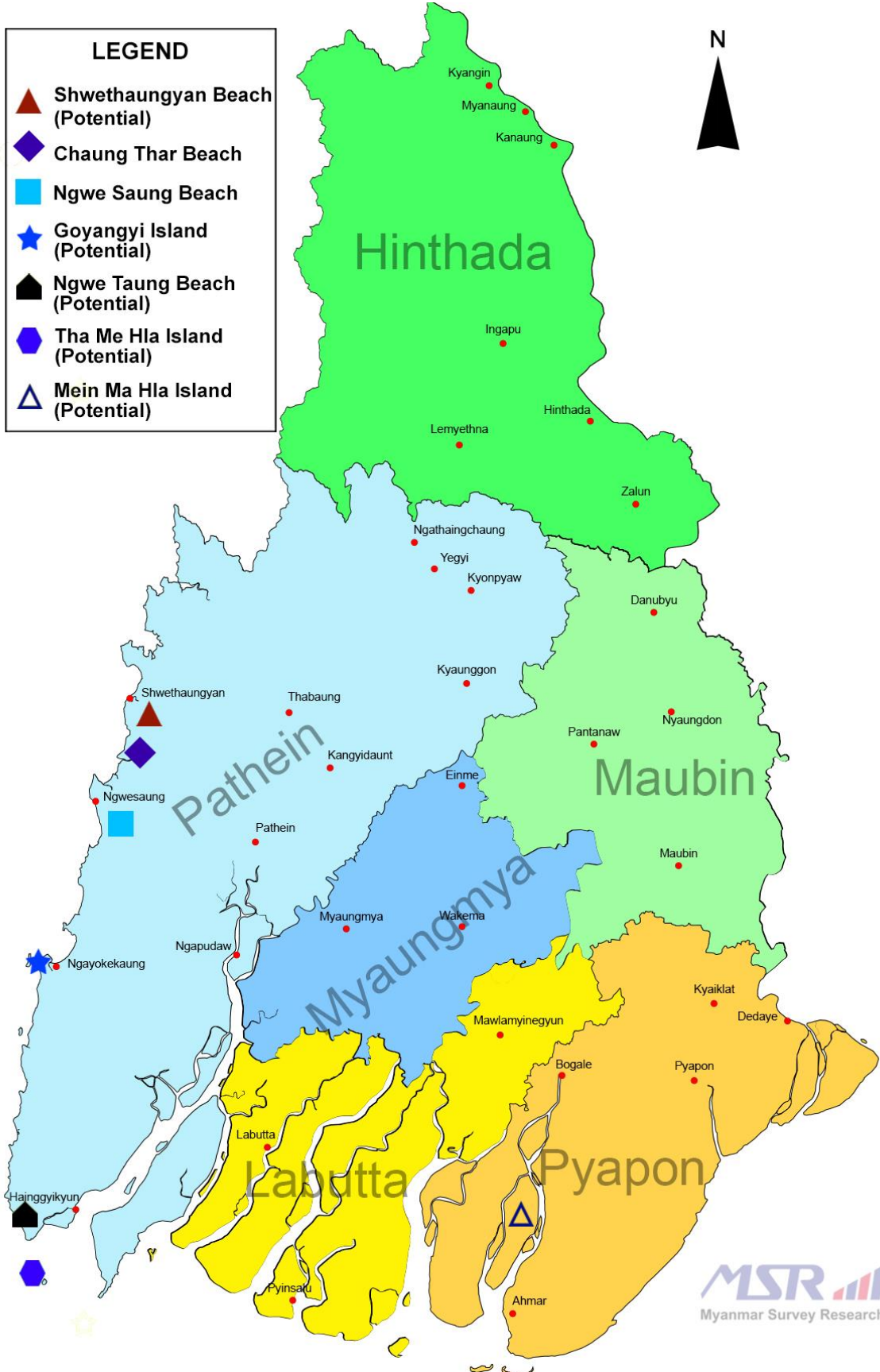
- Water resources need to be conserved.

Opportunities:

- Hotels at beaches can be upgraded to the international level.
- Large prospects for investors in consideration of growing visitors to Myanmar.
- Opportunity to develop more beach resorts
- Opportunity to construct beach resort houses
- Opportunity to develop other types of resorts – river cruising, bird viewing, island resort, etc

HOTELS & TOURISM SECTOR:

MAP 9: Existing businesses and potential places



7

TRANSPORTATION SECTOR

7.1 OVERVIEW OF TRANSPORTATION SECTOR

❖ National level

Public sector

In the public sector, there are three means of transport—road, rail and water. There is no air cargo transport in both public and private sectors.

Volumes of goods transported by road, railway and waterway (2010-11 – 2015-16)¹⁰⁰

Fiscal year	Road	Railway	Waterway
	Metric tons		
2010-11	2,421	3,408	4,786
2011-12	2,453	3,580	3,347
2012-13	2,442	2,839	2,117
2013-14	2,389	2,467	1,898
2014-15	3,039	2,280	1,787
2015-16	1,197	1,983	1,375

Businessmen who transport goods in 2010-11 relied on waterway, and five years later in 2015-16, their reliance on waterway switched to railway.

TABLE 48:

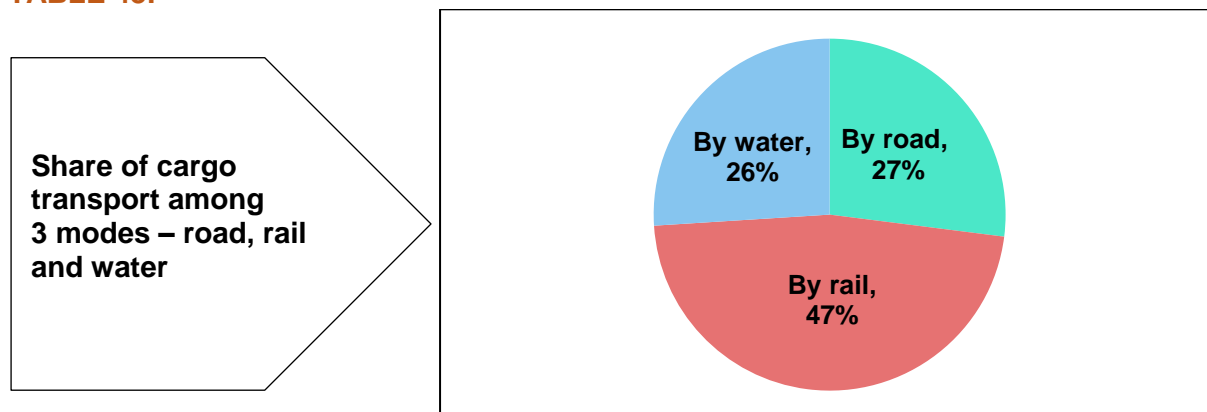


CHART 22:

Private sector¹⁰¹

In the private sector, there is road way or water way only. Rail transportation is controlled by the government. Actually, road transport is more convenient for the businessmen for they can send their goods right to the destination despite higher cargo charges.

Volumes of cargo by two means of private-sector transport in Ayeyarwady Region (As of 2017)

Means of transport	Quantity of cargo transported (Ton)	Share
By road	21,241	82%
By water	4,511	12%
Total ▶	25,750	100%

TABLE 49:

¹⁰⁰ Statistical Yearbook 2017

¹⁰¹ MSR research report, 2016

❖ Regional level

According to interviews with private transport agencies in Patheingyi—cargo and passenger transport by road and by water—the respondents say the quantities of goods for transport have decreased from year to year.

Volumes of goods transported from Patheingyi – by water¹⁰²

Fiscal year	Co-conut	Diesel	Timber	Refined salt	Rough salt	Cement	Rice	Others	Total
	Ton								
2014-15	0	0	4	2,825	676	14,252	475.0	48,813	67,045.0
2015-16	0	0	0	5,080	0	14,380	2,645.0	44,290	66,395.0
2016-17	601	50	776	2,925	0	8,570	5,066.2	39,260	57,248.2
2017-18	242	280	0	1,100	0	6,573	4,322.9	53,163	65,680.9
Total	843	330	780	11,930	676	43,775	12,509.1	185,526	256,369.1

TABLE 50:

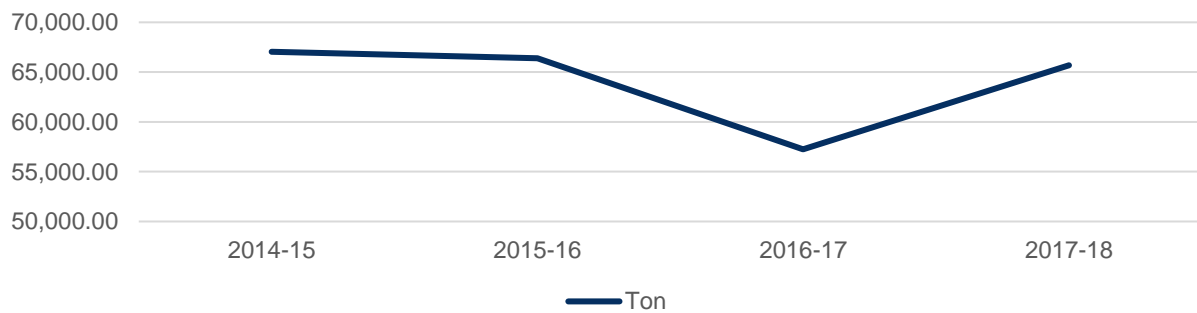


CHART 23: Trend of transport of cargo from Patheingyi by water from fiscal 2014-15 to 2017-18

Volumes of goods transported into Patheingyi – by water¹⁰³

Fiscal year	Paving stone	Rough salt	Diesel	Sand	Cement	Rice	Others	Total
	Ton							
2014-15	0	2,750	4,470	25	17,395	7,245	57,389	89,274
2015-16	0	10,525	4,880	800	53,730	7,843	60,477	138,255
2016-17	0	2,875	2,840	200	72,565	4,600	58,550	141,630
2017-18	1,575	2,000	2,076	195	53,705	1,395	58,495	119,441
Total	1,575	18,150	14,266	1,220	197,395	21,083	234,911	488,600

TABLE 51:

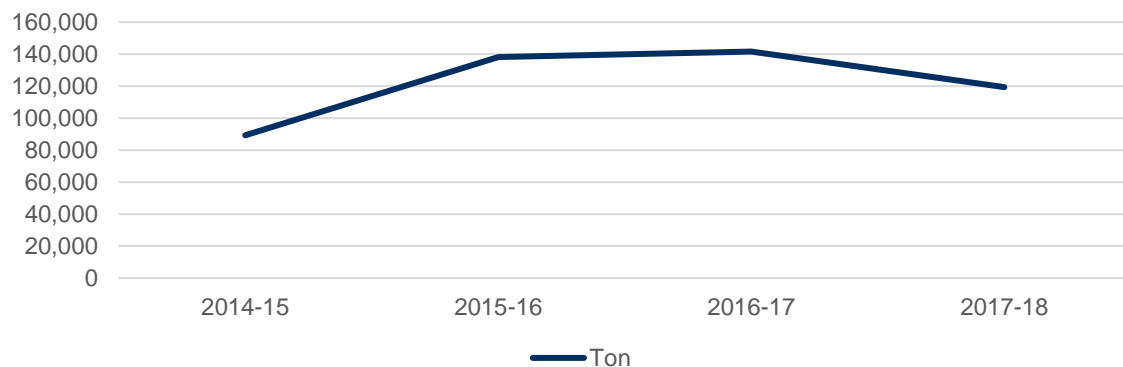


CHART 24: Trend of transport of cargo into Patheingyi by water from fiscal 2014-15 to 2017-18

¹⁰² Myanma Port Authority, Patheingyi

¹⁰³ Ibid

Numbers of motor vehicles in Ayeyarwady Region – June 2018¹⁰⁴

District	Saloon	Light truck (2 ton)	Heavy truck	Bus	Others	Total
Patheingyi	3,917	769	819	339	221	6,065
Myaungmya	242	113	59	189	29	632
Labutta	97	35	16	11	3	162
Hinthada	428	462	572	254	223	1,939
Maubin	898	350	130	95	104	1,577
Pyawbwe	557	211	20	86	50	924
Total	6,139	1,940	1,616	974	630	11,299

TABLE 52:

7.2 ROAD TRANSPORT – PASSENGER

❖ Primary information¹⁰⁵

Kinds of buses:	Kinds	Seats										
	Small	12 – 15										
Medium	25 – 30											
Large	Above 30											
Inspection:	Weekly checks are carried out on buses after renewal of license											
Destinations:	Patheingyi to:	Yangon (Most transported)										
		Mandalay										
		Nay Pyi Taw										
		Mawlamyaing										
		Pyaw										
Transportation within the region												
Passenger transport situation:	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
	Passenger turnout – poor					Passenger turnout – good						

❖ Analysis

- Strengths:**
- If transportation is good, many people will be travelling between Yangon and Patheingyi.
 - Compared to other transport means, road transport saves time.
 - Ayeyarwady Region has large road networks.
- Weaknesses:**
- The quality of buses is not good. (Good-quality buses needed.)
 - Road conditions are not good.
- Threats:**
- Floods when there are heavy downpours.
- Opportunities:**
- Investments should be made in special Express Bus lines.

7.3 ROAD TRANSPORT – CARGO

❖ Primary information¹⁰⁶

No of trucks:	12-wheel	13 trucks (Not allowed to enter downtown area.)
	6-wheel	Mostly used
Weights allowed:	12-wheel	27 tons
	6-wheel	12 tons and 16 tons

¹⁰⁴ Department of Road Transport Administration, Ayeyarwady Region

¹⁰⁵ U Myint Lwin, Chairman, Ayeyarwady Region Committee for Systematic Operation of Private Motor vehicles. 09 2501 23602

¹⁰⁶ U Win Naing Oo, Chairman, Cargo Truck Owners Association. 09 520 1503

Routes:	There is no specific route for cargo transportation.				
Trips:	There is no regular trip fixed.				
No of trucks:	Open season	Pathein-Yangon	40 trucks per day		
	Rainy season	Pathein-Yangon	25 – 30 trucks per day		
Commonly used brand:	Nissan				
Cargo transport destinations:	From Pathein to:	Yangon	Transport potato, onion, etc to Pathein.		
		Mandalay			
		Monywa			
		Pyay			
		Chaung Tha			
		Ngwe Saung			
Trucks from other townships:	There are also trucks leaving other townships: There are rice mills in Kangyidaunt and Darka, rice is transported from there.				
Major cargo:	Rice				
Other cargoes:	Beans and pulses, cashew, fishery produce				
Fitness:	Have the trucks inspected at DRTA for renewal of license				
Transport fee:	Cargo	Unit	Destination	Fee in MMK	Remark
	Seasonal crops	Viss	—	20 - 30	Depend on distance
	Rice	Bag (50 kg)	Yangon	400	
	Rice	Bag (50 kg)	Upper Myanmar	1,300 – 1,700	
Pathein – Yangon = 100 miles; Pathein – Monywa = 400 miles					
Weights of rice carried:	6-wheel (12-foot)		Rice 350 bags	= 17,500 kg	
	6-wheel (14-foot)		Rice 120 – 150 bags	= 6,000 – 7,500 kg	
	6-wheel (20-foot)		Rice 120 – 150 bags	= 6,000 – 7,500 kg	
Ratio between trucks and cargoes:			2:1		

❖ Analysis

Strengths:

- Transport of cargo by road saves time (despite price higher than water and rail transports)
- Cargo can be transported right to the destination.
- Roads lead to all parts of the country.

Weaknesses:

- Volume of cargoes is less than the capacity of trucks
- Road conditions are not good (Cars are damaged)
- The quality of trucks is not good.
- Because the business is not regular, it is difficult to look for drivers and helpers.

Threats:

- Cargo terminals/yards do not exist in other towns (except Pathein)
- The volume of cargo is limited during the rainy season.

Opportunities:

- Opportunity to trade in trucks and parts of all kinds
- Sales of trucks in installments
- Opportunity to operate cargo terminals
- Opportunity to operate storage and cargo transport services

7.4 RAIL TRANSPORT

❖ Primary information¹⁰⁷

No of locomotives:	10 (Kind: Rail bus engine)	2 (to be repaired)	2 (reserved)	6 (in operation)		
No of trains:	Train No	Kind of train	Kind of coach			
			Pas-senger	Cargo	Brake	Total
	181	Express	10	-	-	10
	182					
	185	Postal	4	3	1	8
	186					
	187	—	3	2	1	6
	188					
189						
190						
No of cargo coaches:	14					
Maintenance:	Locomotives have to be sent to Ywahtaung Workshop in Sagaing after 12,000 hours' running for medium-scale maintenance.					
	Locomotives have to be sent to Ywahtaung Workshop in Sagaing after 24,000 hours' running for large-scale maintenance.					
	After large-scale maintenance, the counting of hours can be started from 0.					
No of stations:	34 stations – functioning	Total: 42				
	8 stations – defunct					
No of passengers:	Average 3,400 in Ayeyarwaddy					
Routes:	Pathein – Kyangin					
	Hinthada – Kyangin					
	Hinthada - Pathein					
Major cargo:	Salt (Fee: MMK 30 per ton per mile)					
Storage facility:	25 feet x 40 feet (for keeping parcels)					
Note:	Both the transport of salt and parcels has been declining.					

❖ Analysis

- Strengths:**
- Compared to road transport, its fee is cheaper.
 - Compared to road transport, more quantities of cargo can be loaded.
- Weaknesses:**
- The rail transport is quicker than road transport.
 - Rail tracks are not good.
 - Electricity is not sufficient
 - Lack of rail tracks that connect major cities
 - There is a rail track between Yangon and Pathein, but it cannot be used because of the quality of rails.
 - Rail stations need to be upgraded.
 - The quality of locomotives is poor.
- Threats:**
- Floods can take place during the rainy season
 - If road transportation has improved, less people will use rail transport.
- Opportunities:**
- Opportunity to pave new rail roads
 - Opportunity to operate rail lines

¹⁰⁷ U Myint Thaug, Region Mechanical Engineer, Office of the Chief Engineer (Mechanical). 09 799107127

7.5 BOAT TRANSPORT – PASSENGER/CARGO

❖ Primary information¹⁰⁸

Fitness:	Boats have to be docked once a year (for renewal of license)		
No of passengers transported:	2,500 per day (Thabaung – Pathein) – by medium motorboats		
No of motorboats:	20		
Ratio between passengers and motorboats:	25:30		
Business situation:	Passenger transport business is declining because of the following reasons:		
	-- No of motorboats is more than the number of passengers		
	-- No of motorboats has become larger.		
	-- As a result, the number of trips has declined from once a month to 3 times a year.		
	Cargo transport business is declining because of the following reasons:		
	-- Commodities trading has become less.		
Destinations (passengers and cargo)	From Pathein to:	Pakokku	Faraway townships
		Mandalay	
		Magwe	
		Chauk	
	From Pathein to:	Ngapudaw	Nearby townships and villages
		Haingyi	
Hnget Pauk			
Pho Shwe Hlaw			
Pathein-Yangon line:	This line has been dissolved because it takes about 14 – 15 hours to cruise from Pathein to Yangon and the number of passengers has become smaller. Currently, the following lines are running: -- Myaungmya – Yangon -- Pyapon – Yangon		
Ratio between cargo and motorboats:	25:30		
Operating cost:	MMK 4 to 5 million per motorboat per month		
Coastal cargo transport:	Pathein – Yangon		
	Pathein – Mawlamyaing		
	Pathein – Myeik (cement) (10 trips per month)		
	Pathein – Myeik (Fertilizer and diesel) 1 trip in two months)		

❖ Analysis

Strengths:

- Fees are cheaper than road and rail transport.
- A barge can carry up to 1,000 tons.
- Passenger and cargo can be transported from Pathein to towns and cities in Upper Myanmar.

Weaknesses:

- Ayeyarwady Region is contiguous to sea.
- Motorboats and ships (larger boats) are not so good in quality.
- Having to pay mooring fee to ports
- Vessel with deep draught cannot berth at Pathein Port (There is a shoal near Pathein)

Threats:

- There is no specific cargo-handling port.
- Rivers have become shallow.

¹⁰⁸ U Taing Aung, Chairman, Ayeyarwady Region Committee for Systematic Operation of Vessels

- Opportunities:**
- If road transport has become better, use of water way will become less.
 - Opportunity to operate deep sea port
 - Opportunity to operate passenger transport
 - Opportunity to operate joy-ride cruises
 - Opportunity to operate cargo transport

7.6 PURCHASE DEPOT

❖ Basic information

Purchase depots are also known as “brokerage houses”. Actually, they are the private purchase centres, especially of agricultural products.

In Ayeyarwady Region, there are no specific storage or warehouse services. Instead, there are only purchase depots, which serve as large dealers. The depots buy products and transport to large cities like Yangon and Mandalay. Some product items may be exported via Yangon purchase depots, which mainly exist in Bayint Naung Wholesale Market, or transport to border trade zones, especially Muse trade zone, from which the products are exported to China. Warehouse services exist in border areas where both domestic merchants and foreign merchants (eg Chinese) keep their products for a certain period.

