



# Mekon Supply Chain Study Country Report Mandalay Region, Myanmar

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# **Asia Supply Chain Report: Mandalay Region, Myanmar**

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## **Abstract**

The main purpose this report is to assess the potential of Mandalay to become an attractive investment site for export oriented foreign manufacturing firms. The study found that Mandalay has many external constraints to become industrial hubs of Myanmar infrastructure particularly in electricity, land and financial aspects that need to be tackled urgently and fundamentally. For internal constraints, finance is found as a major problem for business to expand. Technology, skill development, machines and equipment are found as also important internal barriers for the firms. Despite these, there have important opportunities for some industries including agricultural food processing, ICT and electronic component parts manufacturing and textile industries. By using locally abundant resources of agricultural produces and labor force coupled with money and technology brought by foreign investors, these industries have huge opportunities for growth. To be qualified local firms in Mandalay as suppliers to international companies and to become Mandalay as an attractive manufacturing site for foreign firms, a number of positive measures need to be implemented. This inevitably takes some time to achieve. For macro level interventions, foresighted and consistent policies, political will, money and time investment and patience are necessary along the way. Out of them, land issue need to handle first because unclear ownership of land and land use right are serious barriers for investors even more than the issue of high land price. The regular and reliable supply of electricity is also the next important factor to be tackled. Improvement in road, rail and port infrastructure and clear policy and rules of regional government to promote foreign investment is the third most important

intervention to be done.

Key words: Mandalay, Investment site, opportunities, constraints

## 1. Introduction

The main objective of this report is to assess the potential of Mandalay, the formal capital and the largest city of upper Myanmar, to become an attractive investment site for export oriented foreign manufacturing firms particularly from Japanese firms. Due to a number of positive reform measures in U Thein Sein regime and which were more accelerated in the regime of National League for Democracy (NLD) government led by U Htin Kyaw, Myanmar becomes one of the top countries in the world for investors who are looking for new sites. Recent political and economic reforms in Myanmar opened up the opportunities of investors and have shown positive implications for manufacturing sectors industries who want are looking for both cost saving and market access which may play a key role in industrial transformation including increased investment flows from domestically and internationally and the development of fundamental infrastructure for the sector (Abe, Masato 2014). Up to now, however, most of the investments both local and foreign are centered to Yangon<sup>1</sup>. Yangon is the largest commercial city of Myanmar and centered of international trade and transportation. It has relatively good physical and social infrastructures, hosts about seven millions of population, possesses educated and young labor force, has international seaports and airports and other factors including special industrial zone (Thilawa) and industrial zones attract businesses to invest. On the other hand, the potential of Mandalay, which is the second largest city and the former capital of Myanmar Kingdom, as an investment site is mostly overlooked. As the capital of the last dynasty of Myanmar Kingdom, Mandalay has a strong heritage of Myanmar traditional culture and custom. Strategically, it is located at the center of Myanmar and junction of India, China and Thailand trade routes. Because it is the major city located near the Chinese border, a significant portion of city population and businesses are Chinese. One can observe Chinese restaurants, Chinese language in business signboards and advertisements in

Mandalay. Mandalay also has recently opened international airport and industrial zone. Abundance of relatively low cost labor force and land cost add Mandalay potential as a manufacturing site. This report assesses the geographic and demographic characteristics of Mandalay, its industrial sector development and industries, the situation of industrial zone and the promising industries and the case studies of selected manufacturing firms and human development institutions that support to business communities in Mandalay. Finally, it will assess the attractiveness of Mandalay as an investment sites for the foreign firms and evaluate its strong points as well as weak points as an investment site.

The findings of this study will be imperative for labor intensive manufacturing industries which are keen to relocate their production facilities to another country. Therefore, this study not only will help to support decisions for relocation of production facilities of Japanese firms to Myanmar but also contribute to industrialization of Asian emerging but late industrializing country – Myanmar which may help the country to speedy integration with global supply chain and with the economies more advanced ASEAN countries so called ASEAN 6. This study also helps to indicate the current strengths and weaknesses of Mandalay to attract foreign direct investment into the region. In this way, this study will contribute, at least in a part, in formulating and implementing of industrial and supply chain policies and support programs of regional government of Mandalay and Myanmar government for the economic development.

## 2. Geographic and Socio-Economic Situation of Mandalay Region

Mandalay region is consist of 7 districts, 31 townships and it is home of about 6.2 million population (roughly 12 % of Myanmar population). The ratio of urban area population to rural area is 3 to 7. Total area is 11,925.95 square miles. The region as a whole contributes to about 11.5% of the country's Gross Domestic Product (GDP) through the period from 2011 to 2015. In 2015, it is the third largest GDP contribution region after Yangon region (22%) and Sagaing region (11.6%). Per capita GDP of Mandalay region is USD 842 in fiscal year 2014-15 as the sixth largest GDP per capita region in Myanmar

which may be compared with the first largest GDP per capita region Yangon USD 1,370 (MNPED 2015).

Figure 1 - The Map of Mandalay Region



Source: MMRD (2015)

Mandalay is the biggest economic and cultural center in Upper Myanmar. It is the second biggest city in Myanmar with the population of 1.2 million and the density of 10,000 persons in a square kilometer. It is a historical and ancient city of 4 kingdom capital and last royal capital of Myanmar. It is also a center of Myanmar cultural, Buddhism and tourism. Mandalay is composed of 6 townships with 96 wards. Total road length in the city is 1419.53 kilometer. Mode of transport in the city is mostly private dominated by motorbikes. In 2014, there are 27 private cars, 146 motorbikes and 64 bicycles in per 100 households (Hla Myo 2014). The overall poverty incidence was 27 percent in 2010 which is slightly more than the national average 26 percent. Mandalay is situated in the middle of the country with the road access to the Chinese border in the north, the Indian border in the west and the new capital Naypyitaw and Yangon on the south. Therefore, the city has a potential to be the center of transit trade, distribution hub and a base of manufacturing facilities. Due to increase in urban population and changing lifestyle of

people the demand for consumer goods is drastically increased. As border trade between Myanmar and China, Myanmar and India increase, Mandalay is on the rise because the goods are passing through the city. Mandalay is also the important junction of Asian Highways AH1 from Myawaddy to Tamu and AH 14 from Mandalay to Muse (Myinmo and Kudo 2011).

The large majority of the city population is Buddhist Barmars with smaller communities of Shans, Danus and Palaungs are residing in areas adjacent to Shan State. Due to considerable internal migration in recent years major ethnic populations are now living in Mandalay in particular Kachin, Kayin and Chin ethnics. There is also a significant segment of Myanmar Muslim population. Throughout the 20th century and increasingly after 1988, there has been a large influx of ethnic Chinese people to Mandalay. Today's these immigrants in particular from Yunnan province make up a significant portion of the city's population. As a result, there emerges many Chinese restaurants and Chinese own businesses in Mandalay. There is not uncommon to see Chinese characters in entrance boards of many shops and Chinese people along the roads of Mandalay.

### 3. Current Status of Manufacturing Industries in Mandalay

Environmental context of Mandalay including infrastructure, labor forces and general situation of firms in Mandalay will be examined in this session.