❖ Primary information

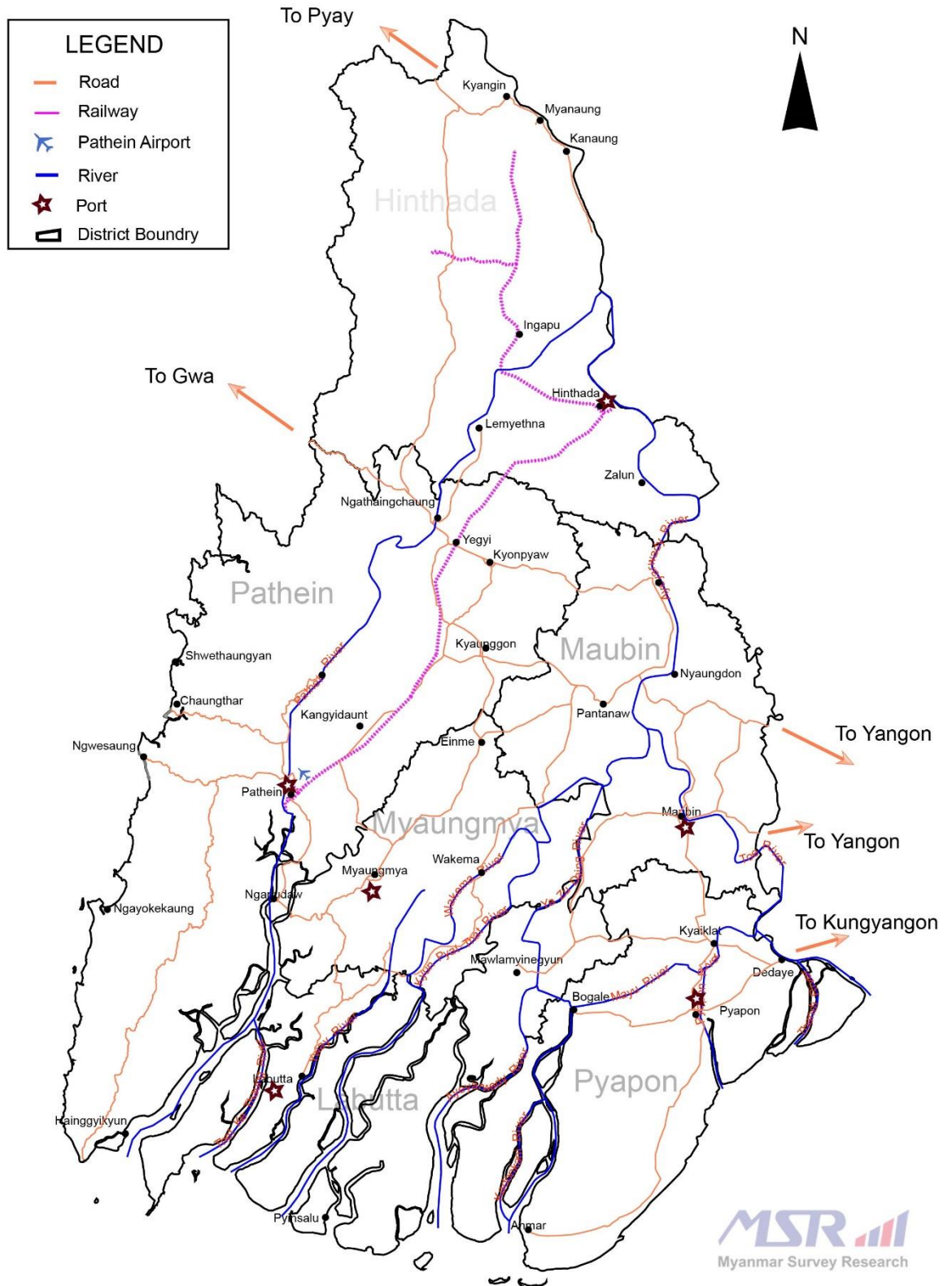
Black gram purchase depot¹⁰⁹

Purchased product:	Matpe (black gram)
Storage space:	100 feet x 140 feet
Capacity:	80,000 (30-viss/50-kg) bags
Townships from which the product comes:	The black gram is purchased from dealers and small purchase depots in Ingapu, Kyangin, Myanaung, Lemyethna, and Zalun Townships.
Buyer:	The purchased product is re-sold to Asia Trade House Co Ltd.
Pesticide:	Pesticide from India is used. (No sideeffects)
Storage period:	The product can be stored for 2 years. If black gram is stored for more than 2 years, its quality has declined.
Employees:	7 including warehouse manager, and watchman
Packaging:	50-kg PPP bags

¹⁰⁹ U Ohn Than, owner, matpe (black gram) purchase depot, Tayoke Kyaung Street, U-yin North Ward, Hinthada Township. 09 4285 80589

TRANSPORTATION SECTOR:

MAP 10: Existing businesses and potential places



8

HUMAN RESOURCES SECTOR

8.1 OVERVIEW OF HUMAN RESOURCES SECTOR

Universities and colleges in the Higher Education level, schools in the Basic Education level and vocational and technical schools are centres that turn out human resources for the industries in the region.

Academic structure of Basic Education system¹¹⁰

Level	No of years	Age	Grade
Primary	5	5+ to 9+	1 to 5
Secondary	Lower	10+ to 13+	6 to 9
	Upper	14+ to 15+	10 to 11
Total No of years ▶	11	5+ to 15+	1 to 11

TABLE 53:

Academic structure of Higher Education system

In higher education system, the numbers of years for acquiring a degree vary, depending on the specialization eg law, medicine, technology, etc. For general majors like physics, chemistry, mathematics, etc, the period for completion of the bachelor's degree course is 4 years.

Human resource map

Education level	Work taken up	Place of work
Illiterate	Farm work Home shop/industry Work for others (manual)	In their own region or migrate to other States/Regions
Failed or did not pass University Entrance Exam	Low-level employee (public or private)	In their own region or migrate to other States/Regions
Technical and Vocational School graduates	Own business Work in related industry (public or private)	In their own region or migrate to other States/Regions
High school graduates	Own business Clerical work (private or public)	In their own region or migrate to other States/Regions
University graduates (Domestic degree)	Corporate work (Engineer, doctor, teacher, computer technician, etc) Government service	In their own region or migrate to cities—Yangon, Mandalay, etc
University graduates (Foreign degree)	Work in other countries Work in higher position in Myanmar corporate world	In their own country or other countries

CHART 25:

Performance of Ayeyarwady Region Government (ARG)¹¹¹

During the two-year period—2017 and 2018—the following activities were carried out the education sector:

2017 and 2018

Action	Unit	Quantity	Place
■ 2017			
Upgrading the level of schools	Nos	361	
New university entrance examination centres	Nos	26	

¹¹⁰ Department of Educational Planning and Training, Ministry of Education

¹¹¹ Ayeyarwaddy Region Government's One-Year Performance (2018),

Appointment of primary school teachers	Nos	3,300	
Appointment of education-related staff members	Nos	400	
■ 2018			
Upgrading the level of Basic Education schools	Number	981	
Building further school libraries	Number	50	

The ARG also coordinated with government departments/enterprises to fulfil requirements in 3 universities, 3 computer universities, 3 education colleges and vocational and technical schools in the region.

8.2 LABOUR FORCES

❖ Basic information

The following table shows the participation rate in the labour force by age groups.

Labour force participation rate¹¹²

Age group	Labour force participation rate	Unemployment rate
10 – 14	—	—
15 – 19	47.4%	1.6%
20 – 24	73.4%	1.6%
25 – 29	77.0%	1.2%
30 – 34	76.7%	0.8%
35 – 39	79.1%	0.4%
40 – 44	76.7%	0.2%
45 – 49	75.8%	0.3%
50 – 54	68.0%	0.2%
55 – 59	60.1%	0.4%
60 – 64	41.1%	0.6%
65 – 69	29.0%	0.3%
70 – 74	14.6%	0.0%
75 – 79	10.5%	0.0%
80 – 84	2.8%	0.0%
85 – 89	2.8%	0.0%
90+	0.9%	0.0%
15+	64.7%	0.8%
10+	—	
Age 15 – 17	38.3%	1.5%
Age 15 – 64	69.0%	0.8%

TABLE 54:

❖ Primary information

Directorate of Labour¹¹³

The Directorate of Labour, under the Ministry of Labour, Immigration and Population, is a government agency which serves as a job-seeking body. It registers persons who are unemployed, and send them to the government departments and enterprises and private enterprises where there are vacancies or which need new recruitment.

No of persons registered:	39,528 (There is not categorization by education/skill.)
No of persons registered:	11,678 (2018 April to July)
Recruitment (2017-18):	Government jobs: 827
	Private jobs: 3,505

¹¹² Statistical Yearbook 2016, CSO, Ministry of Planning and Finance (Primary source: Myanmar Labour Force, Child Labour and School-to-Work Transition Survey, 2015)

¹¹³ Daw Htay Htay Myint, Deputy Director, Directorate of Labour, Ayeyarwady Region. 042 25652

Daily wage:	Minimum: MMK 4,800 per day (in enterprises with 10 workers and above) Maximum: No limitation
Labour-intensive industries:	Agriculture and garment factories
Comments:	Migration (to cities and abroad) occurs because jobs cannot be provided in the region.

Migration of labour largely takes place in Ayeyarwady Region—in various levels: skilled labour, unskilled labour and educated levels. Because of the lack of proper industries in Ayeyarwady Region, especially young persons migrated to:

- 1 To cities such as Yangon and Mandalay.
- 2 To other States and Regions – for example, to Yangon Region where they work on farms as farm laourers.
- 3 To foreign countries such as Malaysia and Thailand and for families affordable, to Japan and Korea.

8.3 VOCATIONAL INSTITUTIONS

❖ Basic information¹¹⁴

The following table shows the vocational institutions at university, college and school levels in Ayeyarwady Region:

Vocational institutions in Ayeyarwady Region

Sr	Institution	Pathein	Hinthada	Maubin	Wakema	Kyaiklat	Labutta	Myaungmya	Total
1	Technological University	1	1	1					3
2	Government Technical Institute (GTI)				1	1	1		3
3	Technical High School	1	1	1					3
4	Agricultural Academy							1	1
5	Technical Training School						1		1
6	Sewing Training School	1							1
7	Domestic Science School	1							1
8	Workers Training School	1							1
	Total ▶	5	2	2	1	1	2	1	14

TABLE 55:

	Vocational institution	Ministry concerned
1	Technological University	Ministry of Education
2	Government Technical Institute (GTI)	Ministry of Education
3	Technical High School	Ministry of Education
4	Agricultural Academy	Ministry of Agriculture, Livestock and Irrigation
5	Technical Training School	Ministry of Border Affairs
6	Sewing Training School	Ministry of Border Affairs
7	Domestic Science School	Ministry of Social Welfare, Relief and Resettlement
8	Workers Training School	Ministry of Labour, Immigration and Population

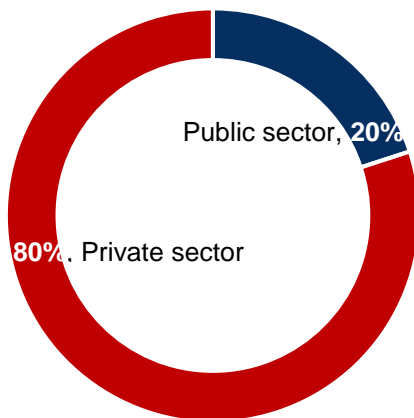
TABLE 56:

¹¹⁴ Dr Kyaw Thura, Rector, Pathein Technical University. 09 520 2960

❖ Primary information¹¹⁵

Specializations:	(1) Civil (2) EC (3) EP (4) Mech (5) IT (6) MC		
Students who have graduated:	Graduates (2000 – 2017)		
	Institution	Degree	Graduates
	Patheingyi Technological University	AGTI	2,835
		B Tech	2,594
		B E	1,799
Total ▶		7,274	
No of students pursuing in the current academic year:	Sr	Major	No of students
	1	Civil engineering	383
	2	Electronic communication	258
	3	Electric power	253
	4	Mechanical engineering	320
	5	Information Technology	34
	6	Mechatronics	42
Total ▶		1,290	
The most employed:	Graduates specializing in Civil Engineering		

Employment in government and private sectors



The number of graduate students who joined the departments and enterprises under the government accounts for 20% and those who were recruited by the private sector—companies—constitute 80%.

Comments:	-- In AR, finished products cannot be produced.
	-- Electricity is needed.
	-- SME should be upgraded.
	-- People follow the profit-oriented businesses, traditional business will disappear.

❖ Analysis

Strengths:

- The number of students who are likely to attend vocational schools is large.

Weaknesses:

- Technology is low.
- Experience needed to catch up with modern technology
- Teaching aids and equipment for practical lessons are needed.
- More basic vocational training schools need to be extensively opened.

Threats:

- If Myanmar educated persons are not qualified enough to work in businesses, foreign labour will come in.

Opportunities:

- If businesses in various industries grow, educated persons will become useful.

¹¹⁵ Ibid

9

TELECOMMUNICATIONS SECTOR

9.1 OVERVIEW OF TELECOMMUNICATIONS SECTOR

Performance of Ayeyarwady Region Government (ARG)¹¹⁶

Owing to the cooperation between ARG and Myanma Post and Telecommunications, the number of mobile phone users has increased, the current rate of mobile phone infiltration has increased from 65% to 80% (80 per 100 persons).

Action	Unit	Quantity	Place
2017			
Construction of mobile phone stations	Nos	274	In all six districts
2018			
Construction of mobile phone stations	Nos	579	
Setting up of auto-exchanges	Nos	39	

Current penetration of mobile phones in Ayeyarwady Region:

80%

Aimed at advancing international communication, under-water cable installation has been carried out in Ngwe Saung in Patheingyi city, and services are being provided. Telecommunication service has now been extended to far-flung places like Pyinsalu, Nga-yoke-kaung, Goringyi Island, Shwe Thaugyan, Bawmi, etc in the region.

MPT has opened 10 “own-brand shops” in Ayeyarwady Region.

9.2 TELECOMMUNICATION SERVICES

❖ Primary information

Myanma Posts and Telecommunications (MPT)¹¹⁷

No of line phones (AR):	23,692	
No of mobile phones (AR):	1,769,449	
Operators:	MPT	Telenor
	CDMA 450	Ooredoo
	CDMA 800	Mytel
No of towers:	617 (As of July 31, 2018)	
Penetration rate:	80% (of MPT)	
Rates:	Kind	Per-minute (MMK)
	Auto phone (downtown)	15
	Auto phone (trunk calls)	25
	CDMA 450 (downtown and trunk calls)	50
	CDMA 800 (downtown and trunk calls)	50
	Swe Thahar member	23
	‘Cial pyaw (Special)	15
Shwe Sagar	10	
Connectivity:	Good in downtown area Internet line is not steady.	
Internet service providers:	Unilink (5 more companies to operate)	

¹¹⁶ Ayeyarwaddy Region Government’s One-Year Performance (2018),

¹¹⁷ Daw Khin Myint Kyi, Secretary, MPT. 09 4230 00722

❖ Analysis

Strengths:

- Network coverage has reached 80%.
- Nearly every household can now use mobile phone.

Weaknesses:

- The number of communication towers is still small.
- Large numbers of rivers and creeks make it difficult to put up towers.
- Insufficient electricity makes it difficult in using communication equipment.

Threats:

- Towers may collapse and fibre networks can break apart in extreme weather conditions.

Opportunities:

- Opportunity to operate e-commerce
- Opportunity to provide business information through SMS services
- Opportunity to provide internet services

10

ENERGY SECTOR

10.1 OVERVIEW OF ENERGY SECTOR

❖ National level

Petroleum products

Under the Ministry of Electricity and Energy (MOEE), Myanma Oil and Gas Enterprise (MOGE) explores and extracts oil and gas, and Myanma Petrochemical Enterprise (MPE) refines them into finished products. Myanma Petroleum Product Enterprise (MPPE) distributes the finished products. Oil and Gas Planning Department (OGDP) is responsible for planning.

Department/enterprises regarding oil and gas (MOEE)



CHART 26: Energy-related government departments/enterprises

Under the current situation, the MOEE facilities in Myanmar manufactures limited petroleum products. There are three facilities under MOEE—Man Thanbayarkan Refinery, Chauk Refinery and Thanlyin Refinery. Man Thanbayarkan Refinery still manufactures petroleum products in limited quantities and it is learnt that it is being upgraded with the assistance of Indian technicians. The remaining two refineries are now defunct.

MPE plans to build first modern oil refinery in Myanmar¹¹⁸

Location:	Near Man Thabayakan Oil Refinery (Magwe Region)
Type of operation:	PPP
Intended capacity	2 million tons per year
Crude oil:	From South East Asia Crude Oil Pipeline Co
Implementation time:	3 to 5 years
Current status:	ESIA being conducted
Note:	After the results of the ESI Assessments are approved, tender process with international companies will commence.

As the international fuel prices are increasing and Myanmar kyat value is decreasing, MPE, with the aim of controlling the fuel prices, issued an announcement, dated June 28, 2018, which mentions that MPE will sell petrol at reasonable prices through eight State-owned fuel stations every day for motor vehicles and motorcycles, commencing from July 1, 2018. The eight stations are NPT (0354), Yangon (0275, 0254, 0247), Mandalay (0611, 0614), Bago (0192) and Hin Ngoke Pin (Taungoo) (0160). For the first time in April 2018, MPE distributed 33 mmgals of petrol to MPTA (Myanmar Petroleum Product Trading Association), which re-distributes it to the fuel stations. This is the second time that the same arrangement is made.¹¹⁹

Electricity

Government plan for fulfilling electricity need

According to the current government plan, 493 MW will be generated from the five power plants under implementation and 3,106 MW from the power plants scheduled to be implemented from 2020 to 2022.

¹¹⁸ Myanmar Times (ENG), August 30, 2018 (quoting Daw Yin Yin Aung, Deputy Director, MPE)

¹¹⁹ Ministry of Electricity and Energy—<http://www.moee.gov.mm/en/ignite/contentView/649>

Department/enterprises regarding electricity (MOEE)

Under the Ministry of Electricity and Energy, there are 7 departments/enterprises related to electricity.

- 1 DEPP - Dept of Electric Power and Planning
- 2 DPTSC - Dept of Electric Power Transmission and System Control
- 3 DHPI - Dept of Hydro Power Implementation
- 4 EPGE - Electric Power Generation Enterprise
- 5 ESE - Electricity Supply Enterprise
- 6 YESC - Yangon Electricity Supply Corporation
- 7 MESC - Yangon Electricity Supply Corporation

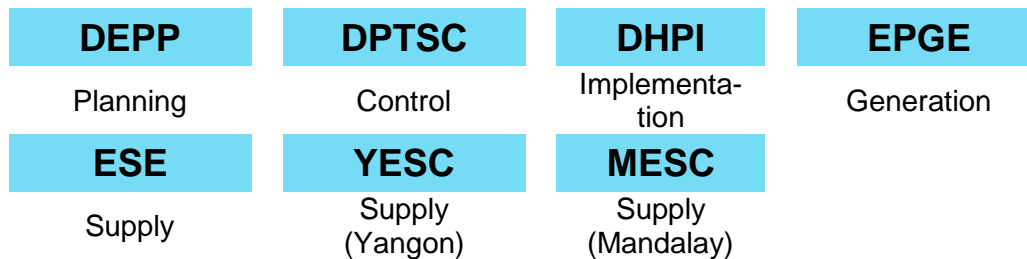


CHART 27: Electricity-related government departments/enterprises

Total scheduled additional power generation by 2022 (National level)

	Megawatts	2022 target
Power plants under construction	493	
Power plants planned in 2020-2022	3,106	
Estimated total output in 2022 ►	3,599	3,600

TABLE 57:

The power consumption rate of the country has surged by 16 percent from fiscal 2011 to fiscal 2017, and now the power consumption is approximately 2,444.3 MW per day. The Ministry of Electricity and Energy is planning to boost electrical generation up to around 3,600 MW by 2021.¹²⁰ According to Union Minister for Electricity and Energy U Pe Zin Tun, it was estimated that Myanmar needed 300 MW more in the summer of 2017.¹²¹

Power projects under implementation (National level)

	Megawatts	Remark
Yesagyo hydropower project	4	
Minbu solar power plant	40	
Thaketa gas power plant	106	
Myingyan gas power plant	225	
Thaton gas power plant	118	Funded by WB
Total ►	493	

TABLE 58:

Future power generation plan (scheduled for 2020 – 2022)

	Megawatts	Remark
Upper Kyaitaung hydropower project	51	
Yeywar hydropower project	280	

¹²⁰ Myanmar Business Today, January 22, 2018

¹²¹ Myanmar Business Today, September 27, 2016

Kyaukphyu gas power plant	135	
Alone gas power plant (extended)	365	
Pahtolone gas power plant	12	
Thilawa gas power plant	108	
Meelaung gas power plant	1,390	Ayeyarwaddy Region
Kanpauk plant (Total and Siemens)	615	
Ywama gas power plant	150	Loan from WB
Total ▶	3,106	

TABLE 59:

The electricity from Meelaung gas power plant (Patheingyi District) (1,390 MW) will go into the national grid. The share for Ayeyarwady Region from the national grid is 30 MW.