#### 3.1 Infrastructure

Having appropriate infrastructure that able to support the development of industries is important to become Mandalay as an attractive investment site for foreign manufacturing industries. The present government has initiated various projects to extend and improve overall road situation in the Mandalay region. The Mandalay region government has prioritized to widening union highways, upgrading roads and bridges with short-term and long-term plan. Currently, Mandalay region as a whole has 24 union highways, 33 regional roads and 3,918 bridges.

As Mandalay is located on the bank of Ayeyarwaddy river, Mandalay port is one of the

biggest inland water ports in Myanmar which handles regional and border trade of various goods. Through Ayeyarwaddy River, goods can be transported from Mandalay to various major cities of Myanmar such as Yangon, Pyay, Naung Oo, Kathar and Bamaw. Mandalay port is now being upgraded to improve loading and unloading cargo and vessels with the help of international aids. Semikon port will also become another important port of Ayeyarwaddy River after construction.

Mandalay-Yangon route is the busiest railway route in Myanmar and an important transportation mode of border trade between China and Yangon. Commodity imported from China are transshipped to freight cargos at Mandalay and forwarded to Yangon. Likewise, Cargos from Yangon are transshipped to China via Mandalay. But the rail infrastructure and accessibility of rail need to be improved to become commercially reliable route of transportation between Yangon and Mandalay. At present, most of the Cargos are transported by road because the number of cargo rail is limited accessible. Mandalay is also connected with Kachin and Shan state with rail links. But upgrading rail infrastructure is seriously needed.

Mandalay region as a whole has two airports. These are Mandalay international airport and Naung-Oo airport. Mandalay international airport is located in Tada-U which was completed in 1999 and is the largest and the most modern airport in the country. It also has a 14,000 foot (4267 meters) runway which is the longest runway in use in Southeast Asia and has the capacity to handle 3 million of passengers a year. Currently 12 airlines including 4 international airlines fly from Mandalay to various local and international destinations.

By 2015, the ministry of Electric Power estimated that 1,176 MW of electricity to be used in Mandalay region while demand is increasing 10 percent annually. Currently, there are 6 hydropower stations and one ongoing implementation of hydropower station located in the Mandalay region which could provide up to 1,424 KW by the end of 2015.



### 3.2 Labor force and Industry Zones

Labor force employed in industry sector of Mandalay region is over 56,000 people. They are working in various firms located in industrial zones of Mandalay, Myingyan and Meikthila. Mandalay region as a whole has three industrial zones. Myotha industrial park is now being constructed. Mandalay Industrial has three sections (zone 1, 2, 3) and was developed in 1990. It occupies 1,820 acres and hosts 1294 different industries. Myaingyan industrial zone was established in 1995 and occupies 163 land acres. It is located about 60 miles away from Mandalay city and has 265 firms of different industries. Meikthila industrial zone is located about 80 miles away from Mandalay city and the number of firms in this industry is 295. It was established in 1997.

Mandalay Myotha industrial park is located near Myotha Township and which is located about 36 miles away from Mandalay city and 28 miles from Mandalay international airport. It occupies 10,337 acres and developed by Myotha Industrial Development Public Co. Ltd. (MMID). The project was started in 2013 and constructed into 3 phases. Phase 1 (2,500 acres) is projected to finish at 2017, phase 2 (4,500 acres) at 2022 and phase 3 (3,500 acres) at 2025. Semeikhon Port is designed to facilitate river transportation of goods and products from the Mandalay Myotha Industrial Park, its surrounding areas and the nearby towns.

Mandalay has over 4,000 registered industries and about 70 % of which are included in SMEs category. Most of which are food processing industries. Mandalay city has three industries zones. Zone 1 is located in Pyi Gyi Tagon Township and has the area of 1,820 acres with over 3,500 plots. It was established in 1990 and further extended zone 2 in 1998 and zone 3 in 2003 at adjacent areas. These three industries totally host more than 1,200 factories for the production of consumer and household goods, agriculture produces processing and industrial supplies.

Mandalay Industrial Zone Management Committee was introduced in 1990. Under the committee, there are "sub-committees" basically by industry. Members of the committee are 1,272. Most of the requirements for infrastructure, technical are supported with self-

help approach by the members. No financial and other support from government. Training from JICA was provided in 2014, based on general management. Before that there was no support. At the time of establishment, 10MVA + 20 MVA electricity was prepared. 15 MVA was added in 2007, but fund collected from members was used for installation and distribution for everything, although almost sure to have government support in some years. No membership fee is required while donations are asked. Committee has requested to local government on electricity and road. Electricity has become good but road is not good yet<sup>2</sup>.

The following table lists the number and type of industries located in Mandalay Industrial zones.

Table 1 Number and Type of Industries in Mandalay Industrial Zones

Sr.	Type of Industry	Number of Factories
1	Food Processing	189
2	Apparel	32
3	Products for Living	45
4	Consumer Products	54
5	Household Products	15
6	Arts and literatures	3
7	Raw Materials	40
8	Metal Processing	220
9	Agriculture tools	4
10	Machinery and tools	1
11	Vehicles for transportation	25
12	Electrical products	12
13	General industries	654
	Total	1,294

Source: Mandalay Region Chamber of Commerce and Industry

As seen in the table, most of the industries in Mandalay industrial zones are listed as general industries which include workshops for motorcar repairing, motor body repairing and painting shops and other forms of machine shops. Metal processing is the second largest number with 220 factories and followed by agriculture processing with 189

factories. These factories mainly focus to sell local market apart from wood processing factories. 69 % of factories in these industrial zones are SMEs and 31 % are large factories in term of the number of labor employed. Industrial zones are weak in solid waste management, drainage and waste water treatment system. Waste water treatment system is under progressing and further planned to construct<sup>3</sup> but so far, significant portion of waste water from factories are going into the drainage, creek and flow into the Dutawaddy river through which flow into Ayeyawaddy river. This leads to serious environmental problem for farmers, fishers and residential areas. Over the long term, this consequence will be going to suffer by general public who live at the lower part of Ayeyawaddy river.

### 3.3 General Situation of Businesses in Mandalay

A systematic and largest coverage study on the business environment and firms in Mandalay has been conducted by the collaboration of Myanmar Investment Commission (MIC) and Japanese International Cooperation Agency (JICA). The finding is reported in Mandalay Investment Opportunity Survey Report in October 2015 (MMRD 2015). This study reports that Mandalay and its 20 mile-circle surrounding area (Mandalay Area) have a vast potential for development and investment including agriculture, agro/food processing, manufacturing and other type of businesses. However, the potential has not been fairly realized yet and there are growing demands for identifying and promoting promising investment opportunities in Mandalay Area. This report assesses that current performance of small and medium enterprises (SMEs) in Mandalay has shown slow growth but point outs that if local SMEs could connect with foreign investors and develop as the supporting industries, it would bring the win-win situation for both parties. It gives an example of Sugar manufacturing industry in Mandalay. Due to locally made machineries, lack of raw material and technology, sugar refineries in Mandalay cannot compete equal footing in quality and productivity with the modern firms from neighboring countries. The number of local refineries shrank from 70 in 1996 to 15 in 2015. Although Mandalay region possesses huge land areas of sugarcane growing, foreign investment is needed to improve both quality and productivity of sugar refineries

to be internationally competitive.

To find out the situation of businesses in Mandalay, this study made a number of interviews (42 businesses within 7 sectors and 20 regional authorities and business associations) within the period from 3 to 14 August 2015. This study reported that 86% of firms are SMEs (up to 99 workers) and 16% are large firms (100 and above workers) in Mandalay region. Among the interviewed firms, 75 % are SMEs and 25% are large. Based on the information obtained from surveyed firms, the study reported that infrastructure constraints like land, electricity, water and road have been considered as the major obstacle. Out of these, land is the main constraint for most investors. In addition to land, government regulation and procedure to obtain permit for land use, electricity and business licenses delay stand as a constraint. And then, financial access to get loans from banks and other sources is major obstacle. This survey explored that the major obstacles to start a business in Mandalay are land, electricity, technology, transport and logistics, labor and ICT. Although land price said to be cheaper relative to Yangon, the land is still expensive to buy or lease in Mandalay Industrial zone. Electricity is relatively better compared to some previous years but still remain a major problem for manufacturing firm particularly in the summer season. Due to the low level of investment in technology partly because most businesses focus on local market needs, it is seriously outdated in terms of international standard. For transport and logistics particularly road infrastructure, the roads in the industrial zones are narrow for cargo trucks and badly damaged in some places. For labor, most workers in the industrial zones are low skilled and need to be trained to improve productivity to be able to match with international competition. For ICT, due to the competition among operators Myanmar Post and Telegraph (MPT), Orredoo and Telenor during recent years, telecommunication is no longer a problem. But faster assess of internet is still needed to improve for international communication purpose via email and Skype.

After 2015 election, the new Mandalay regional government has been formed headed by U Zaw Myint Maung as the prime minister. New government has given priority to reduce the size of urban slums by constructing low cost housing and attempts to address other

social and environmental issues. But there is no clear industrial policy or SME policy has been seen yet.

#### 4. Current Status of Promising Industries

Mandalay offers unique investment opportunities to international investors in many kinds of industries due to its geographic location, natural resources, abundant of low cost laborers and infrastructure. Out of these industries, some show better prospects than others. These are food processing, producing or installation of electronic parts like computer and mobile phone devices and textile industries.

##### **(1) Food processing**

Due to the vast areas of agriculture lands near Mandalay, relatively low cost of farm laborers and access to international market through newly built international airport, food processing industry is the greatest potential of Mandalay to access to international market. Its good soil for high quality farm produces offers opportunities for international investors who have capital, technology and market access by means of collaborating with local farmers or developing new farmlands.

Major crops cultivated around Mandalay region are watermelon, honeydew, grapes, papaya and banana that have huge markets in domestically as well as internationally. Mango is considered as the most potential product that currently exported to China. Mango grown in Mandalay region is particularly well known for its quality. Likewise, the grape grown in Mandalay region is suitable for Wine production that has internationally a huge market.

In addition to these fruits production, Mandalay region is growing major crops including rice, maize, sunflowers, beans and pluses, sugarcane and sesame. According to Data from Ministry of Agriculture and irrigation, 32% of total sown area is growing Oilseeds, 27% is growing beans and pulses, 21% is growing other fruits, 14% is growing rice and 6% is growing other kitchen crops and vegetables. 40 % of land in Mandalay region is used for cultivation of crops in 2015 (MMRD 2015). Based on its favorable geographic and

climate condition, Mandalay region has very good potential for food processing if modern technology and equipment can be utilized in cultivation and procession of agriculture produces.

### **(2) Electronic parts and ICT industries**

Mandalay has potential for producing or installing electronic components parts like computer chip, mobile phone devices and many others. Although the qualification of labor force is currently at low level for the manufacturing of these hi-tech devices, they are trainable on the one hand and availability of huge labor and low cost, on the other hand make this kind of production possible. Concerning ICT industries, Mandalay is located near a Ciber city named Yandanarpon with over 30 local and foreign investors since 2006. This Ciber city accommodates various ICT firms and universities and training schools related to ICT development<sup>4</sup>. This City has a good potential to supply technicians for supporting the development of ICT industries.

### **(3) Textile Industries**

Domestically Mandalay region is home of weaving and textile industries. Wuntwin village in Mahlaing Township of Mandalay region is well known for its cotton textile and Amarapura Township of Mandalay city is well known for in silk textile. Mahlaing Township in Mandalay region has grown cotton for many years. However, poor technology and low level of investment hinders the development of this industry to supply domestic demand for textile. If foreign investment in textile and related industries including design and dyeing is received, it has a great potential to become a lucrative industry.

## **5. Human Resources Development Institutions in Mandalay City**

As the second largest of Myanmar, Mandalay city is the home of different kinds of education providers supporting for human resources development in the region both for private and public sector. However, private sector plays more active role in serving this

responsibility. Some of the private sector institutions that support human resources development in the region are presented in below.

### **(1) The Mandalay Region Chamber of Commerce and Industry (MRCCI)**

The MRCCI was founded on June 26 1991 with 20 local business owners. Now, it has been expanded to cover 1,800 members with 22 different types of sub-association falling under it. These include:

1. Industrial Zone Management Committee
2. Brokers and Traders Association
3. Oil Trader Association
4. Sugar and Sugar Mill Association
5. Sugar Product Association
6. Rice Trader Association
7. Rice Mill Association
8. Food Stuff Association
9. Gem and Jewelry Trader Association
10. Publisher and Offset Owners Association
11. India Origin Association
12. Horticulture and Floriculture Association
13. Zezgyo Trader Association
14. Electrical and Electronic Owner Association
15. Orchard Association
16. Vehicle Spare Part Shops Association
17. Culinary Shop Owners Association
18. Agricultural Producers Association
19. Freight Forwarder Association
20. Agriculture Tools and Equipment Shop Association
21. Toiletry Product Owners Association
22. Mandalay Computer Entrepreneurs Association

MRCCI is a regional member of the National Union of Myanmar Federation of Commerce and Industry. Today, it becomes the largest regional business association in Myanmar. As part of its responsibility, MRCCI provides a range of training courses, seminars and workshops to its members. MRCCI has a number of partnerships with international organizations to support for human resources development such as Thai Chamber of Commerce and Industry, Japan-Myanmar Friendship Association and the

Japan External Trade Organization (JETRO). MRCCI opens Global MBA degree Program partnering with The University of Thai Chamber of Commerce (UTCC). Global MBA program was started in Mandalay on July 2013 collaboration with Thai Chamber of Commerce and MRCCI. Global MBA batch 1 and 2 are already completed and currently batch 3 and 4 are attending. One batch of MBA includes 20 to 20 students. UTCC international is an international program under UTCC and it is located in Bangkok and has 3 campuses in Bangkok and Myanmar (UTCC 2016). In addition, Japanese International Cooperation Agency (JICA) and JETRO organized training programs partnering with MRCCI. In 2012, MRCCI organized a seminar of “Globalization and Development Strategy in Myanmar toward ASEAN Economic Integration by collaboration with JETRO. In the same year, MRCCI hosted a seminar and workshop to enhance capacity building and human resources development (Pompa and Bissinger 2014).