Per-capita consumption of electricity

According to the World Bank data, per-capita consumption in Myanmar in 2014 was 216.78 kWh.¹²² The rate will be gradually increasing depending on the population growth and the changes in the living style.

Myanmar (Burma) / Electricity consumption per capita

216.78 kWh (2014)

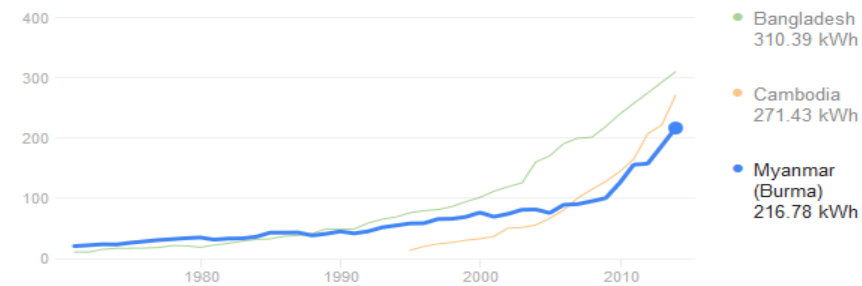


CHART 28:

❖ Regional level

Currently, the total supply of electricity in Ayeyarwady Region—including residential and industrial sectors—is 130 MW, of which industrial and commercial use accounts for 35% and residential use, 65%.

Current consumption of electricity in Ayeyarwady Region

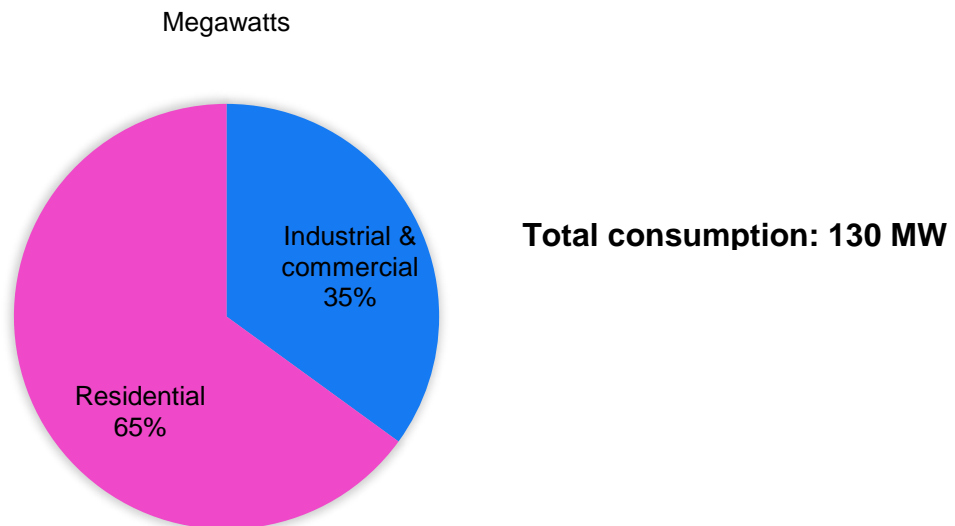


CHART 29:

¹²² <https://data.worldbank.org/indicator/EG.USE.ELEC.KH.PC>

Electricity is supplied directly from Hlaing Tharyar substation to 3 (230 KVA each) substations in Ayeyarwaddy Region—Kyaiklat, Athoke, and Pathein—and from the 3 substations, electricity is distributed to small substations. (See detailed list of substations in Ayeyarwaddy Region in Appendix: 17.5)

Current and future power supply (Ayeyarwaddy Region)

Current power supply	MW	Future power supply	MW
National grid	120	National grid (2020-2022)	30
Myanaung Natural Gas Plant	10	Current power consumption	130
Total ▶	130	Total ▶	160

TABLE 60:

Performance of Ayeyarwaddy Region Government (ARG)¹²³

Ayeyarwaddy Region Government made efforts to supply more electricity to the residents in the region:

Action	Unit	Quantity	Place
■ 2017			
Lighting created by solar power for villages	Nos	465	150 households per village
One-household unit solar power generation	Villages	Nos	> 460
	Schools	Nos	340
	Rural health centres	Nos	78
	Religious schools	Nos	401
Installation of power lines	66 kV	Mile	17
	11 kV	Mile	70
	0.4 kV	Mile	20
■ 2018			
Replacement and new erection of lamp posts	Nos	9,173	
Installation of power lines	Mile	239.575	
Opening sub-station	MVA	10	Mayanchaung, Pathein
Installation of power lines (33 kVA)	Mile	6	Myetto, Pathein
Installation of solar power lamp posts	Village	833	
Beneficiaries			
Number of new users of electricity	Nos	241,183	
Villages to which lighting was extended	Nos	117	

In 2017, sub-stations in the region were upgraded from 66, 33, and 11 kV to 20 MVA.

Commercially viable gas tested at Appraisal Well Shwe Yi Tun 2¹²⁴			
Well name:	Appraisal Well Shwe Yi Tun 2		
Rig name:	Dhirubhai Deep Water KG2 (DDKG2) offshore drilling rig		
Location:	Offshore Block A: 100 km northwest of Pathein		
Shareholding companies:	1	MPRL E&P Pte Ltd	20%
	2	Woodside (Myanmar) Pte Ltd (Australia)	40%
	3	France Total E&P Myanmar Co Ltd	40%
Drilling launched:	July 20, 2018		
Target depth reached:	4,850 meters (15,912 feet)		
Test:	Commercially viable gas tested at a depth of 4,373 feet (in a 40-meter-thick sandbar)		
Note:	Work to proceed till production stage		

TABLE 61:

¹²³ Ayeyarwaddy Region Government's One-Year Performance (2018),

¹²⁴ Myanmar News Agency

10.2 PETROLEUM PRODUCTS

❖ Primary information¹²⁵

Government filling stations:	1 each in Pathein, Hinthada and Maubin		
Private filling stations:	Sales per day		
	MS	598 gallons	Motor spirit
	92	16,859 gallons	Most sold
	95	2,187 gallons	
	HSD	11,916 gallons	High speed diesel
	HSD (Pre)	6,613 gallons	
Supply and demand:	Balanced		
Prices (As of Aug 7,2018):		Price per gallon	Price per litre
	Petrol	MMK 4,091	MMK 1,081
	92 Ron Octane	MMK 4,205	MMK 1,111
	95 Ron Octane	MMK 4,432	MMK 1,171
	Diesel	MMK 4,273	MMK 1,129
	Premier diesel	MMK 4,364	MMK 1,153
	1 gallon = 3.78541 litres		
Most purchasing customers:	1	Toyota	Motorcars
	2	Kenbo	Motorcycles
	3	Honda	Motorboats
The most sold fuel:	92 Ron Octane		

❖ Analysis

- Strengths:**
- Untapped offshore natural gas deposits
- Weaknesses:**
- Low technology in refining crude oil
 - Natural gas pipelines are not good.
 - Technology of compressor stations has to be upgraded.
- Threats:**
- Environmental impacts
- Opportunities:**
- Opportunity to operate crude oil and natural gas extraction
 - Opportunity to operate petroleum products storage service

10.3 ELECTRICITY

❖ Primary information

Electricity Supply Enterprise (ESE)¹²⁶

Percentage of households having access to electricity	16.63%		
Electricity currently supplied:	132.6 MWh		
Future power plants:	Mee Laung Chaing Power Plant (LNG)	–	1,390 MWh
	Rice Husk Power Plant (Myaungmya)	–	1.8 MWh
	Heavy fuel oil power plant (MOU)	–	30 MWh
	Arrangements are being made to supply power to 4 garment factories in Maubin Industrial Zone.		
Power for Industrial Zone:	Current supply:	4,294	MWh
	Future need:	55.3	MWh
	Need of Chaung Tha hotels and residences:	20	MWh
	Need of Ngwe Saung hotels and residences:	30	MWh
Villages:	Villages without electricity:	11,052	
	Villages with electricity:	12,014	
	There are villages which apply other methods to acquire electricity.		

¹²⁵ U Myint Zaw, Ayeyarwady Region Sales Officer, Myanmar Petroleum Products Enterprise. 09 2520 04447

¹²⁶ U S' Win Naing, Chief Engineer (Ayeyarwady Region), Electricity Supply Enterprise (Ayeyarwady Region) 09 4285 86061

❖ Analysis

Strengths:

- Demand will grow with the growth in population and development in industries.
- Water, solar and biomass resources are rich for electricity generation

Weaknesses:

- Because of rivers and creeks, it is difficult to put up electric towers.
- There is no underground power line system.
- There is no commercial-scale electricity generation in the region.
- Sufficient electricity cannot be supplied from the national grid.

Threats:

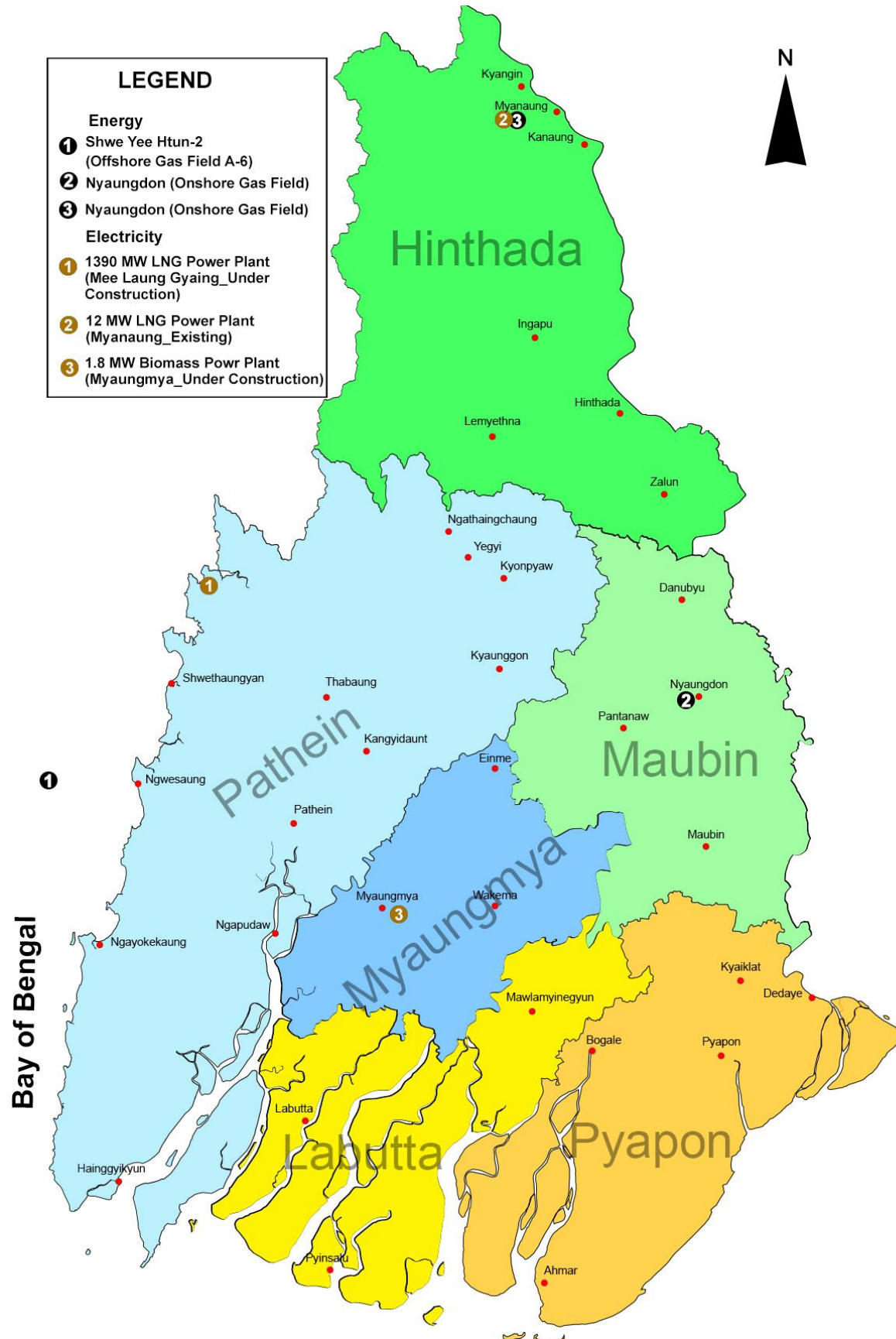
- Extreme weather conditions

Opportunities:

- **Hydropower:** Ayeyarwady Region is rich in rivers and rivulets.
- **Biomass:** Electricity can be generated from biomass.

ENERGY SECTOR:

MAP 11: Existing businesses and potential places



11 UNTAPPED OPPORTUNITIES

11.1 HEALTH CARE

❖ Basic information

Although there are government hospitals in the townships and around 10 private hospitals in Ayeyarwady Region, patients with serious diseases take treatment by travelling to Yangon. Despite the Ayeyarwady Region Government's efforts to assign more and more doctors and nurses, the number of specialist surgeons is limited. It would be appropriate to establish specialist hospitals in large cities.

Currently, there are hospitals in townships and station hospitals and rural health care centres in villages.

Healthcare facilities in Ayeyarwady Region¹²⁷

District	Healthcare facilities						
	Hospital					Station Hospital	RHC
No of beds ▶	200	100	50	25	16		
Region Hospital	1						
Patheingyi District				6		21	1
Hinthada District	1		1	4		19	1
Myaungmya District	1	1	1	3		5	
Maubin District	1		1	2		10	1
Pyawon District	1	1	2			13	
Labutta		1				5	
Total ▶	5	3	5	15		73	3

RHC: Rural Healthcare Centre

Healthcare facilities in Ayeyarwady Region¹²⁸

District	Healthcare facilities						
	School health care centre	Maternal and child care centre	Village health care centre	Village health care centre (Branch)	Centre for combat against venereal disease	Centre for combating leprosy	Tuberculosis centre
Patheingyi District	3	12	66	340	1	0	3
Hinthada District	1	10	43	219	1	1	4
Myaungmya District	2	5	27	148	0	2	3
Maubin District	1	6	36	197	1	2	0
Pyawon District	2	6	40	210	0	1	0
Labutta	0	3	29	150	0	1	2
Total ▶	9	42	241	1,264	3	7	12

TABLE 62:

¹²⁷ U Khin Maung Hlating, Director, Head of Ayeyarwady Region Consumers Affairs Department, Ministry of Commerce

¹²⁸ Ibid

Performance of Ayeyarwady Region Government (ARG)¹²⁹

Ayeyarwady Region Government worked for the improvement of health care sector in the region by involving itself in the following activities:

Action	Unit	Quantity	Place
■ 2017			
Appointments of doctors and nurses	Nos	606	District Health Departments, Station Hospitals and Rural Health Care Centres
<ul style="list-style-type: none"> During this year, medical teams led by specialists made 30 field trips and gave treatment to 25,000 patients. The ARG with the outside donors provided MMK 1,780 million for the purchase of medical supplies and also supported hospitals in the region with MMK 4,400 million. 			

■ 2018			
Appointment of new health-care staff	Doctors	Nos	92
	Nurses	Nos	219
	Midwives	Nos	619
	Health care supervisor	Nos	400
	Other health-related staff	Nos	630
Setting up a funds for medicines		—	—
Construction of rural health care centres		Nos	63
Digging tube wells for clean drinking water		Nos	72
Digging drinking water ponds		Nos	79
Installation of pumps		Nos	80

❖ Primary information

Health care in Ayeyarwady Region¹³⁰

Training:	Specialists visit ARMA once a week (on every Wednesday) and gave talks to enhance the knowledge of the practitioners.
Most inflicting diseases:	High blood pressure, diabetes, mental disease, gastritis, rheumatism, influenza
Availability of medicines:	All required medicines can be purchased from medical supplies companies or retail shops.
Requirements to set up a private hospital:	1 Land 2 Specialist 3 Large investment
Comments:	It would be better to open specialist hospitals. Currently, patients have to go to Yangon.

Private hospitals in Ayeyarwady Region¹³¹

Sr	Township	No of hospitals	Equipment	No of beds			
				H1	H2	H3	Total
1	Pyapon	2	Normal lab, normal X-ray	16	16	—	32
2	Myaungmya	2	Normal lab, normal X-ray	16	16	—	32
3	Hinthada	2	Normal lab, special X-ray	50	50	—	100
4	Patheingyi	2	Special lab, special X-ray	25	50	—	75
5	Maubin	1	Normal lab, normal X-ray	16	—	—	16
6	Wakema	1	Eye Hospital	16	—	—	16
Total ▶							271

There is one more hospital that have submitted application for approval.

TABLE 63:

¹²⁹ Ayeyarwaddy Region Government's One-Year Performance (2018),

¹³⁰ Dr Min Thuang, Joint Secretary, Patheingyi Medical Association. 09 520 2562

¹³¹ -----, Ayeyarwady Region Department of Health

(See the detailed list of private hospitals in Ayeyarwady Region in Appendix: 17.6.)

❖ Analysis

- Strengths:**
 - The region is populous.
 - The number of middle-class family is fairly large.
- Weaknesses:**
 - Patients go to Yangon for serious diseases because of the better medical equipment and services.
 - Inadequacy of electricity
 - For residents of villages, the transportation is difficult.
- Threats:**
 - Most families will not be able to afford costs in taking treatment at specialist hospitals
 - Criteria for hospital land are different from other constructions.
- Opportunities:**
 - Opportunity to operate specialist hospitals with proper diagnosing equipment and specialists.
 - Opportunity to operate hospitals with low-cost services but with standard quality

11.2 PRIVATE SCHOOL

❖ Basic information

Currently, most of the existing private schools follow the government curricula, and students from these schools have to take the government examinations. There is a large market for opening international level schools teaching GCE, SAT, etc. There are also chances for opening internationally recognized language-specific schools like IELTS, TOEFL, etc.

❖ Primary information¹³²

Headmaster:	U Aung Ba Thein (Precious Educare Center)
Permanent staff members:	75
Ownership:	Private owned
Address:	Myetto Ward, Yangon-Pathein Road, Pathein Township
Students:	KG – 11 th Grade: 20 students per room (Around 220 students)
Capacity:	400 students
Teachers:	Over 60 (KG: 19)
	KG teachers have to attend courses conducted by the Ministry of Education.
Ratio:	20 students per teacher
System:	Any teacher must be able to teach any grade.
Office staff:	56 (white collar and blue collar)
Boarding students:	There are also boarding students.
	Boarding students are from: Yekyi, Wakema, Myaungmya, Ngapudaw, Kyaunggon
Rules for establishment:	Private School Law 2014, Rules 2015
Curriculum:	Government
Strength:	Student-centred approach
Supplementary course:	Ethics
Advice:	Seek advice from experts (British Council)
Investment cost:	MMK 4,000 million
Plan:	Has a plan to propose to a foreign institution. Intend to upgrade the school to international level.
	If ICCES – International Civic and Citizenship Education Study method is adopted, children will be able to pursue further abroad.
Summer courses:	Physical culture, music, English, Math (Thinking and creativity math). The summer courses are open to all – including students

¹³² U Aung Ba Thein, PEC Private High School, Yangon-Pathein Road, Pathein Township. 09 4227 79997 09 2542 40170 email: ad.pecprivateschool@gmail.com

from government schools. In 2017, about 300 students attended the courses. The most interested course is physical culture.

❖ Analysis

- Strengths:**
- The number of private schools is still small. (market)
- Weaknesses:**
- The student population in the region is large.
 - There is no private school with international curricula.
 - Competent private teachers are needed.
- Threats:**
- Government schools do not collect tuition fee.
- Opportunities:**
- Rich opportunities for investing in private school education with government curricula and/or international curricula
 - Opportunity to open language-specific schools (TOEFL, IELTS, etc)
 - Opportunity to open board and lodging schools

11.3 HAIR PRODUCTS

❖ Basic information

The hair trading business, though it is not region-based, is brisk in Ayeyarwady and Mandalay Regions. The purchase depots in Ayeyarwady Region export the raw material to China via Muse border trade camp. Depots in Mandalay buy raw material from local paces and India and re-export to China. Before export, the purchased hair is treated with straightening agent and with a machine and is tied into bundles. Export prices vary, depending on the fluctuation of Chinese yuan. The purchase depots appoint agents to sell their raw material to China.

❖ Primary information

No of hair entrepreneurs:	Association members:	25 (members of Hair Products Manufacturing Association, formed in 2013)
	Non-members	Around 1,000

Trading industry¹³³

Hair purchaser:	350	
Purchase depots: (export to China through Muse border trade post)	32 (Total)	
	Pathein	3
	Myaungmya	3
	Ngapudaw	4
	1 each in Labutta, Kangyidaunt, Yekyi, Wakema, Kyaiklat, Maubin, Laymyethnar, Thabaung and Pantanaw	9
	2 each in Hinthada and Kyonpyaw	4
	Others:	9
	Total ▶ 32	
Semi-finished product producers:	30 - 35	
Place of production:	3 (Pathein) There are more hair exporters in Mandalay.	
Availability of raw materials:	Villages in the Region; sellers at purchase depots; Rakhine State (In 2015, raw material was purchased from Bangladesh.) The availability of raw material depends on means of transportation and weather conditions.	
Technology:	China	
Equipment:	China and Thailand Kinds: Straightening machine, straightening agent,	
Wages (average):	MMK 4,000 per day (Pathein)	

¹³³ U Nyunt Naing, Seik Taing Kyah Hair Trading, GEC Street, No 2 Ward, Pathein. 09 4900 1249 09 4283 30662

	MMK 2,000 per day (Mandalay)			
Purchase prices:	The hair that falls from head and the hair that is cut			
	Sr	Kind	Length	Price per viss
	1	Gray, short	10 in – 12 in	80,000
	2	Puffy, short	8 in – 12 in	20,000 – 30,000
	3	Black, long	> 16 in	160,000
Sales price to China (Calculated from CNY to MMK)	1	Black, long	12 in – 15 in	544,000
	2	Black, long	16 in – 20 in	350,000
	3	Black, long	> 21 in	400,000 – 500,000
	4	Black, short	< 12 in	60,000 – 150,000
Profit margin (sales to China):	30% to 40%			
Share of sales:	95% of raw material is sold to China, and the rest 5% to Japan, Korea, Brazil, France, etc if orders are received from them.			

❖ Analysis

- Strengths:**
- Easy labour availability
 - Raw material available as needed
- Weaknesses:**
- Low technology
 - Lack of packaging technology
 - Lack of government support (No loans from government)
 - Interest rates offered by organizations are high; repayment period is short.
 - Difficult transportation
 - Treatment agent from Japan is expensive
- Threats:**
- China does not buy finished products (eg wig) (Market)
 - Banking process is slow (exchanging currencies)
 - Worse weather conditions
 - Fuel prices are rising
- Opportunities:**
- Opportunity to produce hair products

11.4 DOCKYARD

❖ Basic information

In Ayeyarwady Region, there are no dry dockyards, and floating dockyards¹³⁴ only exist. The number of dockyards in Pathein District is mentioned as follows:

Number of dockyards in Ayeyarwady Region

Area	No of dockyards		Capacity	Remark
	By area	By ton		
Hainggyi	2	3	Under 50-ton	Out of the 9 dockyards in Pathein, 2 dockyards are not fully equipped.
Pathein	9	8	50-ton – 2,000-ton	
Total ▶	11	11		

TABLE 64:

¹³⁴ **Dry dockyard:** It has a specially dug pit into which the vessel can cruise in, and then, the water in the pit is let out. **Floating dockyard:** In this dockyard, there is not specially dug pit. So the vessel has to be pulled up on the track.

❖ Primary information¹³⁵

Dockyard Name:	Shwe Hninzi Dockyard		
	800 feet (slipway: 120 feet)		
Owner:	Daw Thidar Aung		
Clients:	Type of vessel		Docking place
	Passenger vessels (20-23 feet x 100-120 feet)		Pathein
	Fishing vessels		Hainggyi
	High-speed boats		Pathein
	Vessels (> 28 feet in width)		Yangon
	Cargo vessels with deep draught		Yangon
Docking duration:	Minimum 15 days; maximum 30 days (4 vessels can be docked at one time)		
Business situation:	The number of passengers who travel by water has become smaller. Hence, the number of vessels which come to dock has also proportionately smaller.		
Government rule:	Passenger vessels have to dock once a year for the renewal of license.		
Vessel construction:	Vessels that can be built	Iron-frame vessels (20 ft x 120 ft) (By Maykhalat and Patheingyi)	
	Vessels built in Yangon:	Large vessels	
	Fishing vessels	Built in Hainggyi	
	Vessels that cannot be built:	Cargo vessels Fishing vessels with cold storage	
Difficulties in vessel construction:	In Pathein, electricity supply is not sufficient. Another difficulty is lack of long track within the dockyard.		
Vessel types:	Timber-frame vessels	The number becomes smaller.	
	Iron-frame vessels	Dockyards can build iron-frame vessels.	
	Fishing vessels:	Built only with timber	
No of tracks:	In Pathein dockyards (Shwe Hninzi and Maykhalat), there are 4 slipways each. Four vessels with 20 ft x 120 ft and draught 4 feet can be docked at the same time in Pathein dockyards. The two dockyards can accommodate 6 small motorboats.		
Energy:	In pulling the vessels up onto the slipway, electric power is needed. However, the power from the national grid is not sufficient. Own generators are used.		
Services:	Currently, there are only maintenance services rather than build new vessels. The services offered are: <ul style="list-style-type: none"> -- Pull up onto the slipway and push down the vessel -- Link the vessel owners with engineers and painters -- Arrange residences for vessel crew 		
Service fees:	Service	Type of vessel	Fee in MMK
	Pull up onto slipway/ push down into water	20 ft x 120 ft vessel	500,000
		Motorboats	300,000
	Daily charge	20 ft x 120 ft vessel	5,000
		Motorboats	3,000
Maintenance	Wood-frame vessel	2,000,000	
	Owners have stopped using wood-frame vessels because docking for renewal of license costs much.		
Business situation:	More vessels are docked in summer than the rainy season.		

❖ Analysis

- Strengths:** ▪ Ayeyarwady Region abounds in vessels.
- Weaknesses:** ▪ Skilled workers move to other businesses

¹³⁵ U Aung Kyaw Moe (Manager), Daw Thidar Aung (Owner), Shwe Hninzi Dockyard, No 9 Quarter, Thinbawgyin Ward, Pathein.

-
- Timber has become rare for wood-frame vessels
 - Good quality timber is not available.
 - The business of passenger transport by water has declined because road transport has improved.
 - There is no private-owned dry dock in Ayeyarwady Region.
 - There is no dock for large barges.
 - There is no dock for high-tonnage vessels.
 - So far, high-tonnage vessels cannot be built.
 - Because of the lack of passenger vessels, dockyards have imbalance in cost and profit.
- Threats:**
- Opportunities:**
- Opportunity to jointly work with local dockyard operators with up-graded, modern equipment
 - Opportunity to develop dry dockyards

12 OTHER RELATED SECTORS

12.1 AGRICULTURE MACHINERY

❖ Basic information

In the period prior to Cyclone Nargis, farmers in Ayeyarwady Region relied on cattle for working on their farms. Cyclone Nargis, that hit some parts of Yangon Region and Mon State and a large part in Ayeyarwady Region in May 2, 2008, took away the lives of people and the animals. Farmers were faced with difficulties for they had lost their draft cattle.

In the current era, a number of agricultural machinery companies from abroad have entered the Myanmar market. However, because the machines are expensive, farmers have to rely on the government agency “Agricultural Mechanization Department” and village-owned machines, which are used in turn on the farmers’ paddy lands. A few of the farmers can afford to buy the machines which they themselves use and on completion of their own work, rent to other farmers.

❖ Primary information

Agricultural Mechanization Department¹³⁶

	Machine		Private-owned	State-owned
	No of units			
Numbers of units of machines registered with the AMD in Ayeyarwady Region:	Tractor		1,994	195
	Power tiller		122,481	0
	Pump		95,981	0
	Harvester		1,360	0
	Threshing/winning machines		46,206	0
	Combine harvester		1,306	134
	Planting machine		10	9
	Total No of units ►		269,338	338
Currently rented from AMD:	Tractor		195	
	Combine harvester		134	
	Planting machines		9	
Rentals:	Machine	MMK	Task	
	Tractor:	6,500	For tilling 1 layer/1 acre	
	Tractor:	13,000	With better disc	
	Planting machine:	25,000	Per acre	
	Combine harvester:	For sale only.		
AMD stations:	Pathein District		3	Total: 17 stations
	Hinthada District		5	
	Myaungmya District		3	
	Labutta District		2	
	Maubin District		4	
Acres tilled with rented machines:	2016-17	Ratio	2017-18	Ratio
	169,840	5%	225,362	5%
	3,409,767	95%	4,063,961	95%
Machines sold by AMD:	Kubota and World brands			
Payment terms:	35% (initial payment)			
	35% (one year later)			
	30% (two years later)			
Companies that sell	1	Good Brother		

¹³⁶ U Aung Mon, Deputy Director, Agricultural Mechanization Department (Ayeyarwady Region) 09 513 4622

machines in partnership with AMD	2	Farmer Choice		
	3	Kubota (Myanmar)		
	4	Shwe Tun		
	5	Taungbawthar Yishin		
	6	Aung Yadanar Phyo		
	7	Taungthugyi		
	Payment terms:	10% (initial payment)		
90% (7 installments in 3 years)				
Most purchased:	Kubota tractor			
	New Holland tractor			
	Sonalika tractor			
Joint sales of Kioti brand:	Kioti company and Cooperatives Society			
Machinery sales in fiscal 2017-18:		Brand	Machine	No of units
	1	Kubota	Tractor – 50 HP	15
	2	Sonalika	Tractor	22
	3	Kubota	Combine harvester	18
	4	Dong Feng	—	471
	5	—	Power tiller (long hand)	46
	6	—	Kha La 75	30
	7	—	8 raw seed	2
	8	—	12 raw seed	6
	9	—	Weeder	1
	10	Chang Chai	Engine	14
	11	—	185 Engine	2
	12	—	22 HP Engine	1
	13	—	32" / 34" disc	2
	14	—	2D (long hand)	1
15	—	Plough (long hand)	1	

❖ Analysis

- Strengths:**
- Paddy is mostly grown in Ayeyarwady Region
 - Agriculture mechanization is still in the process.
- Weaknesses:**
- Agricultural machines are expensive for individual farmers.
- Threats:**
- Maintenance services are not properly spread in the region.
 - It is difficult to transport the machines to far-flung places across rivers or creeks.
- Opportunities:**
- Opportunity to trade in agricultural machines

12.2 SMALL AND MEDIUM ENTERPRISES

❖ Basic information

Performance of Ayeyarwady Region Government (ARG)¹³⁷

The ARG carried out activities for development of small and medium enterprises in the region as follows:

- **Technology:** For development of small and medium enterprises (SMEs) such as rice mills and salt mills, Ayeyarwady Region Government forged links with international organizations and supported them with technologies.
- **SME membership cards:** With the aim of providing financial and technical support, SME membership cards were issued to 700 SMEs.
- **CGI loan:** About 70 SME businessmen were linked with CB Bank to enable them to obtain CGI loans.
- **Official registration:** Private factory/mill operators were officially registered.

¹³⁷ Ayeyarwaddy Region Government's One-Year Performance (2018),

- **Inspection for safety:** Inspection was carried out on 2,300 enterprises for safety in the use of electricity and boilers.

No of small, medium and large enterprises in Ayeyarwady Region¹³⁸

Sr	Business group	No of enterprises				%
		Large	Me- dium	Small	Total	
1	Foodstuffs	598	530	3,831	4,959	81%
2	Clothing	6	2	0	8	0%
3	Shelter	10	23	203	236	4%
4	Personal commodities	1	7	20	28	1%
5	Household items	0	0	0	0	0%
6	Literature and arts	0	0	4	4	0%
7	Raw materials	1	2	22	25	0%
8	Mineral refining	3	5	50	58	1%
9	Agricultural implements	0	4	17	21	0%
10	Mechanical equipment	1	2	1	4	0%
11	Transport vehicles	1	0	0	1	0%
12	Electronic products	0	0	1	1	0%
13	General workshops	2	36	735	773	13%
Total ▶		623	611	4,884	6,118	100%
Share ▶		10%	10%	80%	100%	

TABLE 65:

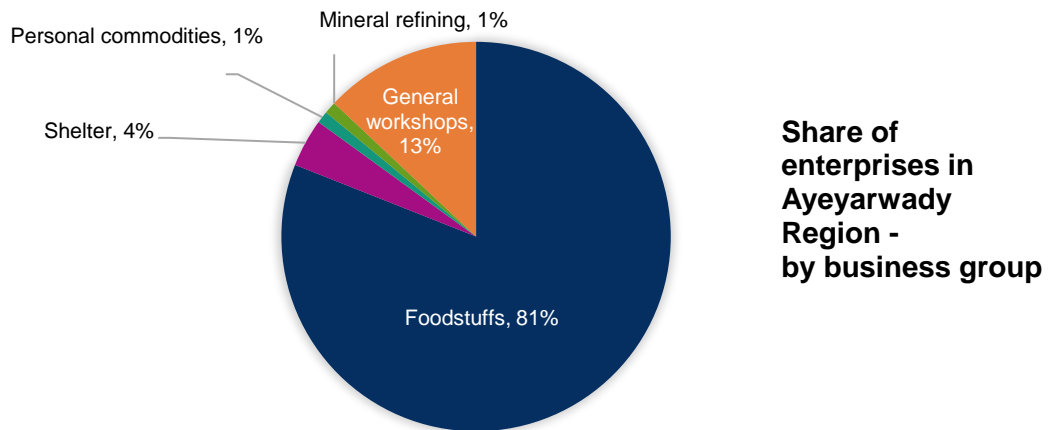


CHART 30:

Share of enterprises in AR – by size

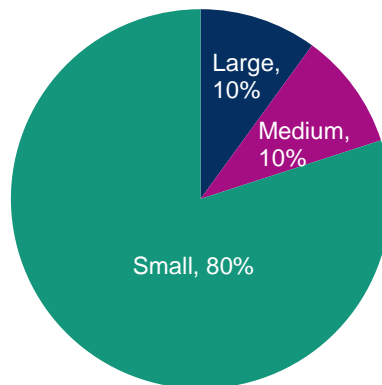


CHART 31:

¹³⁸ U Khin Maung Hlaing, Director, Head of Department of Consumer Affairs (Ayeyarwady Region)

No of enterprises	6,118	
Total number of workers:	3,073	
Total value of investment	11	million USD
Total value of production	424	million USD
Use of electricity	3,539	KV
	12,797	KVA

❖ Primary information¹³⁹

Government support to SMEs:	1	Technology – conduct training by inviting scholar
	2	Finance – arrange for disbursing loans
	3	Market – link up with foreign businessmen for collaboration and for participation in fairs
Requirements of SMEs:	1	Loans – cannot disburse required amount
	2	Investment – new investments cannot be made
	3	Technology – State-of-the-art technologies needed
Future tasks:	1	To set up call centre
	2	To set up SME Agency

❖ Analysis

- Strengths:**
- SMEs play an important role in manufacturing sector – eg food-stuffs, personal commodities, etc
- Weaknesses:**
- Financial constraint
 - Technologies are low
 - Lack of market
- Threats:**
- If support is not provided to SMEs, traditional businesses will disappear.
- Opportunities:**
- Traditional businesses can be upgraded for foreign market

12.3 CIVIL AVIATION

❖ Basic information

Pathein Airport¹⁴⁰

Pathein Airport, the only domestic airport in Ayeyarwaddy Region, is now defunct because of the poor air transport business. However, at least a domestic airport, or better, an international airport, is needed if foreign investors have come to invest in the region.

Name:	Pathein Airport (Domestic)
IATA code:	BSX (Pathein was formerly called Bassein and the code is derived from the former name of the city)

❖ Analysis

- Strengths:**
- There are beaches and other resorts in the region.
 - There are potential projects like deep-sea ports and offshore supply bases.
- Weaknesses:**
- Currently, large passenger aircraft cannot land.
 - Air traffic control tower needs to be upgraded – radar, personnel, etc
- Threats:**
- Bad weather conditions
- Opportunities:**
- Opportunity to upgrade the existing airport
 - Opportunity to operate international flights

¹³⁹ Department of SME Administration (Pathein Township)

¹⁴⁰ <https://airportsinsider.com/bsx-pathein-airport>

12.4 CONSTRUCTION

❖ Basic information

In Patheingyi, there is Ayeyarwady Region Construction Entrepreneurs Association (ARCEA), which is an affiliate of Myanmar Construction Entrepreneurs Association (MCEA). Construction companies working in the region are: (1) local companies, (2) companies from Yangon and (3) companies from other States/Regions. About 70% of the construction projects are public (government) and 30% are private projects. In private projects, land-for-flats projects (the owner of the land gives the land and the builder, on completion, gives the land-owner an initially agreed number of flats).

❖ Primary information¹⁴¹

Association:	Ayeyarwady Region Construction Entrepreneurs Association (ARCEA) is under the Yangon's MCEA ARCEA has to work by linking with MCEA	
No of members	92 (Construction companies) (As of 2014-15)	
Housing projects:	1	Myakyunthar Housing Project
	2	Platinum Housing Project
Projects being undertaken by CEA		
Government projects (70%):	-- Low-cost housing projects -- Housing development projects -- Schools, hospitals, clinics, universities	The government invites tenders.
Land-for-flats construction (30%):	The owner of the land allows the builder to construct an apartment building, and the builder in return gives a number of flats to the land owner.	
Completion:	Government projects have to be completed within one year.	
Availability of construction materials:	Sand:	Locally available
	(Mountain) stone:	Hmawbi Township, Yangon Region
	(River) stone:	Migyaungye, Upper Myanmar
	Brick:	Locally available
	Iron and others:	Yangon
	Cement	Tanintharyi Region (Cheaper than Yangon)
	Timber:	Locally available
Quality control:	In the national project, there is a quality control team, and if they do not like the quality, the material has to be replaced. Iron rods are tested for PSI in the laboratory. However, the budget available and the cost have to be balanced. The quality of the locally available materials are not the best.	
Plan:	To implement more housing projects (For loans, negotiations are under way for repaying in installments.) Negotiating parties: AR Government will allocate land and MCEA will provide loans.	
	No of housing projects: 2 (MMK 5 billion for each project)	
Union Minister's guidance:	To complete all private-sector projects by 2018 To complete road projects from 2020. The government will hand over the public projects to the private sector.	
Construction in AR:	-- Companies from Yangon -- Companies from other States and Regions -- Local companies	

¹⁴¹ U Tun Tun (Member of Ayeyarwady Region Construction Entrepreneurs Association), Managing Director, Royal Ayar Creative & Construction Co Ltd. 09-250855322, 09-76445552

❖ Analysis

- Strengths:**
- Establishment of public limited companies (construction sector becoming more strengthened)
- Weaknesses:**
- Lack of one-stop service
 - Market is not stable.
 - Government's decision-taking is long (in matters of asking for permission to work in partnership)
 - Lack of master plan
 - Financial constraint
- Threats:**
- Business can be stagnant at times of low demand
- Opportunities:**
- Opportunity to operate housing projects
 - Opportunity to construct infrastructure and factories

13 INDUSTRIAL ZONES AND OTHER PROJECTS

13.1 OVERVIEW OF PROJECTS

Included in the advantages of the Ayeyarwady Region are its contiguity with the sea, and a plenty of rivers and rivulets, flowing across the region. Another advantage is its proximity to the Yangon Region, in which Yangon, the commercial hub of the country, exists. Accordingly it is opportune for businessmen to launch projects in various sectors.

The following are some projects mentioned in detail in this report:

Sr	Project title	Remark
1	Pathein Industrial Zone	7.5 acres
2	Pathein Industrial City Project	2,700 acres
3	Maubin Industrial Zone Project	250 acres
4	Hinthada Industrial Zone Project	82.21 acres
5	Platinum Pathein Project	18 acres
6	Pathein Deep Sea Port (Super Myanmar Axis Project)	7,504.6 acres (3,037 hectares)
7	Myakyuntha Housing Project (Pathein)	
8	Offshore Supply Base Project (Ngapudaw)	To provide supplies to offshore oil wells
9	LNG Power Plant (Pathein)	1,390 MW
10	Rice Husk Power Plant (Myaungmya)	Min: 1.6 MW (for rice mills)
11	Rice Mill and Rice Husk Power Plant (Kyaiklat)	240 tons/2.2 MW
12	Integrated Rice Complex Plant (Kyaiklat)	
13	MSME Economic Zone	
14	MAPCO's Contract Farming in Fiscal 2017-18	
15	Bran Oil Mill (Myaungmya)	100-ton
16	Agri Food Park (Myaungmya)	

Industrial zones—completed/under implementation—in Ayeyarwady Region

Sr	Location	Area (Acres)	No of factories	Status
1	Pathein Industrial zone			
	Ward 13, Kimmalin Kyun Street, Pathein	252.816	54	Under implementation
2	Hinthada Industrial Zone			
	Pyar Kadat village, Netmaw village-tract, Hinthada	86.210	12	Under implementation
3	Myaungmya Industrial Zone			
	Kwel Lwel village, Kwin Gyan Kwin, Myaungmya	58.090	12	Under implementation
4	Pathein Industrial City			
	Chaungzauk village-tract, Kangyidaunt Township, Pathein Dist.	2,700.000	Port and IZ	Permission granted
5	Shwedon AYA EPZ (Export Industrial Zone)			
	Gonminzeik village-tract, Nyaungdon Township, Maubin District	791.360	86	Permission granted
6	Maubin Industrial Zone			
	Pandabut village, Nyaungwaing village-tract, Maubin Township	283.410	50	Permission granted
7	Agricultural and Livestock Industrial Zone			
	Mayanchaung Kwin, Danonchaung Kwin, Danonchaung village-tract, Myaungmya Township	334.720	Agricultural and livestock-related factories	Proposal submitted to MIC

TABLE 66:

13.2 PATHEIN INDUSTRIAL ZONE PROJECT¹⁴²

BASIC FACTS

Project title:	Pathein Industrial Zone			
Area (Zone 1):	7.5 acres			
Area (Zone 2):	Negotiations under way between Delta International Group (DIG) and government			
Water availability:	Not available yet			
Electricity:	100% received			
Roads:	Businessmen themselves paved.			
Waste and rubbish disposal:	MMK 20,000 – 30,000 paid monthly to City Development Committee			
Waste water treatment:	Not included in the plan			
Factories operating:	Zone 1	Iron works -----37	Wafer ----- 2	Agri machine production -----2
		Car body ----- 3	Grinding----- 2	
		Glue Mill ----- 1	Coconut fire rope -----3	
	Zone 2	6 (foreigner-owned) garment factories		



13.3 PATHEIN INDUSTRIAL CITY PROJECT¹⁴³



PATHEIN INDUSTRIAL CITY, systematically and carefully planned and laid out on an area of 2,700 acres, with road, rail and port accesses, aims at achieving the status of the largest SME zone in Ayeyarwady Region. It is 4 hours' drive from Yangon, the commercial hub of the country.