## **(2) University of Technology, Yatanarpon Cyber City (UTY)**

This university was founded on September, 2010 on 216 acres land area. It is located near Pyinsar village, Pyin Oo Lwin district about 67 km east of Mandalay city. About 2,500 students are currently attending in its Bachelor, Master and PhD courses. Four courses are available for Bachelor students. These are (1) Information Science and Computer Engineering (2) Mechanical Precision Engineering (3) Electronic Engineering and (4) Advanced Materials Engineering.

The university is a member institution of AESAN cyber university project and also one of the major activities is online content development. For implementing the project, Korean government has supported Ministry of Education, Myanmar mainly focusing on the development of infrastructure for member universities such as e-learning, especially content development and introducing facilities and skill development for staff members. Online courses are implemented with universities in Korea, Vietnam, Thailand and Cambodia.

The university is supported by USAID as well. In March 2015, their project on Mekong



Learning collaboration was started. In this collaboration 12 universities/colleges participate from all five countries in the region. The university is the only institution from Myanmar. In terms of exchanges with Japanese universities, now we have three Japanese students. They came here under the double degree program with Miyazaki University. The university can supply human resources for IT sector in which demand is growing year by year. In terms of exchanges with Japanese universities, now we have three Japanese students. They came here under the double degree program with Miyazaki University. They spend one year in our university and the other year in Miyazaki. One student is studying image processing for corn cultivation and reproduction. Another student is majored in renewable energy, particularly solar power. The university has also signed Memorandum of Understanding with Russia University.

### **(3) Chindwin College**

Chindwin College was founded in 2007 as a tertiary education branch of foreign university. Founder is an engineering graduate but doing education business. He has over 20 years of experiences in the secondary school education level. During the time of establishment, there was a rising demand for engineers in neighboring countries. The college was founded to produce quality engineers and open doors for higher education abroad. Despite having strong focus in engineering, further it was not only expanded its engineering majors such as electrical and electronics engineering, mechanical engineering, and construction and build environment (civil engineering), but also added Business (business management and business accounting), Hospitality and Tourism (hospitality management and travel & tourism management) faculties to offer new courses.

The college was the first Higher National Diploma center in Myanmar and also the only affiliated college with Myanmar Engineering Society (MES). Collaborating with institutes in Singapore, Chindwin HND graduates will have an advanced standing into the final year of the Bachelor Degree Programs at academic partners from UK.

After joining the college, students are first to obtain international foundational

certificates for matriculation for one year. Next after studying for two years, they get HNDs in their respective fields. Then they are qualified to enter to the final year of Bachelor programs at UK universities and their academic partners in Singapore. Moreover, they have a MBA course in strategic management and leadership.

The students were studied in a balanced way to theory and practical learning environment. They are required to undergo internships and apprenticeship as part of the course.

Chindwin engineering faculty has a proven track record with over 150 HND graduates, with the first few batches already completed top-up degrees and pursuing careers in the engineering industry. In Mandalay campus, over 500 undergraduate students are studying while 100 for MBA. 50-60% of undergraduate students will go overseas for bachelor degrees after succeeding in the external assessments by Edexcel.

#### **(4) MCC Institute (MCC.i)**

Myanmar Computer Company Institute (MCC.i) was started in 1986 to offer computer training courses in Myanmar and it was incorporated into company in 1989. It has three campuses in Yangon, Mandalay and Naypyitaw to provide education services, training courses and ICT services. In education services, it provides business and management, Engineering and IT by opening school of Computing, school of Engineering and school of Business Management. MCC.i is collaborated with many UK universities including University of Greenwich, Middlesex University, Liverpool John, Birmingham City University and Siam University of Thailand to provide Master degree in Engineering, IT and Business. It also offers Bachelor of Business Administration (BBA) awarded by Siam University of Thailand. MCC.i (Mandalay) was opened in 2010 as a training institute. It is located in 5th floor, Yadanarpon Super Centre, Corner of 34th and 78th Street, Chanayetharzan Township, Mandalay. Courses are available for students in business/management, engineering and IT. At present, over 300 students are attending in the campus. Business Management course is opened two times a year, IT course is opened every 3 month and engineering course is opened two times a year in the campus.

#### **(5) Apex Business School**

Apex business school is opened to offer accounting and business management courses to the students in Mandalay. It is located in Room (216), Shwe Phyu Plaza (2nd floor), on 32nd street between 78th and 77th street, Mandalay. It was started on 2008 to provide ABE diploma course in Mandalay and opened ACCA course in 2014. Currently, it can produce about 750 ABE diploma holders and over 100 are currently attending in diploma courses. For ACCA, 200 students are already finished part 1 and 2. About 50 students are attending for ACCA part 1 and 2 at present. Courses are opened in every June and December of the year.

#### **(6) Landon Chamber of Commerce and Industry (LCCI) Accredited Accounting Schools**

Due to transition to market economy, demand for accounting is increased in the private business sector. To fulfill this requirement, a number of accounting schools accredited by LCCI are emerged. Kyaw Swa Win, Khin Maung Htwe and Impact Business School (iBS) are some of them. Kyaw Sar Win (LCCI) was founded in 1996 to provide LCCI level 1, 2 and 3 courses to the students. It is one of the first accounting schools in Mandalay. In addition to LCCI courses, the school offers English languages proficiency classes like IELTS and TOFEL and IGCSE. iBS was opened in January 2012 and it offers Diploma courses in business management, marketing and human resources awarded by North West Regional College (UK) and LCCI courses to students.

#### **(7) Other Training Courses**

Other training courses mostly offered in the private sector of Mandalay are computer programing and hardware trainings, mobile phone repairing and nursing aids training. RAIT, Noble Lamp and Dr. Home are some of the training providers among many of them.

#### **(8) Center for Human Resource Development (CHRD) Program, Mandalay University**

As part of contribution to the development of human resources in the region, Mandalay University has opened CHRD program starting from 1999 with the Diploma in Business Law. Further, various types of Diploma courses are extended within the period of 2012 to 2015 including Diploma in International Law, Diploma in International Relation,

Diploma in Political Science and Diploma in Oriental Studies. Mandalay University has also opened MBA and MPA Programs to promote the capacity of business managers and government officers in the region starting from 2010.

#### **(9) Myanmar-Japan Centre (MJC) Mandalay**

The center was established in October 2013. Trainings in Mandalay started in December 2013, soon after the establishment. That was because the region is important. In Mandalay, the ratio of manufacturing industry is more than 40%, much more than that of the whole Myanmar, 23%. MJC offered a number course for business and management related subjects to build capacity of local businesses. Because of limited supply of trainings in Mandalay compared with Yangon, basically more demand has been available here. Business plan course, innovation and entrepreneurs (three kind of evolution, case methods) are well accepted among them. They also implement accounting courses that are based on Bookkeeping Certification, Japanese Chambers of Commerce and Industry, Level 3 and Level 2. This is very timely, because in order for SMEs to get finance from external sources, it is a critical skill to show their financial feasibility. Moreover, the center covers all the major business management skill courses including communication skills, technical courses in IT. Taylor made courses are also provided, for instance, for a garment factory. Typically tuitions are 50,000 kyat per course for 1-2 weeks (20-30 hours). If the cost is increasing, number of courses will be decreasing due to the fixed amount of total budget.