BASIC FACTS

Project title:	Pathein Industrial City Project (PIC) ¹⁴⁴		
Founder:	Ayeyar Hinthar Holdings Company Limited		
Master developer:	Ayeyarwady Development Public Co Ltd ¹⁴⁵		
Location:	Ngawun River bank, Pathein Township		
Area:	2,700 acres		
Distances from PIC	to Pathein Road:	7.2 km (Nearest major road)	
	to Pathein River Port:	7.7 km (Nearest port)	
	to Pathein Railway Station:	7 km (Nearest railway)	
	to Pathein Airport	17.2 km (Nearest airport)	
	to Yangon City	199 km	
	to MITT ¹⁴⁶	221 km	
	to Asia World Port (Yangon)	192 km	
to Nay Pyi Taw, the capital	548 km		

TIMELINE

2012	2014	2015	2016	2019
– Support from Regional Government	– Started land acquisition	– EIA/SIA successfully conducted	– Received MIC permit	– Zone A completion
– Feasibility Study successfully completed	– Finalized design report		– Ground-breaking	

¹⁴² U Lay Ko, Pathein Industrial Zone Management Committee. 09 4512 40055 09 7710 98090

¹⁴³ PIC Project Specification Booklet

¹⁴⁴ PIC Project Office: Pathein-Ngapudaw Road, Pathein City, Ayeyarwady Region

¹⁴⁵ Ayeyarwady Development Public Co Ltd. #1104, 1105, 1106 Ye Ta Khon Tower, Lower Kyimyindaing Road, Kyimyindaing Township, Yangon. Tel: (+95) 01 508070, 508232~4 Fax: (+95) 01 508071 URL: www.picmyanmar.com Email: info@picmyanmar.com Hotline: (+95) 09 4000 81881

¹⁴⁶ MITT: Myanmar International Thilawa Terminal Port, Yangon Region

ZONE CONCEPTUAL PLAN

Industrial Development Zone A-1:	653 acres
	– Saleable area: 475 acres
	– Utility and green space: 178 acres
Industrial Development Zone A-2:	598 acres
	– Saleable area: 446 acres
	– Utility and green space: 152 acres
Port area:	48.82 acres

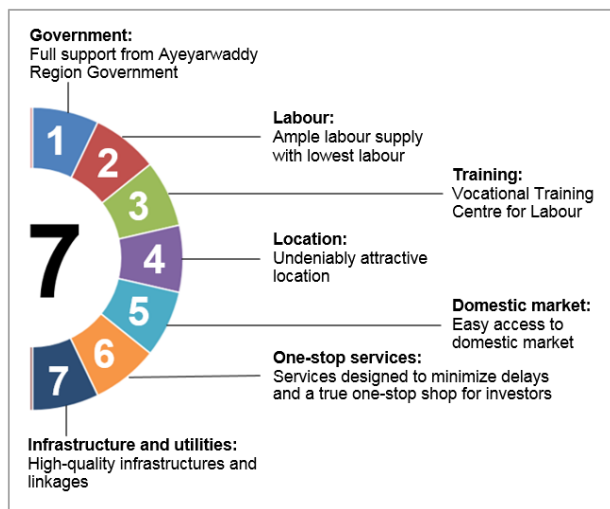
REASONS FOR MAKING INVESTMENTS IN THIS INDUSTRIAL CITY

Vocational Training Centre for Labour

PIC has already launched its Vocational Training Centre with its first partner “Phinma Education” from the Philippines. This VTC is aimed at providing solutions for shortage of skilled labour.

International Consultants

- 1 Team Consulting Engineering and Management Co Ltd (TEAM) of Thailand (Feasibility Study and Detail Design)
- 2 Asian Consulting Engineers Pvt Ltd (ACE) of Singapore (EIA/SIA)
- 3 Tractus of Thailand (Marketing Research)
- 4 Royal Haskoning DHV of the Netherlands (Port Conceptual Design and Market Study)



Food processing:

- Fishery processing
- Canned food
- Food seasonings

Labour intensive industries:

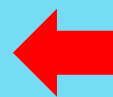
- Garment
- Textile and apparels

Domestic market-based industries:

- Rice mill and downstream rice production
- Consumer products
- Fertilizer
- Agricultural machinery
- Plastic products
- Construction materials
- Others

Forest-based industries:

- Plywood/veneer factory
- Teak conversion factory
- Furniture
- Pulp and paper manufacturing



FOCUSED INDUSTRIES



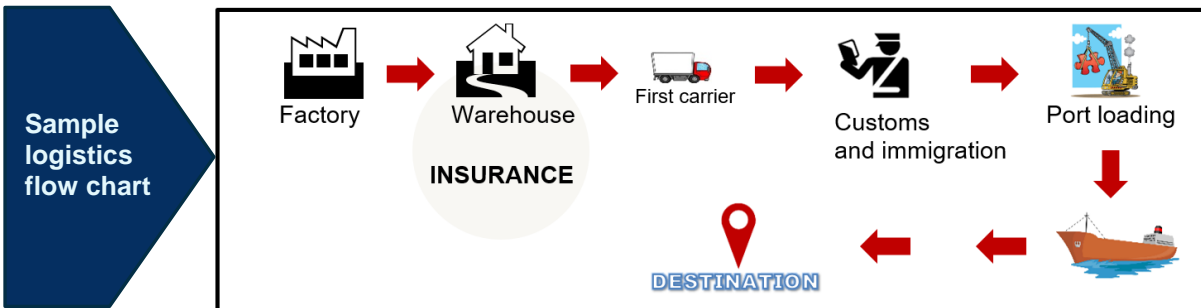
HIGH-QUALITY INFRASTRUCTURES AND LINKAGES

State-of-the-art infrastructure services including power, water, waste water treatment, telecommunication and transport linkages are provided. Ayeyarwaddy Region is implementing a deep-sea port project in Nga Yoke Kaung area, located to the south-west of Patheingyi—the fourth largest city in Myanmar—and 102 km from PIC. If this project is completed, international vessels will be able to access Patheingyi easily.

For Zone A	
Clean water supply:	Treatment capacity of 24,000 m ³ per day
Waste water treatment:	Treatment capacity of 22,000 m ³ per day
Flood control system:	<ul style="list-style-type: none"> • Dike wall • Retention pond • Reinforced concrete drainage pipe with manhole
Electricity supply:	<ul style="list-style-type: none"> • 120 MW • Electrical supply system (33kV overhead distribution line)

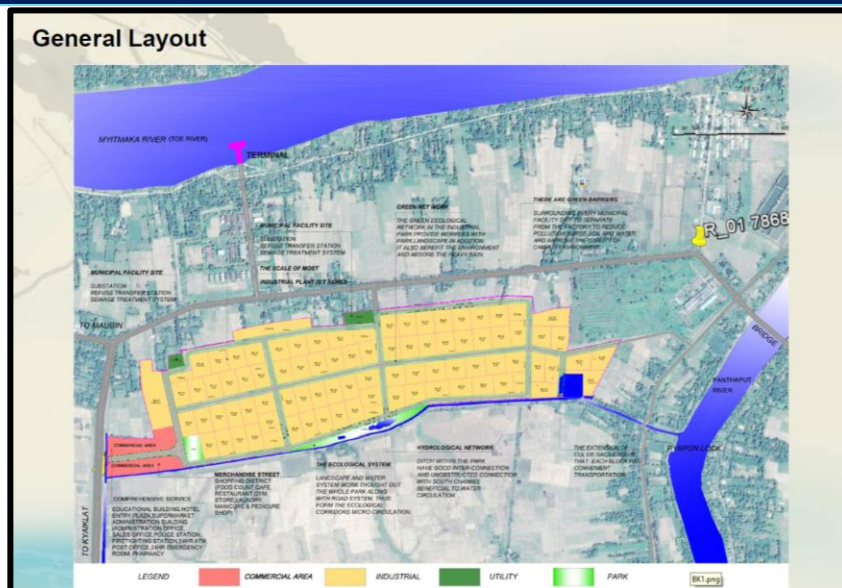
ONE-STOP SERVICES

Port:	<ul style="list-style-type: none"> • Multi-Purpose Port (MPP) • Further development plan as a part for reaching international markets. • River improvement plan: DWT 12,000 – 15,000
Freight:	<ul style="list-style-type: none"> • Sea freight services for local and international transport • One-stop service for import and export
Financial services:	<ul style="list-style-type: none"> • Insurance services • Banking services for international and local bank transactions
Logistics:	<ul style="list-style-type: none"> • Various logistics solutions including trucking services, within the zone as well as all around Myanmar, available
Warehouse:	<ul style="list-style-type: none"> • Warehouse services can be used just in zone, nearby.
Customs and immigration:	<ul style="list-style-type: none"> • Unlike other regional industrial zones, which need clearance in Yangon, PIC has customs and immigration offices within the zone itself.



13.4 MAUBIN INDUSTRIAL ZONE PROJECT¹⁴⁷

BASIC FACTS



Project title:	Maubin Industrial Zone Project
New company formed:	Maubin United Development Co Ltd

¹⁴⁷ Report on Plan for Implementation of Maubin Industrial Zone, August 31, 2018

Developers:	Maubin Development Public Co Ltd - MDPC	Myanmar	30%
	Shanghai Yangon Investment & Development Co Ltd – SYI	China	55%
	Southern Metal Industry Co Ltd – SMI	Myanmar	15%
Location:	Near Pandabut Village and Nyaungwaing Village, 2.5 miles from Maubin		
Office address:	No 5, Shwe Gabar Housing Estate, Min Dhamma Road, Ma-yangon Township. 01 656 228 xiejunhuan@gmail.com		
Zone Management Committee:	Chairman: U Yan Win (Chairman, Maubin United Development Co Ltd)		
Project period:	2018 – 2023 (5 years)		
Area:	283.41 acres		
	249.48 acres (Industrial Zone)		
	33.93 acres (Residential)		
Distance from Yangon:	54 miles (87 km)		
Investment amount:	USD 2,500 million		
Industries allocated:	Garment: 42 factories		
	Others: 8 factories		
	Household commodities factories		
Electricity:	Requirement: 23.75 MVA	1 (25 MVA) power station	
		1 (15 MVA) power station	
Power distribution system:	66/33 KV, 33/11 KV and 11/0.4 KV		

13.5 HINTHADA INDUSTRIAL ZONE PROJECT¹⁴⁸

BASIC FACTS			
Project title:	Hinthada Industrial Zone Project		
Location:	Pyar Kadat Village, Naw Maw Village-tract, Hinthada Township, Ayeyarwady Region (6 miles and 4 furlongs from Hinthada Township)		
Project start year:	2015		
Area:	86.21 acres		
No of plots:	169 (each plot: 100 ft x 100 ft)		
Plots allocated:	48 plots	For grinding business	Total: 169 plots
	83 plots	For welding and iron works	
	38 plots	For edible oil and rice mills	
Electricity:	2 (500-KVA) transformers, 121 lamp posts already installed 400 KV and 11 KV power lines		
Water:	If tube-well is sunk, the water for use is available at 80 – 100-foot depth and the water for drinking at 150-foot depth		
Waste disposal:	50-ft (width) x 60-ft (length) x 20-ft (depth) pits (20 in number) The 20 pits will not be enough if the factories in the zone are in full operation. There is no future plan for waste disposal.		
Factories in operation:	13 factories		
Drainage system:	Drains, that have been dug, will carry water into Net Maw Creek. There is no waste water treatment system.		
Currently operating factories:	Iron smelting mills:	4	Total: 13
	Rice mills:	2	
	Animal feed grinding:	4	
	Edible oil mills:	1	
	Plastic box factory:	1	
	Rice-husk briquette factory:	1	
No of workers in 13 factories:	126		
Wages:	MMK 4,000 – 8,000 per day		
Notes:	All 170 plots have been purchased by 70 businessmen. However, 13 factories are in operation and other plots remain vacant.		

¹⁴⁸ U Aung Phone, Chairman, Hinthada Industrial Zone Management Committee. 09 79 413 1600

13.6 PLATINUM PATHEIN PROJECT¹⁴⁹

BASIC FACTS

Project title:	Platinum Pathein Project (35% completed)	
Developer:	Mya Bay, H & Co and Platinum Pathein Co Ltd	
House construction:	i-Green Co	
Location:	Near Ministers' Housing Estate and Pathein University; By Yangon-Ngwe Saung/Chaung Tha road	
Area:	18 acres	
Phase I:	To be completed by the end of 2018	Residences (Villas)
		3-star hotel
		2-storey plaza (1,800 sq-ft)
		Car washing service
		Souvenir shops
Phase II:	11 acres	Shops where local products will be put on sale
		Residences
		Shopping malls
		Restaurants
		Bank
		Fuel filling stations
		Resort park

13.7 PATHEIN DEEP SEA PORT¹⁵⁰

BASIC FACTS

Project title:	Super Myanmar Axis Project
Developer:	Amera Asia Co (PTTEP Co)
Location:	Environs of Nga Yoke Kaung Village, between Ngwe Saung Beach and Chaung Tha Beach
Area:	3,037 hectares
Schedule:	To be completed by 2025
Investment in the project:	USD 5.5 billion
Project components:	Ngwe Saung-Chaung Tha deep sea port
	3 industrial zones in Pathein and Wakema
	4 (700-MW) power plants
	Pathein-Yangon Express Way and railway

13.8 MYAKYUNTHA HOUSING PROJECT (PATHEIN)¹⁵¹

BASIC FACTS

Project title:	Myakyuntha Housing Project (Pathein) (35% completed)		
Developer:	11 companies led by Delta Industrial Group Co Ltd		
Location:	Pathein Township		
Project start:	2013-14		
Area:	—		
Sales launched:	December 16, 2017		
Types of house:	-- 30 feet x 65 feet two-storey detached houses -- 5-storey apartment house		
Value of each house:	MMK 89 million (water supply and electricity complete, well-fenced)		
Payment systems:	First payment	Period for installment payments	Remark
	50%	2 years	
	30%	6 months	
	70%	Not specified	

¹⁴⁹ The Kyemon Daily, November 25, 2016

¹⁵⁰ The Eleven Daily, August 3, 2013 and The Myanma Alin, August 18, 2013

¹⁵¹ The Commerce Journal, December 25, 2017

	Lump sum payment: 5% discount
Other components:	-- Shopping centre -- Cinema -- People's Park

13.9 AYEYARWADY RESORT AND VILLA DEVELOPMENT¹⁵²

BASIC FACTS

Project title:	Ayeyarwady Resort and Villa Development
Company:	Ayeyarwady Resort and Villa Development Co Ltd
Location:	Off Bugwegyi-Hsinma road, near Bugwegyi Village, No 4 Ward, Ngwe Saung Town
Area:	182.76 acres
Residence types:	Holiday Villas – 50 feet x 70 feet Deluxe Villas – 80 feet x 90 feet
Prices:	Not fixed yet.
Water:	Water will be tapped from the pump station at Ngwe Saung Dam through 8-inch pipes to two 100,000-gallon overhead tanks. The water will pass the treated water tank and then, be supplied to the residents. Each residence will have a 10,000-gallon ground tank.
Waste water treatment:	Waste water and rain water—after being treated by Bio Treatment System—will be drained into the Ngwe Saung Development Committee canal. The recycled water can be used for car washing and watering plants.
Estimated water use:	33,500 gallons per day
Electricity:	Need: 4 MVA Implementation period: 500 KVA permitted by ARG Distribution: by 0.4 KV line from the 4 MV – 11 KV base
Roads:	Concrete road – width 30 feet x length 2,003 feet and width 18 feet x length 7,424 – has been paved.
Sewage disposal:	Adequate manholes (septic tanks) will be kept.

13.10 OFFSHORE SUPPLY BASE¹⁵³

BASIC FACTS

Project title:	Offshore Supply Base Project
Aim:	To provide supplies for offshore oil wells
Developer:	Myint & Associates Offshore Supply Base Ltd
Location:	Nant Tha Pu Village-tract, Nga Yoke Kaung Sub-township, Ngapudaw Township, Patheingyi District
Area:	30 acres
Investment:	MMK 50 billion
Project launched:	2015
Period allowed:	30 years
Benefit to the Nation:	MMK 25 billion (during the first 10 years)
Businesses:	1 Production and sales of cabbage and other vegetables
	2 Production and sales of foodstuffs
	3 Production, milling and sales of cashew nuts and pulses
	4 Production and sales of motorcycles and plastic
	5 Production and sales of electric wires
	6 Production and sales of household commodities
	7 Port and warehouse services

¹⁵² Ayeyarwady Resort and Villa Development Co Ltd

¹⁵³ The Myanmar Alin Daily, May 21, 2017 & The Daily Eleven, May 23, 2017

13.11 LNG POWER PLANT¹⁵⁴

BASIC FACTS	
Project title:	LNG Power Plant Project
Implementers:	Zhefu Group of Companies Honk Kong
	Gunver Group of Companies Switzerland
	Supreme Group of Companies Myanmar
Location:	Near Mee Laung Chaing Village-tract, Shwethaungyan Sub-township, Pathein
Investment:	USD 2,000 million
Capacity for generation:	1,390 MW
Schedule:	To be completed in 2020
Project components:	Port for unloading LNG
	Above-water gas storage tanks
	Power grid to be connected to Yangon
Note:	To be supplied to industrial zones and SMEs
	Denmark-based Rambool Environment Co conducted environmental and socio-economic impact assessments.

MYANMAR AGRIBUSINESS PUBLIC CORPORATION LTD (MAPCO) PROJECTS IN AYEYARWADDY REGION¹⁵⁵

MAPCO was formed in 2012 with more than 1,400 shareholders. It has opened Integrated Rice Complex Project and Agribusiness Service Center (ASC) in Nay Pyi Taw. In Pyapon District, MAPCO is engaged in contract farming with farmers on a mutually beneficial basis—seed production, rice production and export, renting agricultural machines, and selling inputs including fertilizer.