#### **6. Firm Cases**

To examine detailed environmental and operational situation of specific manufacturing firms, five firms were selected for close study. Firms were personally observed and more information was obtained by means of interviewing owners of these firms by using semi-structured questionnaires. Detailed findings are reported in the following session.

##### **(1) Good Brother Company Ltd (Manufacturing Farm-related Machineries)**

Good Brother Company is located on 63rd street, at the corner of Yaw Min Gyi and Phoe

Yar Zar Street, Mandalay Industrial Zone (1). It was founded in 1991 to produce farm-related machineries in Myanmar. The ownership of the business is wholly-owned domestic business although the founder and CEO are mostly Chinese blooded and has strong business connection with China. Good Brother has factories in both Yangon and Mandalay and its distribution centers are located in Ayeyawaddy, Mandalay and Yangon regions. The company is vertically integrated in its chosen agriculture sector from providing microfinance loan to farmers, supplying fertilizers, buying paddy, rice processing to rice exporting. Export is mainly to China through normal trade and then re-exports to Africa.

For locally sold products, main products are farm transportation vehicles (Htaw-Lar-Gi), two wheels and four wheel tractors, Combine harvesters, diesel engines and pumps. Its major customers are local farmers and farm land owners. Farmer can purchase products on credit normally 30 percent is down payment and remaining can be paid through bank loans within 2 years. Main transportation route for local distribution is based on road transportation. The use of ICT is limited only for communication purpose within internal staff and between company and its suppliers and some of the customers. According to nature of products it sold, follow up services including repairing and maintenance is inevitable so that the company has a close relationship with its customer. Engines, gear boxes and suspensions for farm transportation vehicles are imported from China and body cage and other parts are produced locally. For tractors and combine harvesters, products are totally imported and distributed locally. Major suppliers are KUBOTA from Japan (the company is sole authorized distributors of KUBOTA brand tractor for Myanmar), ZOOLION, CHAMGCHAI and JN from China. Products are imported through normal trade. Status of cooperation with suppliers is generally close. The company is a member of a number of trade association including RUMFCCI, MIA and MRIA.

Concerning with competition, the company is generally said to be better than domestic competitors and possible to compete in the ASEAN region. Generally, the company can handle and able to respond very well to external factors. But the management thinks

that AEC may have negative effect on the company because company is mainly emphasized on the local market and if AEC effective, there may be number of foreign competitors increased. Main internal challenges for the company are staff development and technology modernization in the production of farm-related machineries. Recently, the company made new investment in microfinance sector by making small loans to local farmers (one acre for approximately 100 USD which is equal to loans made by government's agriculture development bank). In the future, the company has plans to invest in agriculture banking and projects related to rural sector development. Technology development is based on internal and suppliers but the company does not have separate internal research department for product development. So far, there is not concrete plan for technology development yet.

With regard to human resource development, the company has more than 1,300 employees who are working all over Myanmar. Of which about 200 are production workers, 100 are managerial and senior-level professionals, technicians and sales are about 350 and remaining are office staffs and trainees. There have small number of foreigners in working at advisory and technical level training. Generally, turnover rate of employee is 20% per year. Relative to other local companies, the company focuses on staff training. Many kinds of trainings are provided to the company's staff according to their level and responsibility which normally included technical, sales, customer services, and teamwork and leadership development. According to company's rule manager, administrative staff and technicians have to complete 80 hours training and for production workers and technicians, they have to complete 40 hours training. From the part of company, the most satisfaction training program is on the job technical training and the least satisfaction program is leadership training. For the future, training will be high on the company's agenda by means of structured on the job and off the job trainings by using all available kind of providers including internal, industrial associations, private providers and government agencies. For the future, the company has training targets in which all managers of the company have to achieve MBA degree, all engineers must complete oversea suppliers provided training and all supervisory level staffs have

to obtain Diploma in Business Administration.

## **(2) Top Myanmar Mya Taung Nyunt Company**

The company was started in 1990 as a sugar refining from sugar cane. But the business of sugar mill experienced drop at the first decade of 2000 so that some counter measures need to be taken for the firm survival. After consideration, firm's owner noticed that sugar use woven bags for distribution and they have more big market beyond sugar. As a consequence, the firm was change to produce PP woven bags in 2009. In 2011, the new factory was established to produce PP woven bags with 132 machines into four lines. All machines were imported from China.

Nowadays, the factory produces 160,000 bags of various sizes per day. To increase capacity, there is a plan to use new machines for more automation especially for processing from PP sheets to bags as well as printing. Number of employees reached to 300. But there is no engineer in the factory although the director for the new factory has expertise at the level of engineer.

Machines in the factory are almost all China made. These are comparatively low price and easy to import through cross border. In term of quality, German and Japanese machines are good but too expensive for local businesses. The current machines trouble sometime and keep on doing maintenance in order to avoid more serious trouble.

Production process is simple. PP pellets which are also imported are heated, formed into tapes by extruding and stretching machines, woven to bags by automatic circular looms, cut to the sheets, sewn to bags and printed on the surfaces.

The company does not take any loans from government and banks. Due to corruption, taking loan has to pass long process but compare to the past regime, a little bit faster but not big change has been seen. Internal financing is the only solution for firm's expansion in the meantime. No support has been received from parents and relatives for the firm.

Major customers of the company are local factories including chicken feed, rice mill, flour

mill, lime, sugar and many others. Based on customers' demand, the company can provide 100% water proof bags by using laminate machine from China.

For the bags using fertilizer package, the unit price is only 60 % higher than that of sugar. But there is no large profit due to high cost of production fertilizer bags although much more market is available to increase production. All bags are sold for the domestic market although there may be exported finally after being stuffed. Bags can be available 80 gram or 20 gram thickness varies by the nature of products being backed. No difference between domestic and final export in terms of quality.

Weather affects the high and fall of business. Bad weather causes a little less demand for business. Seasonal booming period is started from December to April that occupies 50% of total year sales. About 15 % difference in production capacity between high and low seasons. Production has increased every year recently due to the appropriate marketing strategy in which demand is looking first by sending marketing teams and keeping old customers. The company has 10 competitors in Mandalay area.

Materials are imported from Saudi Arabia, Singapore, Korea, Thailand and recycling from local market. There is no domestic material producer. For recycling materials, no special treatment is necessary but color is good only for yellow color. For white color, the bags need to be made from new products in which material is 50% more expensive.

For distribution, farmers and wholesalers pack their produces with brands so that in every state, different kinds of bags are necessary. Bags are distributed through distributors to wholesalers for the market where no brand name is used. Factories with own brand names directly order to the company to produce bags with their own brand name. Three mixed colors can be available currently. There is plan to install machine that can produce six mixed colors from either Japan or China.

Due to the nature of production, factory relies on regular electricity power available. Therefore, location of factory is mainly decided based on availability of electricity. A factory is established at Kyaut-Se which is located 25 miles away from Mandalay. At



current factory location in Mandalay Industrial Zone, many other factories including plywood, plastic injection and shoe factory are located nearby that leads to compete for supply of regular voltage of electricity power. Power failure is sometime experienced therefore own generators are necessary. Land price is high and land area is narrow. Unit price of electricity is increasing recently.