13.12 RICE HUSK-FIRED POWER PLANT (MYAUNGMYA)

BASIC FACTS	
Project title:	Rice Husk Power Plant Project (Myaungmya)
Implementers:	Myanmar Agribusiness Public Corporation (MAPCO) 20%
	Fujita Corporation (Japan) 80%
Company formed:	Myaungmya FM Biomass Power Co Ltd 100%
Location:	Plot on which former Jute Mill was located, Myaungmya Township
Investment:	USD 3.685 million
Area:	1.76 acres
Output:	1.6 MW
Groundbreaking ceremony:	October 28, 2017

13.13 INTEGRATED RICE COMPLEX PLANT (KYAIKLAT)

BASIC FACTS	
Project title:	Integrated Rice Complex Plant (Kyaiklat)
	Rice Mill, Parboiled Rice Mill and Rice Husk Power Plant (Kyaiklat)
Company formed:	MAPCO Golden Lace Co
	Myanmar Agribusiness Public Corporation (MAPCO) 55%
	Golden Lace Co (six shareholders) 45%
Launched:	May 15, 2017
Area:	30 acres
Capacity of rice mill:	240 tons (includes storage rooms and silos)
Capacity of parboiled rice mill:	200 tons
Capacity of power plant:	2.2 MW

¹⁵⁴ The Voice Daily, June 7 and July 7, 2017

¹⁵⁵ MAPCO pamphlet. No 100 Corner of Wardan Street and Strand Road, next to Concrete Express Way, Wardan Port Area, Seikkan Township, Yangon. 01 230 1652~53, 01 230 1825~26 Email: admin@mapco-ygn.com

Components in Phase 1:	240-ton rice mill
	200-ton parboiled rice mill
	500-ton four silos
	4 sets of 17-ton drying machines
	1 set of 30-ton drying machine
Plan:	To buy and mill 400,000 baskets of summer paddy and 400,000 baskets of monsoon paddy from neighbouring townships—Kyauklat, Pyapon, Dedaye, Bogale and Maubin
	To buy and process 30,000 tons of rice milled by small rice mills and export highly-processed rice—50,000 tons. (commenced operation in fiscal 2017-18)
Investment for Phase 1:	MMK 12 billion
Components in Phase 2:	Bran Oil Mill
	Animal Feed Mill
	Rice Noodle and Vermicelli Mills
Phase 2:	Bran Oil Mill (Fiscal 2018-19)
	Signed MoU with Kanemi Co, Japan
	To sell byproduct (bran cake pieces) to feedstuff factories
	To produce by extension animal and fish feed using byproducts
	To establish Ice Factory in Pyapon District

13.14 MSME ECONOMIC ZONE

BASIC FACTS

Project title:	MSME Economic Zone
Location:	Hlezeik village, Kyaiklat Township
Area:	12.29 acres (permit granted)
ASC building:	60 feet x 160 feet
Components:	1 ASC services
	2 “ Farmers Market ” where farm produce can be sold in retail
	3 Purchase depots (agriculture, livestock breeding and fisheries)
	4 Modern value-adding factories for agricultural produce and dryers
	5 Paddy dryers, modern warehouses and refining paddy seeds
	6 Purified drinking water factory and ice factory and cold storages
	7 Rice husk-fuelled boiler, turbine power plant
	8 Offices of economic services organizations that will link villages, townships and cities
	9 Offices for small- and medium-scale credit societies
ASC:	In order to help farmers to improve post-harvest conditions and to boost productivity and production in Myanmar, MAPCO has introduced the Agribusiness Service Centers (ASC) in major rice production areas. The ASC works as a “one-stop farmer center”, where farmers can receive community based, turnkey solutions for all their agricultural ventures, from obtaining raw materials during the planting season, to procurement of the necessary machineries for harvesting, to access to market.
Seed production:	10 acres on which paddy seeds will be produced, located opposite MSME Economic Zone, undertaken by MAPCO Golden Lace Co Ltd.

13.15 MAPCO'S CONTRACT FARMING IN FISCAL 2017-18

BASIC FACTS

Sr	Location	High-quality paddy	Seeds	Total
		Acre		
Yangon Region				
	5-township total ▶	1,397	335	1,732
Ayeyarwaddy Region				
1	Maubin Township	50	88.5	138.5
2	Kyaiklat Township	351	85	436
3	Pyapon Township	911	76	987
4	Dedaye Township	804	70	874
5	Bogale Township	500	99	599
6	Myaungmya Township	104	89	193
7	Hinthada Township	0	50	50
	7-township total ▶	2,720	557.5	3,277.5
Bago Region (West)				
	2-township total ▶	362	0	362
Nay Pyi Taw				
	Nay Pyi Taw ▶	96	1,584	1,680
Sagaing Region				
	Shwebo ▶	350	0	350
	All total ▶	4,925	2,476.5	7,402

Note: There are a total of seven companies—including MAPCO—doing contract farming in Ayeyarwady Region. (See: Appendix: 17.7.)

13.16 BRAN OIL MILL (MYAUNGMYA)

BASIC FACTS

Project title:	Bran Oil Mill		
Location:	Myaungmya (Former Jute Mill compound)		
Implementers	MAPCO:		40%
	Four Myaungmya Rice Millers		60%
Company formed:	MAPCO Ayeyar Rice Industry Co (MARI)		100%
Area:	1.51 acres		
Investment amount:	USD 4 million		
Groundbreaking:	October 28, 2017		

13.17 AGRI FOOD PARK (MYAUNGMYA)

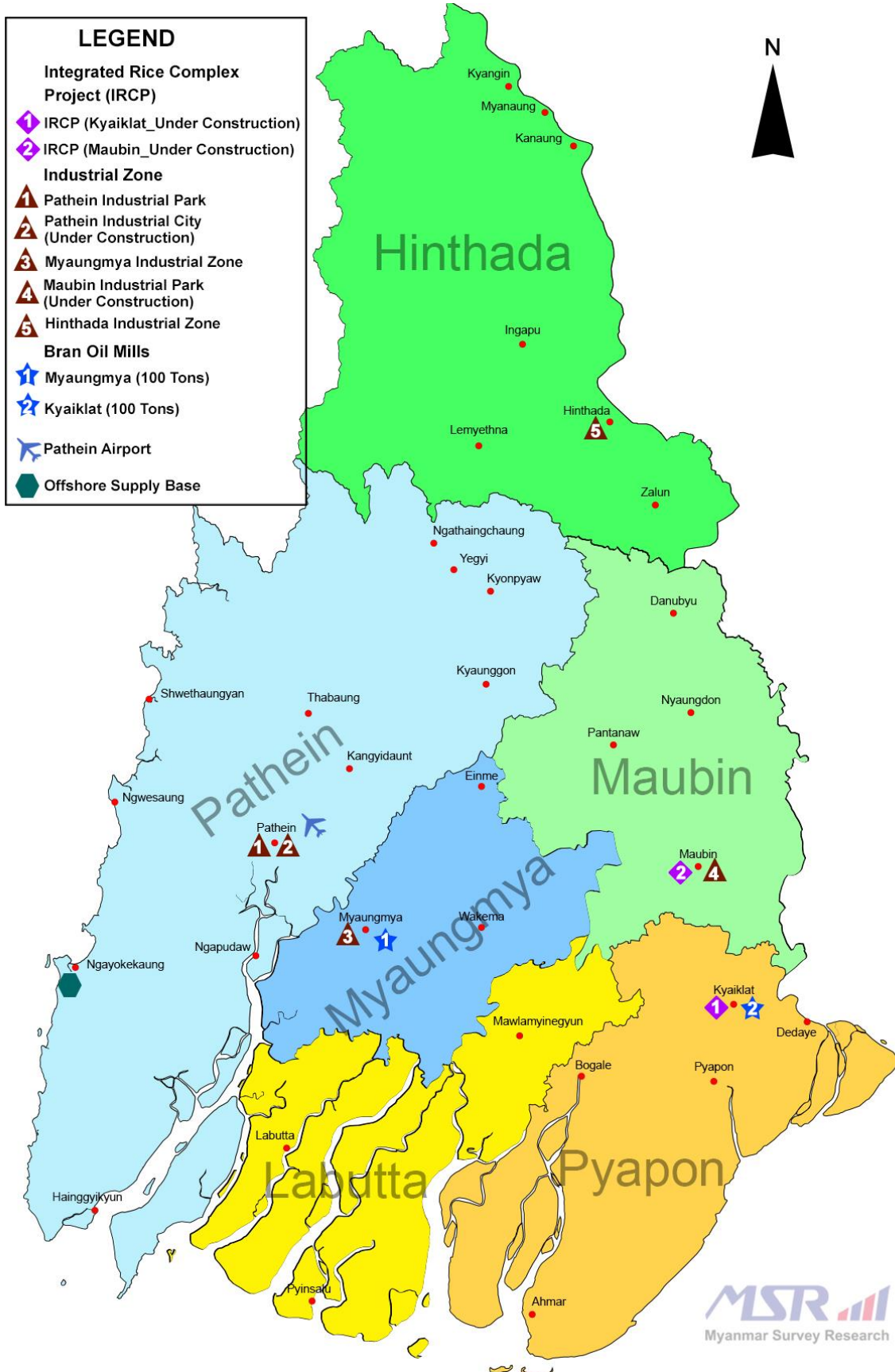
BASIC FACTS

Project title:	Agri Food Park		
Location:	Myaungmya		
Schedule for implementation:	Fiscal 2018-19		
Status:	Has submitted application to MIC		
Total area:	334.72 acres		
Area allocated for project:	261.22 acres		
No of plots:	128 plots		
Paving production roads:	56.83 acres		

		Acre	No of plots	Remark
1	Administration and services utilities	7.601	5	+ existing area
2	Integrated Rice Complex Project & Agro-Industries	92.707	59	
3	Bean, Corn & Sesame Processing Factories	31.127	27	
4	Cold storage Processing & Feedstuff Factories	21.264	15	
5	CMP Garment Factory	21.66	—	All existing building
6	Logistics and transport areas & fuel oil depot	30.037	22	

INDUSTRIAL ZONES AND OTHER PROJECTS:

MAP 12: Existing and potential projects



STANDARD OPERATING PROCEDURES – SOP (AYEYARWADY REGION GOVERNMENT)

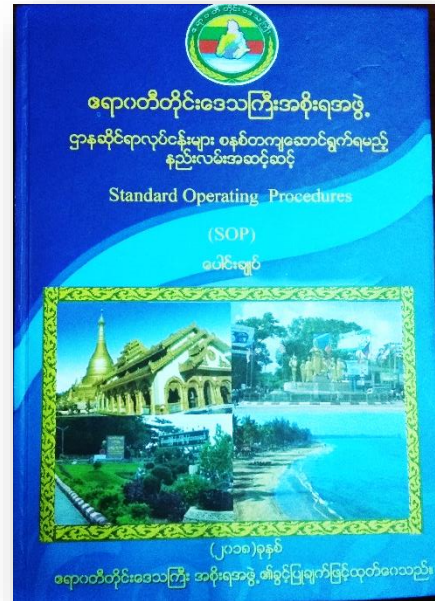
Ayeyarwady Region Government, in collaboration with administrative organizations and government departments/enterprises at Region, District and Township levels, is carrying out services for the public.

In so doing, the Region Government has brought out a 293-page publication “**Standard Operating Procedures**” with a preface by Chief Minister U Hla Moe Aung of Ayeyarwady Region Government for the government departments/organizations, businessmen and the public, with the aims mentioned as follows:

- 1 to be systematic in operating the business;
- 2 to perform in accordance with the laws, rules, procedures, orders and directives;
- 3 to facilitate the processes so that they proceed swiftly and smoothly in accordance with the standards set.

By following the procedures mentioned in the publication, the government departments/organizations, businessmen and the public will be able to have the process of submitting application, scrutiny, permit and supervision carried out with transparency.

- MIC (Myanmar Investment Commission) grants permits to businesses with an investment amount that exceeds USD 5 million (MMK 6,000 million)
- ARIC (Ayeyarwaddy Region Investment Committee) grants permits to businesses with an investment amount of USD 5 million (MMK 6,000 million) and less.



The following is a list of businesses in various sectors and government departments/organizations responsible for the respective process:

Sr	Business	Department/ organization related to process
1	Process regarding applying for land grant	General Administration Department
2	Process regarding applying for alcoholic beverages business license	
3	Process regarding extraction of river sand and river gravel	
4	Process regarding extraction of (digging for) granite and laterite	
5	Process regarding applying for brick-making business license	
6	Process regarding applying for registration of under-20 HP motorized boats	
7	Process regarding establishing private school	Department of Education
8	Process regarding inspection and supervision in construction of a building	Development Committee
9	Process regarding applying for civil construction	
10	Process regarding applying for hotel construction	
11	Process regarding applying for factory construction	
12	Process regarding applying for construction of commercial building	
13	Process regarding construction of residences in housing projects	
14	Process regarding construction of religious building	
15	Process regarding applying for 15-ton-and-above rice mill license	
16	Process regarding annual renewal of 15-ton-and-above rice mill license	

17	Process regarding rice export	
18	Process regarding auctioned sale of grant <i>inn</i> (fish-breeding lake)	Fisheries Department
19	Process regarding applying for provisional license for fish breeding	
20	Process regarding registration of private health care services	Department of Health
21	Process regarding renewal of license for private health care services	
22	Process regarding digging and retrieving a vessel that is buried underground in areas of rivers and creeks, bank and waterfront	Directorate of Water Resources and Improvement of River Systems – DWIR
23	Process regarding construction of building in areas of rivers and creeks, banks and waterfronts	
24	Process regarding sucking, digging and gathering of sand and extraction of river gravel in areas of rivers and creeks, banks and waterfronts	
25	Process regarding construction of slipway, dockyard, floating dockyard or dry dockyard in areas of rivers and creeks, banks and waterfronts	
26	Process regarding construction of wharf, pontoon bridge and landing stage in areas of rivers and creeks, banks and waterfronts	
27	Process regarding dredge mooring vessels in areas of rivers and creeks, banks and waterfronts	
28	Process regarding piling and stacking construction materials—sand, gravel, brick, timber and other things—in areas of rivers and creeks, banks and waterfronts	
29	Process regarding sinking well and pond and digging earth in areas of banks and waterfronts	
30	Process regarding digging drainage canals, construction of hydro-power station and using river/creek water in areas of rivers and creeks, banks and waterfronts	
31	Process regarding applying for copying Land Records Form 105 and 106	
32	Process regarding using agricultural land for other purposes	
33	Process regarding applying for Permit Form 7 for working agricultural land	
34	Process regarding applying for the right to work under Vacant, Fallow and Virgin Land Management Act	
35	Process regarding registration of deeds of agreement	Operator License, Transport Coordination and Supervisory Division
36	Process regarding applying for the right to operate new bus line, extend bus line and change type of bus	
37	Process regarding applying for motor vehicles operator license	
38	Process regarding registration of vehicle and driver license	Road Transport Administration Department
39	Process regarding applying for National Registration Card (Citizenship Certificate)	Immigration and National Registration Department
40	Process regarding Certificate of Household Members	
41	Process regarding having taxes levied	Internal Revenue Department
42	Process regarding applying for use of private transformer	Electricity Supply Enterprise
43	Process regarding self-help village electrification	
44	Process regarding applying for commercial-use and household-use power meters	
45	Process regarding extraction of gravels in the forest area (reserved, unclassed and protected forests)	Forest Department
46	Process regarding registration of private industry	Department of Industrial Supervision and Inspection
47	Process regarding fertilizer (seeds and pesticides) production and import registration	Department of Agriculture
48	Process regarding applying for approval permit for investment	Directorate of Investment and Company Administration

49	Process regarding fire safety measures in the construction of a building	Fire Services Department
50	Process regarding fuel storage, sale and supply work and fire safety measures in the construction of a fuel station	
51	Process regarding applying for vessel license and renewal of license	Waterways Department
52	Process regarding competency certificate for driving vessel/engine	
53	Process regarding the right for vessels to transport cargo	AR Coastal and Inland Water Transport Supervisory Organization
54	Process regarding the right for vessels to transport passengers	
55	Process regarding the right to operate chartered vessel transportation service	
56	Process regarding recommendation for food	Food and Drug Administration
57	Process regarding applying for registration of cottage/small industry	Department of Cottage Industries
58	Process regarding applying for renewal of registration of cottage/small industry	
59	Process regarding applying for amendment of contents in the registration of cottage industry	
60	Process regarding applying for hotel/lodging house license	Directorate of Hotels and Tourism
61	Process regarding opening a fuel station	Myanma Petroleum Product Enterprise
62	Process regarding extension of a fuel station	
63	Process regarding the right to operate rural crude oil refining	

TABLE 67:

15

ANALYSIS

15.1 ASSESSMENT OF MAIN SECTORS

All the 10 main sectors are considered essential for the economy of the Ayeyarwady Region, each sector playing its crucial role in the overall economic mechanism. In consideration of their prominence, they can be graded into the most promising, the second most promising and open-to-choice sectors.

Sr	Main sector	Most promising	Second most promising	Open to choice	Remark
1	Agriculture	■			Essential food
2	Forestry			■	
3	Manufacturing	■			Personal commodities
4	Fisheries	■			Essential food
5	Livestock	■			Essential food
6	Hotels and tourism	■			
7	Transportation		■		Supporting sector
8	Human resources			■	Supporting sector
9	Telecommunications			■	Supporting sector
10	Energy		■		Supporting sector

TABLE 68: Main priority sectors

- Most promising sectors:** Agriculture, fisheries, livestock breeding, hotels and tourism and manufacturing sectors are the most promising sectors for potential investors, the first three regarding essential food items and the fourth one being a lucrative service sector. Myanmar is attractive in that it is endowed with a diversity of indigenous ethnic cultures, natural scenes and resorts and according to the upward trend of tourist entries, hotels and tourism sector can be one of the most promising sectors. Manufacturing or processing sector involves all sectors, apart from services sectors, as it draws its raw materials from agriculture, livestock, fisheries and forestry sectors.
- Second most promising sectors:** Transportation and energy sectors are essential supporting sectors, contributing to the facilitation in the operation of businesses.
- Open-to-choice sectors:** The remaining four sectors are also no less important in that they are supporting the overall economic mechanism in their essential roles. These sectors are also open to the potential investors, who have their own specific specialties, experiences and discretion.

15.2 ASSESSMENT OF SUBSECTORS

The purpose of this study being **to explore potential business sectors**, the criteria in this regard have been narrowed down to the following essential elements.

- Nature of the product/service:** It is a consideration of whether the product is promising or potentially marketable. The natural produce (especially from agriculture, livestock and fisheries sectors) are essential food items, which have constant demand while Myanmar's some unique products can be made popular in the international market such as Pathein bamboo parasol, Pathein halawa, etc. There can be hidden products that have prospects to take a share of the international market.
- Availability of raw material(s):** Most raw materials are available from agriculture and forest sectors. There can be three situations of raw materials:

- (1) Raw materials that is sufficiently available now and continues to be so

- (2) Raw materials that is available now but soon to be depleted
- (3) Raw materials that are non-existence, but can be created.

Whatever situation the raw material is in, its supply must be maintained with the conservation and rehabilitation of plant and animal resources.

- 3 **Availability of suitable labour:** In Myanmar, unskilled labour is in abundant supply. Because the number of manufacturing facilities in the country is relatively small, young Myanmar people migrate to large cities or to foreign countries to take up jobs. Myanmar’s young people are adaptable to almost all jobs, and they are able to work in foreign countries. Although skilled labour is scarce, it can still be available or unskilled labourers can be trained.
- 4 **Market potential:** Populous countries like China are always in need of food, and most agricultural produce like rice, pulses, onion, etc are in good demand. Rice is exported to 53 world nations. It is believed that if the quality of Myanmar rice is high, Myanmar will be able to extend its rice export to more countries. The potential market also depends on the nature of product (mentioned above).

(Detailed ratings of the all subsectors are provided in **Appendix: 17.8**.)

Top 15 subsectors proposed for making investments

Full rating: 20

Sr	Subsector	Main sector	Total rating
1	Rice	Agriculture	20
2	Pulses	Agriculture	20
3	Rice mill	Agriculture	20
4	Mango	Agriculture	19
5	Groundnut	Agriculture	19
6	Tapioca/cassava	Agriculture	19
7	Canned coconut milk	Agriculture	19
8	Dried fish/prawn	Fisheries	19
9	Fish/prawn sauce	Fisheries	19
10	Frozen meat—chicken, pork, beef	Livestock	19
11	Hotel service	Hotels/tourism	19
12	Cargo transportation (trucks)	Transport	19
13	Marine produce transport	Transport	19
14	Passenger transport (bus)	Transport	19
15	Electricity generation (hydro, biomass, solar, wind, etc)	Energy	19

TABLE 69:

Highlights of the subsectors (top 15)

- 1 **Rice:** Rice is an essential food item, and its market also depends on population. Depending on its quality, its market can be extended to the international level. Myanmar has wide stretches of land and labour is plentiful.
- 2 **Pulses:** Pulses also are second to rice. It has international market. In Myanmar, beans and pulses are cultivated as the second crop of the same land as rice. They have great potential for export especially to populous countries.
- 3 **Rice mills:** Currently in Myanmar, the number of quality rice mills is very small. If one can operate a rice mill, he can undertake not only milling for service, but also trading by purchasing paddy from farmers. The byproducts such as bran and broken rice can be used in manufacturing animal feedstuffs.



- 4 **Mango:** Although mango is not an essential food item, Myanmar mangos are delicious, and popular among the consumers. With good cultivation techniques, Myanmar mangoes will have good export market. However, as it is a perennial crop, a large space of land is needed.
- 5 **Groundnut:** Under current circumstances, groundnut cultivation is not so popular among the farmers because of the import of palm oil. Farmers have switched to growing green gram and black gram. However, groundnut cultivation can be beneficial if advanced cultivation methods can be employed.
- 6 **Tapioca/cassava:** Fresh tapioca has great potential for export. Not only cultivation of it, production of tapioca products is also a good choice if advanced cultivation techniques can be employed.
- 7 **Canned coconut milk:** By coconut milk, it is referred to the milk obtained by squeezing the coconut kernel. It is especially used in Thailand in preparing dishes. It can be used as an ingredient in multiple foods and snacks.
- 8 **Dried fish/prawn:** For easterners, preserved fish are widely used. Especially, dried prawn is used like seasoning powder (mono sodium glutamate) for flavouring soups and dishes. The products is not only consumed in Asia, they can also be exported to American and Europe markets.
- 9 **Fish/prawn sauce:** Like dried prawn, fish/prawn sauce is widely used in Asian countries for flavouring foods. It is popularly used for flavouring dishes by Asians.
- 10 **Frozen meat (chicken, pork and beef):** Chicken, pork and beef are common essential food items. Its market is also population-based. In Myanmar, the three meat foods are mainly sold at traditional wet markets. However, it is expected that frozen meat consumption will rise if the lifestyle of the people in Myanmar has changed gradually. Currently frozen meat is targeted at modern retail markets.
- 11 **Hotel services:** In Myanmar, travelling has become popular even among the middle- and high-class families as tour transport agencies have come to provide convenient, comfortable services at reasonable prices. According to statistics, travelling—both by the nationals and foreign tourists—has increased year after year. In Ayeyarwaddy Region, beach resorts are popular tourism sites where medium-class hotels are needed.
 - ❖ **EXISTING RESORTS:** Chaung Tha Beach and Ngwe Saung Beach
 - ❖ **UNDER IMPLEMENTATION:** Mawtin Beach, Ngwe Taung Bathing Resort, Lovers' Island and Floating Hotel
 - ❖ **TO BE IMPLEMENTED:** Shwe Thaug Yan Beach and Ngwe Thaug Yan Beach.
 - ❖ **SUGGESTED—"Yangon-Pathein Delta Sightseeing Cruise & Tour"**
 - (1) **Cruise (First Day):** Leave Yangon at 6:00 am; pass through Twante Canal; study pottery in Twante; enjoy scenes along the route—Maubin, Wakema and Myanungmya; collect reasonable fee for providing on-board services; arrive Pathein at 9:00 pm.
 - (2) **Trip (Second Day):** Sightingseeing around the environs of Pathien; check-in at a hotel in Chaung Tha or Ngwe Saung Beach at 12:00 noon.
 - (3) **Return trip (Third Day):** By express bus to Yangon.