After passing minimum wages law in 2015 which equivalent to 100 USD per month, hiring workers is easier than before. Out of this amount the factory provides three meals for 3 USD and the other 3 USD for accommodation then 92 USD received by employee per month net. Overtime payment depends on the position and working condition. Working time is divided into two shifts. The first shift starts from 7:30 to 5:30 and the second shift is from 5:30 to 7:30, 24 hours a day in operation. 4 hours is full overtime per shift and sometimes 2 hours only. Holidays is set for two days per week in addition to public holidays.

The educational background for workers is mostly middle school or high school. The number of managers and administrative staff are 8, supervisors 7. No engineers at the factory but there are 15 technicians. They are trained in-house through at least 15 experiences in operation and management. Moreover, they participated in one day seminar for Kaizen at Myanmar-Japan Centre and one day to one week short courses. Job hopping is very rare cases among employees. After training, they know more about team working. Training is placed high priority for the factory owner. It creates more loyalty among employees. In the past, a Chinese company took factory's employees after training but most of the employees stay in the firm.

The company has 10 competitors of which 5 firms are pure Chinese or JV with Chinese capital. Among the remaining five firms, 4 are Myanmar born Chinese and the owner is the only one Myanmar indigenous.

Concerning foreign cooperation, as the result of business matching with Nobeoka group of Japan, the factory managers had one week homestay in Nobeoka. So they have a strong relation with people in Nobeoka.

### **(3) Ayeyarwaddy Golden Prince (Shwe Min Thar Soap Factory)**

The factory was established in 1986 and has produced soap for 30 years. It was located in Yadanarpon Quarter, Chan Mya Tha Si Township. Originally started from the Mandalay market has expanded to the whole country. No outside fund is used for capital. It is financed internally both for setup and expansion. The company established two factories. The first factory's capacity is 300 boxes per day and the process is more labor intensive. The second factory is smaller but more machines and can produce 200 boxes per day with 8 hours 1 shift.

The owner makes sure about the quality of the soap being produced to improve overtime. Previously, no chemical is used for the soap by making very traditional way. Now changed this strategy and started using chemical additives in order to have more foaming. The company has a small lab for improving quality and quality control. The Managing Director has the industrial chemistry background used this knowledge fully to improve quality.

The MD participated in one day course for 5S at MJC. Thanks to knowledge obtained from the course, she had the ideas for productivity increase by managing raw materials and labor more effectively. She was selected for the scholarship for 100 for excellent trainees. Also she has been selected for the trip to Japan among the trainees of MJC.

Marketing and employee education are the issues to be tackled. Employees are mostly high school graduates and some have bachelor. More often, the company promotes their employees internally. Managers need 30 years experiences, at least 10 years for senior technicians, while some have 30 years. Five years for junior technicians starting from the operators. MD and Director expect loyalty to the firm among those employees.

There are five competitors in Mandalay. Although they have their own brand, they don't have a marketing team in the firm. Hence, quality is the first thing to be pursued at least in the meantime.

Recently faces more competition with international brands. So advertisement is more

necessary. For example, Uniliver has penetrated into the market with soaps with higher price while the firm is for lower end of market and not to be sold in modern supermarket such as City Mart. But management does not think they can ignore the international brands. They intend to develop liquid soaps in the future, because of less competitor and consumers' recognitions as better quality products.

Grocery shops are main distribution channel for them. Trains and trucks are used for distributors in several cities.

More than half of raw materials are supplied locally while others are from China. Transportation route from Tianjin of China to Yangon is by ship and from Yangon to Mandalay by train.

Materials are mixed and heated and then left for three to four hours for cooling. Cooled half-finished goods are processed by machine to bar shape and cut into the size of soap as the final product. Now packaging process is conducted manually but they plan to order packaging machines to China.

#### **(4) Kyar Min Gyi Factory (Manufacture of Alcohol)**

Kyar Min Gyi factory is located at Pyi Gyi Ta Gon Township, Mandalay industrial zone. The CEO is a Chinese ethnic, B.S.C (Physics) graduate and has the age of 50s. The company is a wholly domestic private company. It was established in 1998. Today, the company has 60 permanent employees compared to last three year the number is increased double. The factory can produce outputs of 45,000 barrels of alcohol which is about 50% increased compare to last three years. Turnover for 2016 was significant increased relative to previous years up to 40 to 45%. The company makes profit in 2016 about 150,000 USD which is also 50% increased compare to last three years.

The product of the factory is totally alcohol. The raw materials used are molasses, broken rice and corn. The main processing stages are mixing, fermentation and distillation. Major customers for the company's product are local citizens. Products are transported by means of truck to the whole country. ICT is used for communication and

technologically learning purposes. Products are distributed through wholesalers to retailers and then finally to the consumers. Status of cooperation with customers is good and has a long-term relationship.

Major suppliers of the factory are sugar factories and local brokers of broken rice and corn. Major suppliers are Myanmar and materials are transported by truck and materials are acquired from the whole country particularly rely on the commodity trading centers. Status of cooperation with the suppliers is good and stable. The company is a member of Myanmar Liquor Association.

In terms of competitiveness, the company ranks itself as on average to its domestic competitors. It faces several external-related problems including market competition domestically, inadequate and high cost of infrastructure and government's regulation. But it does not complain on high taxes, duties and other fees. The company considers AEC as a future threat to the company that may lead to increase competition in the domestic market. The company also confronts internal-related problems in quality management, labor relation, skill development and finance. Due to unfavorable regulation to the Alcohol producers by the new government and financial constraints, company pauses its expansion plan for a while. In the future, the company has a plan to obtain ISO quality certificate for the products and operation that it thinks a necessity for the future business operation.

Out of its 60 employees, one third is categorized as skilled and the remained are unskilled or semi-skilled workers. Labor turnover rate is rather high about 40 percent annually. Average tenure of workers in the factory is 5 year. The company fulfills its labor requirement by mean of recruiting outside. It does not formally evaluate on employees performance. On the job training is mainly provided in the company. The company does not satisfy its workers' skill level so that it has plans to give more training in the future particularly on technical aspect.

#### **(5) Sein and Mya Mattress Industry**

Sein and Mya Industry Co., Ltd is one of the leading mattress manufacturers and

wholesalers in Myanmar. It was established in 1994. The spring mattress factory is founded in 2012 and awarded by Presidential award of Myanmar as “Excellent Production Award in Medium Enterprise 2014”. The major products are different kinds of quality mattresses such as spring mattress, foam mattress, rebounded foam mattress, traditional kapok mattress as well as hotel mattress. In addition, the firm produces bedding products which include bed linen, pillow, bolster, blanket, mattress protector and other accessories. The company is also exclusive dealer of foreign made branded mattress such as Darling (Thailand), Baland (USA), Julei and Shengyu (China).

Currently, the company employs 180 employees. During last three years, sales are going up 30% annually. But in the last year, sales are going down because most hotel projects established in the previous U Thein Sein government have been completed and investment is less in Naypyitaw in the new government regime. Yangon has been the main market with 7 million people after that Mandalay is the second important market with 2 million. The marketing team is now more emphasize on business to consumers rather than business to business market.