A similar trip has been organized by Sun Far Travels & Tour Co along the Ayeyarwady River, renting three boats from Inland Water Transport—Shwe Keinnari 1, 2 and 3---betwee Mandalay and Bagan. There has also been a pleasure cruise, titled "Pan Taw" along the Chindwin Rivers. However, summer is a season when shoals appear in shallow waters and should be avoided.



- 12 **Cargo transportation:** With investments in manufacturing sector coming in, cargo transport will become an essential service.
- 13 **Marine produce transport:** Currently, Myanmar's frozen sea prawn is exported and used widely in preparing sushi. If production in fisheries sector has improved, marine produce transport will be an essential service.
- 14 **Passenger transport (bus):** The residents of Ayeyarwady Region mainly travel to Yangon. If the businesses become prosperous, it will become a great potential service.
- 15 **Electricity generation:** With the great need of electricity in residential sector and potential increase in commercial and industrial sectors, electricity generation is a good option to consider.



The government has a plan to set up a modern oil refinery near Man Thanbayarkan Oil Refinery, which is also being upgraded with the assistance of Indian technicians.

In electricity generation, there is a national plan in which gas, solar and hydro power plants will be implemented towards the year 2022. Just as there are power plants under implementation and ones to be implemented. By 2022, all the sectors—residential, commercial and industrial—will be supplied with adequate electricity. (See full information in **Chapter 10: Energy Sector.**)

Second top 15 subsectors proposed for making investments

Sr	Subsector	Main sector	Total rating
1	Rice/pulses purchase depot	Agriculture	18
2	Cashew nut	Agriculture	18
3	Cold storage	Fisheries	18
4	Rice-husk briquette	Agriculture	18
5	Bio-fertilizer	Agriculture	18
6	Canned fish	Fisheries	18
7	Fish/prawn paste	Fisheries	18
8	Souvenir shops	Hotels & tourism	18
9	Passenger transport (boat)	Transport	18
10	Cargo transport (boat)	Transport	18
11	Port	Transport	18
12	Industrial oils	Energy	18
13	Diagnosing centre (Laboratories)	Health	18
14	Pharmaceuticals	Health	18
15	Healthcare equipment (beds, crutches, etc)	Health	18

Other subsectors for choice

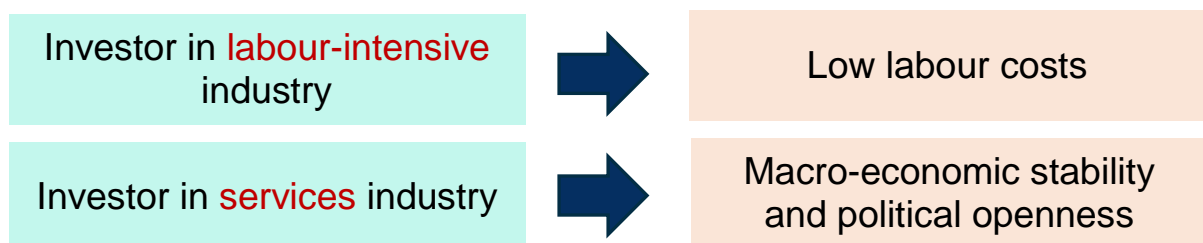
31	Rice-based snacks	Agriculture	17
32	Canned peas	Agriculture	17
33	Canned fruits	Agriculture	17
34	Edible oil mill	Agriculture	17
35	Agricultural machine	Agriculture	17
36	Pathein bamboo parasol	Forestry	17
37	Cold storage (fish, prawn, crab)	Fisheries	17
38	Canned meat	Livestock	17
39	Egg (chicken)	Livestock	17
40	Travel agency service	Hotels & tourism	17
41	Passenger transport (rail)	Transportation	17
42	Cargo transport (rail)	Transportation	17
43	Dockyard	Transportation	17
44	Telecommunication services		17

45	Telephone and accessories	Telecommunication	17
46	Industrial oils	Energy	17
47	Specialist hospital	Health care	17
48	Packaging machines	Related sector	17
49	Construction	Related sector	17
50	Warehousing	Agriculture	17
51	Fruit-flavoured snacks	Agriculture	16
52	Animal feedstuff	Manufacturing	16
53	Pathein halawa (snack)	Manufacturing	16
54	Bamboo-based products	Forestry	16
55	Rubber	Forestry	16
56	Rubber products (eg tyre)	Forestry	16
57	Wood-based products	Forestry	16
58	Egg (duck)	Livestock	16
59	Myanmar sausages	Manufacturing	16
60	Beach resort housing	Hotel & tourism	16
61	Resorts	Hotel & tourism	16
62	Technological institutions	Human resources	16
63	Language schools/universities	Human resources	16
64	Management Universities	Human resources	16
65	Mechanic schools	Human resources	16
66	Nursing schools/universities	Human resources	16
67	Salt mills	Other sector	16
68	Chilly sauce	Agriculture	15
69	Fruit juices	Agriculture	15
70	Seasoning powder (tapioca)	Agriculture	15
71	Instant taro-stalk soup	Agriculture	15
72	Coir-based products	Manufacturing	15
73	Konjac (tuber)	Agriculture	15
74	Konjac products	Agriculture	15
75	Cane-based products	Forestry	15
76	Airport	Transportation	15
77	General education universities	Human resources	15
78	General education schools (eg GCE, SAT)	Human resources	15
79	Vocational schools	Human resources	15
80	Hair products (eg wig)	Other sector	15
81	Fertilizer/pesticide	Agriculture	14
82	Fishing gear	Fisheries	14
83	Packaged milk	Livestock	14

TABLE 70:

15.3 ASSESSMENT OF OTHER IMPORTANT FACTORS

There are many different factors that determine foreign direct investment (FDI) and it is hard to isolate individual factors, given there are many different variables. It also depends on the type of industry. For example, with manufacturing FDI, low wage costs tend to be the most important, as they are a labour intensive industry. For service sector FDI, macro-economic stability and political openness tend to be more important.



In this assessment, the two most important sectors in the infrastructure—transportation and energy will be dealt with.

TRADE ROUTES

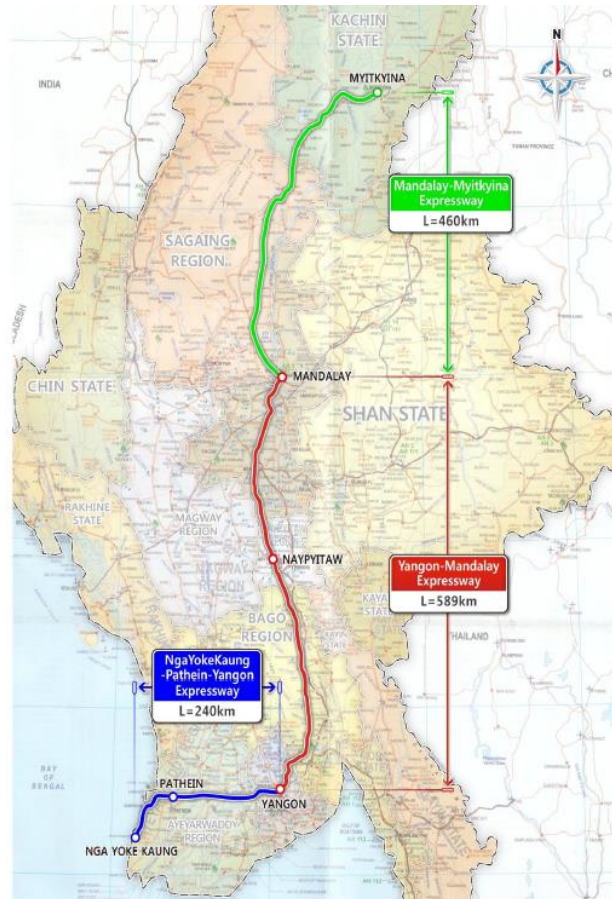
It is now a time when the Union Government striving its best to improve the transport links between States and Regions for domestic trade and between manufacturing places to the international ports for international trade. Ayeyarwady Region, itself a great potential for becoming a manufacturing base and having a coastal line, is located in a strategic position.

- ❖ **East-West Economic Corridor:** Under China's Belt and Road Initiative, the corridor will start from Vietnam (Danang) as the East end and reach Myanmar as the West end, crossing Thai and Lao provinces and Kayin State (Myanmar), leading to Yangon, and then to Nga Yoke Kaung (Ayeyarwady Region). Transport route between Bangkok and Myanmar will be shorter than the sea route. This route will further be connected to India via India-Myanmar-Thailand Trilateral Highway.

The planned 3 expressways are:

- 1 Mandalay-Yangon
- 2 Mandalay-Myitkyina, and
- 3 Yangon-Nga Yoke Kaung

- ❖ **Deep Sea Ports:** With the emergence of transport routes, the role of deep sea ports will become prominent.¹⁵⁶ In addition to Patheingyi Deep Sea Port Project under implementation, Nga Yoke Kaung is also being considered as its offshore water has a depth of 20 meters under which vessels with 100,000 tons to 300,000 tons can berth.¹⁵⁷



INDUSTRIAL ZONES

In preparation for the potential growth in various businesses, industrial zones are being implemented. Among them, the Patheingyi Industrial City, with an area of 2,700 acres is the largest with customs and immigration services along with the port facilities.

Factors—government stability, political openness, business law, conditions of risks, lack of corruption, low crime rate, financial security, tax rates, GDP growth rate, condition of FDIs, population growth rate, inflation, etc—do not allow space and time in this study and a separate study will be needed to be able to provide in-depth information on these factors.

¹⁵⁶ Feasibility Study Module for the Three Expressways in Myanmar (PDF)

¹⁵⁷ Responses by Ayeyarwady Region Minister U Htay Win regarding Invest Myanmar Summit 2019

16

CONCLUSIONS AND RECOMMENDATIONS

16.1 CONCLUSIONS

❖ Findings from secondary and primary information

Overall business situation

- Of the businesses, just as there are successful ones, there are also ones faced with some challenges. These challenges in their business stem from the lack of quality of the product, among other requirements, and from domination of alternative products. If the businessmen who are already equipped with technology and experiences collaborate with the local businessmen, both sides will have the chance to enjoy benefits.

Current needs of respondents

- Most respondents (grassroots manufacturers) expect:
 - 1 Availability of loans
 - 2 Land
 - 3 Sufficient electricity
 - 4 Advanced technology
 - 5 Access to good-quality transportation
 - 6 Access to market
 - 7 Development of research in specific sectors.
 - 8 Good-quality seeds (agriculture) / species (livestock) and good-quality inputs, and finally
 - 9 Collaboration with foreign investors on a mutually beneficial basis.

General situations

- Manufacturers at the grassroots level are experiencing lack of technology, and as a result, they cannot reach the stage of manufacturing finished products. They can turn out products—raw or semi-finished, and even if they produce finished products, they are not competitive in the domestic and international markets.
- In the domestic market, appearance of alternative products has caused challenges to local businesses. For example, because of the import of palm oil from abroad, Myanmar edible oil producers are faced with difficulties and groundnut and sesame growers have switched to other crops. The edible oil market size presented in this report shows that Myanmar market alone needs more edible oil.
- Because of low technology, Myanmar farmers cannot produce even good-quality raw materials, causing loss. For example, Myanmar's raw rubber sheets are of low quality, and Chinese merchants purchase it at low prices. Hence, the cost becomes greater than the proceeds, culminating in the suspension of extracting latex from the trees. And now, rubber trees are staying idle.
- Because of the traditional processing methods and lack of modern packaging technology, foreign products have penetrated the Myanmar market, causing downfall of small and medium enterprises.

Finance

- Small profits have caused a hard life for farmers who cannot spend extra money on other requirements such as farm machinery and implements, storage facilities, and good-quality inputs (fertilizers).

Because of the lack of storage facilities, farmers are faced with losses, hit by the natural elements, especially rains. And they cannot also wait for the time when they can fetch good prices.

❖ General conclusion

According to our survey, Ayeyarwady Region possesses a great number of businesses which potential investors will find interesting. Just as national peace process is progressing in a positive light, Ayeyarwady Region itself is a peaceful region with attractive, potential untapped or latent businesses that have not reached the international market. With the employment of the potential businessmen's technological and business experiences, this region is in a position to become an important manufacturing base not just for the nation but also for the international market.

16.2 RECOMMENDATIONS

- Potential investors, before determining on making an investment, can hold discussions and seek advice from authorities of Ayeyarwady Region—Ayeyarwady Region Government, Ayeyarwady Region Investment Committee and Ayeyarwady Region Chamber of Commerce and Industry.
- The Ayeyarwady Region Government has also brought out a publication “Standard Operating Procedures” in which detailed procedures have been mentioned for the convenience of businessmen with intention to do business in the region.
- Ayeyarwady Region has enacted its own laws which has relaxed procedures for facilitating the process of launching businesses.
- The main requirement in the Myanmar economy is the lack of technologies in various sectors and with the proper technology brought in, potential investors have the rich opportunities to do business in Myanmar.
- Of all the sectors, agriculture sector is the most important one, and in it, technologies are needed in all stages—good quality seed development, transplanting, soil care, harvesting and post-harvest process.
- Ayeyarwady Region has prospects to become a crucial international port. There are opportunities to operate Deep Sea Ports, and advanced dockyards.
- Businessmen can create raw materials with available land and water resources, in coordination with regional authorities.
- It is recommended to work in partnership with local business on a mutually beneficially basis so that both parties can enjoy the benefits proportionally. By doing partnership, foreign businessmen can take advantage of the help of the local businessmen.

17

APPENDICES

17.1 CONTACT INFORMATION OF KEY ORGANIZATIONS IN AYEYARWADY REGION

ARG:	Ayeyarwady Region Government Maha Bandoola Road (Between Merchant Street and Mingyi Street), 4 th Ward, Patheingyi Township	Tel: 042 23680 (Ministry of Planning and Finance) Tel: 042 25277 (Government Office)
ARCCI:	Ayeyarwady Region Chamber of Commerce and Industry. No 23, Shinbin Phonepawint Road, Patheingyi Township	Tel: 09 7838 20149
DICA Ayeyarwady Region:	Directorate of Investment and Company Administration (Ayeyarwady Region Office) OSS Office, Myat Toe, 13 th Ward, Patheingyi Township.	Tel: 042 29257 Email: dicapatheingyi@gmail.com

17.2 POPULATION OF AYEYARWADY REGION

Township/sub-township-wise populations of Ayeyarwady Region

Townships and sub-townships			Male	Female	Both sexes
Patheingyi District			795,256	835,460	1,630,716
1	Kangyidaunt		86,897	91,093	177,990
2	Kyaungon		78,755	84,280	163,035
3	Kyongpyaw		113,738	121,989	235,727
4	Ngapudaw		84,182	84,594	168,776
5	Patheingyi		137,663	149,408	287,071
6	Yekyi		49,807	55,263	105,070
7	Thabaung		75,663	78,737	154,400
1	Ngayokaung	Sub-township	20,915	20,279	41,194
2	Hainggyikyun	Sub-township	57,915	56,594	114,509
3	Shwethaungyan	Sub-township	24,490	25,048	49,538
4	Ngwe Saung	Sub-township	22,651	21,725	44,376
5	Ngathaingchaung	Sub-township	42,580	46,450	89,030
Pyawon District			509,353	523,700	1,033,053
8	Kyaiklatt		94,837	98,503	193,340
9	Daydaye		99,614	103,312	202,926
10	Pyawon		91,912	95,431	187,343
11	Bogale		159,296	163,369	322,665
6	Ahmar	Sub-township	63,694	63,085	126,779
Maubin District			472,550	501,398	973,948
12	Nyaungdon		105,713	110,193	215,906
13	Danubyu		85,775	93,578	179,353
14	Pantanaw		128,122	136,474	264,596
15	Maubin		152,940	161,153	314,093
Myaungmya District			381,299	400,545	781,844
16	Myaungmya		145,972	152,665	298,637
17	Wakema		140,698	148,408	289,106
18	Einme		94,629	99,472	194,101
Labutta District			312,039	314,519	626,558
19	Mawlamyinegyun		153,127	158,213	311,340
20	Labutta		114,746	115,183	229,929
7	Pyinsalu	Sub-township	44,166	41,123	85,289
Hinthada District			539,311	599,399	1,138,710
21	Kyangan		45,623	50,460	96,083
22	Zalun		79,653	88,550	168,203
23	Myanaung		102,303	116,278	218,581
24	Laymyethna		49,661	53,363	103,024

25	Hinthada	159,694	178,741	338,435
26	Ingapu	102,377	112,007	214,384

17.3 BUSINESS ASSOCIATIONS IN AYEYARWADY REGION

Sr	Association (AR: Ayeyarwady Region)	No of members
1	AR Chamber of Commerce and Industry Chairman: U Win Myint Hlaing	124
2	Myanmar Rice Millers Association – Branch (AR)	597
3	Myanmar Paddy and Rice Association – Branch (AR)	100
4	Myanmar Agricultural Producers Association - Branch	35
5	Myanmar Industrial Oil Import and Distribution Association (AR)	58
6	Myanmar Fisheries Federation (AR)	15,110
7	Myanmar Rubber Planters and Producers Association – Branch (AR)	159
8	Myanmar Real Estate Association – Branch (AR)	57
9	Myanmar Beans and Pulses and Sesame Merchants Association	150
10	Myanmar Livestock Federation	350
11	AR Farmers Development Association	34
12	AR Computer Entrepreneurs Association	45
13	AR Computer Technicians Association	530
14	AR Highway Cargo Transport and Truck Owners Association	17
15	AR Truck Owners Association	45
16	AR Committee for Systematic Operation of Motorboats	3,562
17	AR Industrialists Association	124
18	AR Fruits and Vegetables Cultivation, Production and Sales Association	35
19	AR Construction Entrepreneurs Association	69
20	AR Cassava Cultivation, Production and Sales Association	200
21	AR Salt Entrepreneurs Association	235
22	AR Salt Farmers Association	200
23	AR Salt Millers Association	35
24	AR Cane, Bamboo, Hyacinth and Reed Handicrafts Association	1,250
25	AR Hair Traders Association	95
26	AR Prawn Breeding, Production and Sales Association	136
27	AR Cashew Entrepreneurs Association	23
28	Chaung Tha Hotel Zone	23
29	Ngwe Saung Hotel Zone	23
30	AR Pathein Parasol Entrepreneurs Association	35
31	Pathein District Chamber of Commerce and Industry	27
32	Hinthada District Chamber of Commerce and Industry	450
33	Myaungmya District Chamber of Commerce and Industry	102
34	Labutta District Chamber of Commerce and Industry	25
35	Maubin District Chamber of Commerce and Industry	31
36	Pyapon District Chamber of Commerce and Industry	350

17.4 DEPARTMENTS/ENTERPRISES UNDER MINISTRY OF ELECTRICITY AND ENERGY

Ministry Office		
Electricity:	DEPP	Department of Electric Power and Planning
	DPTSC	Department of Electric Power Transmission and System Control
	DHPI	Department of Hydropower Implementation
	EPGE	Electric Power Generation Enterprise
	ESE	Electricity Supply Enterprise
	YESC	Yangon Electricity Supply Corporation
	MESC	Mandalay Electricity Supply Corporation
Energy	OGPD	Oil and Gas Planning Department
	MOGE	Myanma Oil and Gas Enterprise