Own brand relatively low end mattresses are manufactured at the factory. The factory is located in the suburb of Mandalay and it has 38 production workers. Locally produced mattresses are accounted for 80 to 90 percent of total. The remaining is imported from China and Thailand. In term of price, domestic production is more competitive due to transportation cost and custom duty of imported products but there is a market for those with high price and higher quality products as well.

Most of the workers in the factory are graduated from middle or high schools. Two graduated from universities. The factory manager is an engineer and he is supported by two technicians. Their educational backgrounds are high school level, but generally they do not attend specific technical courses. But they have 8 year working experiences in another mattress factory after high school. The company has four technicians in Mandalay and totally eight technicians in the whole Myanmar. Operators and technicians have on the job training only. Salaries are determined by the level of

experience. Regular working hour per day is 8 hours (8-17 including 12-13 lunch times). High season is from December to April. During the high season, overtime is used.

#### **(6) New Diamond Ice Factory**

The company is located on Kannar Street, between 22nd and 26th street. The firm was started in 2010. The owner is a B.D.S graduate. He is also Chinese ethnic. The ownership of the company is wholly owned private company like other cases. Total number of permanent employees is 12 so that it is a small one relative to other company cases. Turnover of last financial year was increased about 42% and compared to last three year, was increase about 40%. Last year profit of the company is 40,000 thousands Myanmar kyat which is about 38,000 USD.

The main product of the factory is ice. Its major customers are businesses which use ice for their products like fish markets, cold drink shops and many others. The company distributes its product only in Mandalay by truck. Status of cooperation with customers is generally good. As an ice manufacturer, electricity is major supply for the company. Regular supply available of electricity is the major challenge for the firm so that it relies on electricity supply distributed by the government. The firm is not a member of any industrial association.

The firm's competitiveness is on average relative to its rivals. For external constraints, the firm is facing inadequate infrastructure (usually regular voltage power supply), high cost of infrastructure, high regulations, higher tax rates and tight competition. The firm considers AEC will have positive impact on the firm by improving infrastructure and enlarging market size.

The business is facing a lot of internal challenges as well. These include a need of improvement in machineries and equipment, quality management and cost control, delivery management, HR relation, skill development and financial assistance. The firm made new investments recently to extend the factory. The firm is not a member of any industrial association. It obtained technical advice in local private sector and in the future it has plans to improve its technology through the assistance from private sector.

In terms of human resources, the firm employs 12 persons among them 10 are production workers, 1 technician and 1 manager. Out of production workers, 3 are skilled and the remaining is unskilled. Turnover rate is about 40% and average tenure of employees is 3 years. The firm recruits its employees through referral of existing workers. The firm does not provide formal training to workers and it does not have concrete plan to provide formal training in the future as well.

### **(7) Shwe Myanmar Tea Leaf Factory**

Shwe Myanmar Tea Leaf Factory is located on the corner of 22nd and 89th street, Mandalay. The firm was founded in 2005. The owner is a Shan/Chinese ethnic and he is now in the age of mid-30. He is a B.S.C graduate. The ownership of the firm is a wholly-owned private. The firm is currently employs 28 persons and the number is increased from 18 persons in the last three year. Turnover of the last year is increased by 4 % relative to the previous year. But in generally, the firm can increase its turnover up to 64% relative to last past three years. Last year production volume is 242 tons of tea leaf which is 20 % increasing from last three years. Profit of last year is reported 50,000,000 Myanmar kyat, which is also 20 % increase from last three year.

The products of the factory are tea and coffee of which tea represents 97% and coffee represents 3% of the total production. The major production steps are drying and fore cutting. The main production machine is dryer that makes tea leaf to be dry. The major customers are local consumers and the products are distributed to them through wholesale and retail channels. The products are transported by using truck to all over the country.

Major suppliers are local farmers who grow tea tree in Shan State. Tea leaf is collected through purchasing centers which are located in tea growing areas of Shan State. Status of cooperation with suppliers is generally good. The firm is not yet a member of any associations.

The firm ranks itself as on average to its domestic competitors in term of competitiveness. It may be possible to compete in the region in the future. The firm is facing many

external-related problems in its operation which include competition in the country, high taxes, duties and other fees, inadequate infrastructure (power supply) and high regulation. The firm thinks AEC may have positive effect on the firm by means of expanding market.

In term of internal aspects, the firm is also facing many constraints such as lack of product development, machinery and equipment development, cost and delivery management, labor relation, skill development, finance and others. Despite these, the firm makes a new investment recently to extend the factory and to upgrade production method. The firm intends to get international recognized quality certificates for its products in the future. The firm has no internal lab and it attempts to improve its quality with the help of foreign technical assistances.

Out of its employees, 7 are production workers of which 2 are skilled remaining are unskilled. There are 2 managers 1 technician and 10 non-production workers who are working at marketing, finance personnel and office staff. The owner thinks the educational level of workers is not sufficient to expand the business. But staffs are loyal to the firm as turnover rate is just 3%. Average year of employees with the firm is 7.5. The firm uses internal recruitment for vacant position by evaluating skill and educational level of employees.

Training to the employees is mostly on the job. Training is more emphasized to production workers to improve their skill and quality of the product. In the future, there is a plan to provide training to the managers and other personnel.

#### **(8) Moe Ma Kha Paper Factory**

This factory was founded in 1979. The present owner is the third generation of the founder his grandfather. He joined the business since 10 years ago. The factory utilizes local machines and raw materials only. Machines were purchased from firms in Yangon and Mandalay. When having trouble, technicians come from Yangon. His grandfather was a technician and fixed machines as much as possible. Current owner is also able to repair machines based on long term experiences.



Difference in locally produced quality and imported quality is only one size of the page smooth available for the former while both sides smooth of the page available for the latter. Therefore, locally produced paper cannot be used for computer print.

Market is only upper Myanmar region. White paper is produced for the office used. One unit involves 50 sheets of paper. Products are sold to many numbers of wholesalers. These are finally used for note books for the schools. Students from low income households are the main market of the firm. About 60% of students are using this type of note books low quality but low price compared to note books used with high quality imported papers. The price of a note book is 250 kyats but at the small shops customers are sold at higher price, 350 kyats per book.

Shipments to wholesalers are handled by this firm directly, with cars of their own or trains. In terms of payments, need to wait for one week to one month along with credit systems. Total sales are averagely 10 lakh kyats per day.

Current number of employees is 25. Many are middle school with 7-8 standards. Retirement age is not available for private sector. Employees continue working. Only 3% have worked for more than 10 years. The firm is having difficulties in recruiting new employees because the firm cannot pay competitive wages with outside market. More wage and more opportunities are available outside while business opportunity is not very good. New recruits come from the area near Mandalay such as Meiktila.

Basic salary is 1 lakh per month. But actually it can be reached at 3 lakh per month with considering that all meals and accommodations are free. Wives can stay here in dormitory free with TV and fridge. 15 motorcycles are provided for transportation. The firm provides incentives for employees working for long years. If they are skilled and have continued working there for more than 10 years, they are provided home and bank account. After another 10 year service, 5 lakh deposit and interest will go to employees. Electricity is the problem but the firm solves this issue by having a generator.