MPE	Myanma Petrochemical Enterprise
MPPE	Myanma Petroleum Product Enterprise

17.5 LIST OF SUB-STATIONS IN AYEYARWADY REGION (June 2018)

66-KV sub-stations

Sr	Township	Sr	Sub-station (SS) name	Voltage ratio (KVA)	Installed MVA	No of transformers	Total installed MVA	Ownership
(ESE: Electricity Supply Enterprise; Dept: Department; — SS: Sub-station name not mentioned)								
1	Nga Yoke Kaung	1	Nga Yoke Kaung SS	66/11	5	1	5	ESE
2	Hainggyi	2	Nga Byay Ma SS	66/11	5	1	5	ESE
		3	— SS	66/33	20	1	20	ESE
3	Pathein	4	Region SS	66/11	20	1	20	ESE
		5	Myatto SS	66/11	20	1	20	ESE
		6	— SS	66/11	10	1	10	EST
		7	— SS	66/11	10	1	10	Private
		8	— SS	66/33	20	1	20	ESE
4	Yekyi	9	Glass Factory SS	66/6.6	2.5	1	2.5	Other dept
		10	Yekyi SS	66/11	5	2	10	ESE
5	Myaungmya	11	— SS	66/33	20	1	20	ESE
		12	Myaungmya SS	66/11	5	2	10	ESE
		13	— SS	66/11	5	1	5	ESE
6	Labutta	14	— SS	66/33	5	1	5	ESE
		15	Labutta SS	66/11	5	1	5	EST
7	Hinthada	16	— SS	66/11	5	1	5	Private
		17	Hinthada SS	66/11	20	1	20	ESE
		18	— SS	66/11	10	1	10	ESE
8	Ingapu	19	Myokwin (river-water pumping)	66/11	3	1	3	Other dept
		20	Ingapu SS	66/11	5	1	5	ESE
9	Kangyidaunt	21	Fertilizer Factory SS	66/33	20	2	40	Other dept
10	Thabaung	22	Pulp Mill	66/11	31.5	2	63	Other dept
11	Kyangin	23	Cement Factory	66/11	9	3	27	Other dept
		24	Seiktha Methanol SS	66/6.9	6.3	1	6.3	Other dept
12	Myanaung	25	Kazunkhon (river-water pumping)	66/11	5	1	5	Other dept
		26	Gas Factory	66/11	10	1	10	ESE
		27	— SS	66/11	5	1	5	ESE
		28	Myitkyo (river-water pumping)	66/11	3	1	3	Other dept
Total ▶					290.3	34	369.8	

33-KV sub-stations

Sr	Township	Sr	Sub-station (SS) name	Voltage ratio (KVA)	Installed MVA	No of transformers	Total installed MVA	Ownership
(ESE: Electricity Supply Enterprise; Dept: Department; — SS: Sub-station name not mentioned)								
1	Pathein	1	Mayanchaung SS	33/11	10	1	10	ESE

2	Kyaunggon	2	Kyaunggon SS	33/11	1.25	1	1.25	ESE
	Kyaunggon	3	— SS	33/11	2.5	1	2.5	ESE
3	Ngapudaw	4	Ngapudaw SS	33/11	5	1	5	ESE
4	Einme	5	Einme SS	33/11	5	1	5	ESE
5	Pyapon	6	Pyapon SS	33/11	10	1	10	ESE
6	Kyaiklat	7	Kyaiklat SS	33/11	5	1	5	ESE
7	Bogale	8	Bogale SS	33/11	10	1	10	ESE
8	Dedaye	9	Dedaye SS	33/11	5	1	5	ESE
	Dedaye	10	Ohnbin village SS	33/11	1.5	1	1.5	Self-help
9	Maubin	11	Maubin SS	33/11	10	1	10	ESE
	Maubin	12	Taloke Lat SS	33/11	2	1	2	ESE
	Maubin	13	— SS	33/11	1.25	1	1.25	ESE
10	Thabaung	14	Paper Mill	33/11	3	1	3	Other dept
11	Nyaungdon	15	Nyaungdon SS	33/11	5	1	5	ESE
	Nyaungdon	16	Chaunggyi SS	33/11	2	1	2	Self-help
	Nyaungdon	17	Farm Produce SS	33/11	1	1	1	Private
	Nyaungdon	18	LPG SS	33/11	4	1	4	Other dept
	Nyaungdon	19	Mezali SS	33/11	5	1	5	ESE
12	Danubyu	20	Danubyu SS	33/11	5	1	5	ESE
13	Pantanaw	21	Pantanaw SS	33/11	5	1	5	ESE
	Pantanaw	22	Inma SS	33/11	0.5	1	0.5	Self-help
	Pantanaw	23	Pathwe SS	33/11	3	1	3	Self-help
14	Kyonpyaw	24	Inma river-water pumping	33/11	0.5	1	0.5	Other dept
15	Wakema	25	Wakema SS	33/11	10	1	10	ESE
16	Ngapudaw	26	Kyongu SS	33/11	5	1	5	ESE
25	Hainggyi	27	Hainggyi SS	33/11	1.5	1	1.5	ESE
26	Hainggyi	28	Hainggyi SS	33/11	3	1	3	Navy
Total ►						28	122	

17.6 LICENSED PRIVATE HOSPITALS IN AYEYARWADY DIVISION

Sr	Hospital Name	Address	Equipment	No of beds
1	Zaw Gyi General Hospital	3, Anawrahta Street, Ward 6, Pyapon Township	Normal lab + normal X-ray	16
2	Aung General Hospital	156, U Ba Cho Street, Myaungmya Township	Normal lab + normal X-ray	16
3	Myint Myat General Hospital	252, Myopat Street, Laltikwin Ward, Hinthada Township	Normal lab + normal X-ray	50
4	La Min General Hospital	Ward 5, 50, Mayan Cho Street, Pathein Township	Normal lab + normal X-ray	25
5	Htoo General Hospital	67, 11 th Street, Myaungmya Township	Normal lab + normal X-ray	16
6	Sal Lan General Hospital	45, 10 th Street, Ward 10, Maubin Township	Normal lab + normal X-ray	16
7	Shwe La Min General Hospital	Yone Gyi Ward, 32, Bo Saw Maung Street, Hinthada	Normal lab + normal X-ray	50
8	Ayeyarwady General Hospital	Ward 1, 36, Dani Taw 8 th Street, Pyapon Township	Normal lab + normal X-ray	16
9	Ayeyarwady United General Hospital	Ward 5, opposite Pyi Taw Thar Housing, Station Street, Pathein	Special lab + special X-ray	50
10	Ar Raw Gen Tagon Eye Hospital	Min Paing Ward, Kun Chan Kone School, Wakema	Eye treatment	16
Total ►				271

17.7 COMPANIES DOING CONTRACT FARMING IN AYEYARWADY REGION¹⁵⁸

Sr	Company doing contract farming in Ayeyarwady Region
1	Ayeyar Pathein Co
2	Max Co
3	Ayeyar Tagun
4	Good Brother Co
5	Cooperatives Society
6	MAPCO
7	Kinsana Kyunthar (Golden Delta) Co

17.8 DETAILED RATINGS OF SUBSECTORS

Rating definitions

Product nature	Availability of raw material(s)/ input(s)	Availability of suitable labour	Market potential/ future demand	Rating
Essential product/service	Availability is excellent.	Availability is excellent.	Export demand is very excellent.	5
Not essential but popular	Availability is good.	Availability is good.	Good export and domestic market	4
Fairly popular	Availability is fair	Availability is fair	Good domestic market	3
Not so popular	Availability is poor	Availability is poor	Fair domestic market	2
Not known	Not available	Not available	Poor market	1

Sr	Subsector	Industry				Assessment				
		Natural produce	Processed product	Services	Trading	Product/service nature	Availability of raw materials	Proper labour needed	Potential market	Total
❖ AGRICULTURE-RELATED SUBSECTORS										
1	Rice	■				5	5	5	5	20
2	Pulses	■				5	5	5	5	20
3	Banana	■				4	5	5	3	17
4	Mango	■				4	5	5	5	19
5	Groundnut	■				5	5	5	4	19
6	Rice-based snacks		■			4	5	5	3	17
7	Fruit-flavoured snacks		■			3	5	5	3	16
8	Rice mill			■		5	5	5	5	20
9	Animal feedstuff		■			4	5	5	2	16
10	Canned peas		■			4	5	5	3	17
11	Canned fruits		■			4	5	5	3	17
12	Edible oil mill			■		5	3	5	4	17
13	Rice/pulses purchase depot				■	3	5	5	5	18
14	Chilly sauce		■			3	5	5	2	15
15	Cashew nut		■			4	5	5	4	18
16	Fruit juices		■			3	5	5	2	15
17	Tapioca/cassava	■				4	5	5	5	19
18	Seasoning powder (tapioca)		■			3	4	4	4	15
19	Instant taro-stalk soup		■			3	3	4	5	15
20	Canned coconut milk		■			4	5	5	5	19

¹⁵⁸ Department of Agriculture

Sr	Subsector	Industry				Assessment				
		Natural produce	Processed product	Services	Trading	Product/service nature	Availability of raw materials	Proper labour needed	Potential market	Total
21	Coir-based products		■			3	5	4	3	15
22	Konjac (tuber)	■				4	3	4	4	15
23	Konjac products		■			4	3	4	4	15
24	Pathein halawa (snack)		■			4	5	4	3	16
25	Agricultural machine				■	5	4	4	3	17
26	Rice-husk briquette		■			5	5	4	4	18
27	Fertilizer/pesticide		■		■	5	3	3	3	14
28	Bio-fertilizer		■			5	5	4	4	18
◆ FOREST-RELATED SUBSECTORS										
29	Bamboo-based products		■			4	4	4	4	16
30	Cane-based products		■			4	3	4	4	15
31	Rubber	■				4	4	4	4	16
32	Rubber products (eg tyre)		■			4	4	4	4	16
33	Wood-based products		■			4	4	4	4	16
34	Pathein bamboo parasol		■			4	4	4	5	17
◆ FISHERY-RELATED SUBSECTORS										
35	Fishing gear				■	4	3	4	3	14
36	Cold storage (fish, prawn, crab)		■			5	5	5	3	18
37	Canned fish		■			5	5	5	3	18
38	Dried fish/prawn		■			5	5	5	4	19
39	Fish/prawn paste		■			5	5	5	3	18
40	Fish/prawn sauce		■			5	5	5	4	19
◆ LIVESTOCK-RELATED SUBSECTORS										
41	Frozen meat—chicken, pork, beef		■			5	5	5	4	19
42	Canned meat		■			5	4	5	3	17
43	Egg (duck)	■				4	4	5	3	16
44	Egg (chicken)	■				4	5	5	3	17
45	Packaged milk		■			4	3	4	3	14
46	Myanmar sausages		■			4	4	5	3	16
◆ HOTEL-AND-TOURISM-RELATED SUBSECTORS										
47	Hotel service			■		5	5	4	5	19
48	Travel agency service			■		4	4	4	5	17
49	Beach resort housing			■		4	4	4	4	16
50	Resorts			■		4	4	4	4	16
51	Souvenir shops		■			4	5	5	4	18
◆ TRANSPORT-RELATED SUBSECTORS										
52	Cargo transportation (trucks)			■		5	4	5	5	19
53	Marine produce transport			■		5	4	5	5	19
54	Passenger transport (bus)			■		5	4	5	5	19
55	Passenger transport (rail)			■		5	3	4	5	17
56	Cargo transport (rail)			■		5	3	4	5	17
57	Passenger transport (boat)			■		5	4	4	5	18
58	Cargo transport (boat)			■		5	4	4	5	18
59	Dockyard			■		5	3	4	5	17
60	Port			■		5	4	4	5	18
61	Airport			■		5	3	3	4	15
◆ EDUCATION-RELATED SUBSECTORS										
62	Technological institutions			■		5	4	4	3	16

Sr	Subsector	Industry				Assessment				
		Natural produce	Processed product	Services	Trading	Product/service nature	Availability of raw materials	Proper labour needed	Potential market	Total
63	Language schools/universities			■		5	4	4	3	16
64	Management Universities			■		5	4	4	3	16
65	General education universities			■		4	4	4	3	15
66	General education schools (eg GCE, SAT)			■		4	4	4	3	15
67	Mechanic schools			■		5	4	4	3	16
68	Nursing schools/universities			■		5	4	4	3	16
69	Vocational schools			■		4	4	4	3	15
◆ TELECOMMUNICATION-RELATED SUBSECTORS										
70	Telecommunication services			■		5	5	4	3	17
71	Telephone and accessories				■	4	5	5	3	17
◆ ENERGY-RELATED SUBSECTORS										
72	Industrial oils				■	5	5	5	3	18
73	Industrial oils		■			5	4	5	3	17
74	Electricity generation (hydro, biomass, solar, wind, etc)			■		5	5	4	5	19
◆ HEALTH-RELATED SUBSECTORS										
75	Specialist hospital			■		5	4	3	5	17
76	Diagnosing centre (Laboratories)			■		5	4	4	5	18
77	Pharmaceuticals				■	5	4	4	5	18
78	Healthcare equipment (beds, crutches, etc)				■	5	4	4	5	18
◆ GENERAL SUBSECTORS										
79	Packaging machines		■			4	4	4	5	17
80	Salt mills		■			4	4	5	3	16
81	Hair products (eg wig)		■			3	4	4	4	15
82	Construction			■		5	4	4	4	17
83	Warehousing			■		5	4	4	4	17

17.9 REFERENCES

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 Fax: (+95) 01 508071 URL: www.picmyanmar.com Email: info@picmyanmar.com Hotline: (+95) 09 4000 81881

Ayeyarwady Resort and Villa Development Co Ltd

Customs Department, Ministry of Planning and Finance

Daw Htay Htay Myint, Deputy Director, Directorate of Labour, Ayeyarwady Region. 042 25652

Daw Khin Myint Kyi, Secretary, MPT. 09 4230 00722

Daw Su Su Kyi, General Manager, Cold Storage, Yuzana Co.

Department of Agriculture

Department of Educational Planning and Training, Ministry of Education

Department of Fisheries, Ayeyarwady Region

Department of Fisheries, Ministry of Agriculture, Livestock and Irrigation, Office Building No. 36 Nay Pyi Taw, Myanmar. Tel : (95 -67)408059 Fax : (95 -67)408048 E-mail : planstatisticsdof@gmail.com

Department of Health, Ayeyarwady Region

Department of Road Transport Administration, Ayeyarwady Region

Department of SME Administration (Patheingyi Township)

Directorate of Investment and Company Administration, Ayeyarwady Region Office

Dr Kyaw Thura, Rector, Patheingyi Technical University. 09 520 2960

Dr Min Thung, Joint Secretary, Patheingyi Medical Association. 09 520 2562

Livestock and Veterinary Department, Ayeyarwady Region

MITT: Myanmar International Thilawa Terminal Port, Yangon Region

Myanmar Port Authority, Patheingyi

PIC Project Office: Patheingyi-Ngapudaw Road, Patheingyi City, Ayeyarwady Region

U Aung Ba Thein, PEC Private High School, Yangon-Patheingyi Road, Patheingyi Township. 09 4227 79997 09 2542 40170 email: ad.pecprivateschool@gmail.com

U Aung Kyaw Kyaw, coconut plantation owner, Shwe Thung Yan Sub-Township, Patheingyi Township.

U Aung Kyaw Kyaw, purchase depot owner, Patheingyi Township. 09 79 450 6416 09 2530 56860

U Aung Kyaw Moe (Manager), Daw Thidar Aung (Owner), Shwe Hnizi Dockyard, No 9 Quarter, Thindawgyin Ward, Patheingyi.

U Aung Lwin (Bamboo and Hyacinth Handicrafts), Vice-Chairman, Cane and Bamboo Entrepreneurs Association. 09 4225 42328 09 6994 12920

U Aung Mon, Deputy Director, Agricultural Mechanization Department (Ayeyarwady Region) 09 513 4622

U Aung Myay, pig breeder, Myaungmya Township. 09 857 5215

U Aung Myo Thant, Chairman, Hinthada Rice Millers Association. 09 79 664 4473

U Aung Ngwe, Supervisor, Shwe Yathaw Nyo Agriculture Farm, Kywe Hsin Village, Patheingyi-Monywa road, Ingapu Township. 09 79 070 8500, 09 44 480 9080

U Aung Phone, Chairman, Hinthada Industrial Zone Management Committee. 09 79 413 1600

U Aung Thura Shwe Phone, owner, duck farm, Khamauksu Village, Lemyethna Township. 09 4010 23616, 09 8993 66077

U Aung Zaw Zaw Oo, Assistant Manager, Myo Zar Khin Co, Patheingyi-Mawtinsun Road, Patheingyi Township. 09 4236 82256

U Hla Aye, coir rope producer, Tegyigone Ward, Patheingyi Township. 09 856 9040

U Hla Win, Yuzana Prawn Breeding (Ayeyarwady Fishery Development Co), Ngwe Saung, Patheingyi. 09 4224 83399

U Htay Hlaing, Assistant Director, Ayeyarwady Region Forest Department. 09 2557 709118

U Khin Maung Hlaing, Director, Consumer Affairs Department (Ayeyarwady Region), Ministry of Commerce

U Khin Maung Win, Meat Chicken Production, Taunggalay Village-tract, Myaungmya Township. 09 7784 37071

U Ko Ko Naing, Myanmar Koe Slippers Manufacturing, No 45 Shwe Zedi Road, Patheingyi. 09 855 0922

U Ko Thein, fishery businessman, Ward 3, Hainggyikyun. 09 4285 52355

U Kyaw Khin Shwe, Kaung Thant PDW, Myetto Ward, Patheingyi Township. 09 7852 01918

- U Kyaw San Lin and Daw Yin Yin San (fish paste producer), Ahsin Chaing Village, Deedoo-gone Village-tract, Ngapudaw Township. 09 4439 03829
- U Kyaw Tun, Ngwe Yi Win Ice Factory, Pathein Township. 09 520 1849
- U Lay Ko, Pathein Industrial Zone Management Committee. 09 4512 40055 09 7710 98090
- U Min Naing, Chairman, Edible Oil Millers Association, Ayeyarwady Region. 09 520 8321, 044 21529
- U Min Naing, Shwe Sar Pathein Parasol Production, No 653, Tawya Kyaung Street, Pathen. 09 9615 65166
- U Myint Lwin, Chairman, Ayeyarwady Region Committee for Systematic Operation of Private Motor vehicles. 09 2501 23602
- U Myint Thaung, Region Mechanical Engineer, Office of the Chief Engineer (Mechanical). 09 799107127
- U Myint Thein Oo, Chairman, Pulses and Sesamum Merchants Association (Hinthada Township) 09 858 0214, 09 516 8405
- U Myint Zaw, Ayeyarwady Region Sales Officer, Myanma Petroleum Products Enterprise. 09 2520 04447
- U Ye Lin Aung, Shwe Myinbyan Halawa Production, No 49 (B), Merchant Street, Pathein. 09 9620 1077
- U Ne Wynn Soe, Officer-in-Charge, Ayeyar Trade Centre, Myanmar Trade Promotion Organization, Ministry of Commerce
- U Ngwe Tun, Owner, Shwepysisoe Purchase Depot, Nyaungdon Ward, Hinthada Township. 09 4300 0222
- U Nyein Lwin, Mechanical Services, AMI Co
- U Nyi Nyi Min, New Zee Bein Sausage Production, Taungbaw Street, Pathein. 09 4224 67689
- U Nyunt Naing, Seik Taing Kyah Hair Trading, GEC Street, No 2 Ward, Pathein. 09 4900 1249 09 4283 30662
- U Ohn Than, owner, matpe (black gram) purchase depot, Tayoke Kyaung Street, U-yin North Ward, Hinthada Township. 09 4285 80589
- U S' Win Naing, Chief Engineer (Ayeyarwady Region), Electricity Supply Enterprise (Ayeyarwady Region) 09 4285 86061
- U Soe Than Oo, farm manager, Good Brother Rubber Plantation, Mile Post 40, Pathein-Maw-tinzun Road.
- U Soe Win, Chairman, Ayeyarwady Region Rice Millers Association. 09 520 1373
- U Taing Aung, Chairman, Ayeyarwady Region Committee for Systematic Operation of Vessels
- U Than Wai, Factory Manager, Bio-Fertilizer Factory, Pathwe, Pantanaw Township. 09 7958 03891
- U Thant Zin, Bo Ohn Thee Coconut Trading, No 47, Thamada 2nd Street, Pathein Township. 09 2540 93675
- U Thet Naing, licensed producer, Shwe Mitharsu Biryani Shop, Strand Road, Ward 1, Pathein
- U Tin Htay, Director, Hlaw Tek Co Ltd (Fishing rod production), 44 Bogyoke Street, Ward 3, Mayangon Township, Yangon. 09 2532 23697
- U Tin Htut, Chairman, Salt Manufacturers Association. 09 520 1003
- U Tun Tun (Member of Ayeyarwady Region Construction Entrepreneurs Association), Managing Director, Royal Ayar Creative & Construction Co Ltd. 09-2508 55322, 09-7644 5552
- U Win Htay, owner (CP agent), chicken breeding, 36 Shwezedi Road, Tar Ngaze Ward, Hinthada Township. 09 858 1235
- U Win Naing Oo, Chairman, Cargo Truck Owners Association. 09 520 1503
- U Zaw Lin Tun, Deputy Director, Ministry of Hotels and Tourism (District Office) 09 4594 39513

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