The firm's owner has desire to produce better quality products but no sufficient

technology. The other problem is finance. They have to rely on own capital basically, because government loan is hard to obtain and in the case of no previous experience of running a business, interest rate is very high. Government SME loan program is only for medium enterprises not for smaller business. Therefore only 10% of SMEs is to be provided. Financial statement is also required.

Private bank procedure is more complex. Collateral is necessary but usually land is not under an entrepreneur's name as the first owner, but as the second owner. For industrial zone land property, it cannot be changed the name of the owner. According to land law, land is belonging of the state and the private landowner only has the right to hire land from the state for 60 years only to use it. After 60 years over, the owner can apply for another 60 year extension.

#### **(9) Win Hlaing Heavy Machine General Services**

The firm was started in 1994 as providing repair services for heavy machines and construction machines in particular. The firm has 14 employees who have spent 4 to 5 years working with the firms. They are middle school graduates and started working after quitting from the school but going to external technical schools during holidays and days off in order to develop their skill more. Due to the minimum wages law of 3,600 kyats minimum per day, their wages increase. So they need to raise productivity.

Annual sales of the business is achieved nearly 50 million kyat. Major customers are construction businesses. Some competitors are small and there are two big competitors while this firm is one of the oldest in this industry.

From 1995, there has been highway development projects started in Mandalay region. The firm won a contract to maintain 80 bulldozers. Komatsu is a new business that offers for maintenance works. The firm expects more transactions with Komatsu in the future. The other new business is maintenance of aluminum tanks imported from Japan that need to use MIG welding.

For external constraints, finance is difficult to obtain from banks or governments

especially because collateral is required to access bank loan. Therefore, owner's money solely has to utilize for the business.

For repair works, some parts are hard to obtain locally. So, these need to be imported mainly from China. Back in 1995, mainly Japanese ones were imported because quality of domestic and Chinese parts is not good enough and not stable in quality. There are no direct transactions with foreign firms. Transactions have done through trading companies.

The owner is dealing with customer relations. After having the orders from customer, he informs specifications to his team. Employees have learning opportunities basically through on-the-job training. The owner makes efforts in learning from his network. He learned suspension system for vehicles. He was also selected for the scholarship among MJC trainees in 2016.

## 7. Conclusion

Mandalay is the second largest city, the second populated and industrialized city of Myanmar. But it is still far behind in term of business literacy, international economic relationship and infrastructure readiness compared to Yangon. But Mandalay has a good potential to manufacturing sector development in the light of its strategic location, geographically and culture close to China, abundant of nature resources, availability of cheap workers and unexploited land resources. Due to improved infrastructures including Tada-U international airport located in 35 Kilometers away from Mandalay and Myotha Industrial zone, the potential of Mandalay as a manufacturing site increased. For industries that target to export to China, Mandalay is an appropriate production sites because it has a large portion of Chinese community in business and easily access to Chinese border through Muse. But Mandalay has many external constraints to become industrial hubs of Myanmar infrastructure particularly in electricity, land and financial aspects that need to be tackled urgently and fundamentally. For internal constraints, finance is found as a major problem for business to expand.

Technology, skill development, machines and equipment are found as also important internal barriers for the firms.

Despite these, there have important opportunities for some industries including agricultural food processing, ICT and electronic component parts manufacturing and textile industries. By using locally abundant resources of agricultural produces and labor force coupled with money and technology brought by foreign investors, these industries have huge opportunities for growth.

All case firms in the study target to local market and customers and struggle for survival even they do not expose yet directly with foreign competition. Some of them have potential to compete in the region but most of them think they can only compete in the local. Their machines and technology used generally outdated and training for skill development of human resources in the firm is limited. Almost all of them cannot compete internationally and also have limited ability to be suppliers of international companies particularly for export oriented ones. However, they can be good partners for foreign investors who want to target the local market because they know very well how to adapt to local market needs and culture as in the cases of Good Brother Farm Machineries and Seinn and Mya mattress factory.

To be qualified local firms in Mandalay as suppliers to international companies and to become Mandalay as an attractive manufacturing site for foreign firms, a number of positive measures need to be implemented. This inevitably takes some time to achieve. For macro level interventions, foresighted and consistent policies, political will, money and time investment and patience are necessary along the way. Out of them, land issue need to handle first because unclear ownership of land and land use right are serious barriers for investors even more than the issue of high land price. The regular and reliable supply of electricity is also the next important factor to be tackled. Improvement in road, rail and port infrastructure and clear policy and rules of regional government to promote foreign investment is the third most important intervention to be done.

For the firm level, the quality of the present firm outputs is not able to meet international

standard even though they can satisfy the local demand to some extent. Therefore, the standard and conformance to the quality is top priority for the local firms. To improve quality standard, there are many measures need to be done at the firm level including upgrading technology and machineries, upgrading skill level of local workers, improving management and accounting system of the firms to able to follow international practices. In addition, the delivery management is needed to improve in order to deliver goods to the customer in time. But with the technology and financial support of international companies, local firms has potential to quickly build these required capability and are able to achieve win-win situation for local and international firms.

## References

1. Abe, Masato (2014), "Growing Through Manufacturing: Myanmar's Industrial Transformation", ARTNeT Working Paper Series No. 145, July 2014, Bangkok, ESCAP.
2. Amine, M. and R.Stockmann (2015), "SME Survey Myanmar 2015", DEval Baseline Study, German Institute for Development Evaluation (DEval), Bonn.
3. Claudia Pompa and Jared Bissinger (2014), "The Mandalay Region Chamber of Commerce and Industry", Oversea Development Institute. UK.
4. Hla Myo (2014), "Mandalay, Myanmar", Mandalay City Development Committee.
5. MMRD (2015), "Mandalay Investment Opportunity Survey Report", Study Planned by MIC and JICA.
6. The New Light of Myanmar, "Secretary-1 meets industrialists at Mandalay Industrial Zone" Tuesday, 14 September 2004, Volume XII, Number 151.
7. UNDP Myanmar (2014), "The State of Local Governance Trend in Mandalay", Upper Myanmar.
8. Zaw. Myinmo and Toshihiro KUDO (2011), "A Study on Economic Corridors and Industrial Zones, Ports and Metropolitan and Alternative Roads in Myanmar," In Intra and Inter-City Connectivity in Mekong Region, edited by Masami Ishida, BRC Research Report No.6, Bangkok Research Center, IDE-JETRO, Bangkok, Thailand.

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- <sup>1</sup> In 2014-15 Fiscal Year, the amount of citizen investment in Yangon region is 649,965.22 million kyat which may compare with that of Mandalay region 32,954.68 million kyat. In the same year, Yangon region receives foreign investment 3,766.65 USD million while Mandalay region receives 666.54 USD million (DICA).
  - <sup>2</sup> Interview with U Maung Aye, Vice Chairman of Mandalay Industrial Zone Management Committee (8.9.2016)
  - <sup>3</sup> Mandalay City Development Council (MCDC) focuses to solve water discharging and treatment management system in Mandalay city with the assistance of JICA worth USD 20 million. MCDC also partners with Hydrotek Public Company for waste water treatment plant and collection system (MMRD 2015).
  - <sup>4</sup> Current 16 investors actively involved in ICT related sector development in Yadanapon City and the MCC Training Institute has opened graduate courses to produce computer technicians that currently needed for development of ICT industry.